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**4/4/2020**

# **Accident Prevention Plan/ Activity Hazard Analysis**

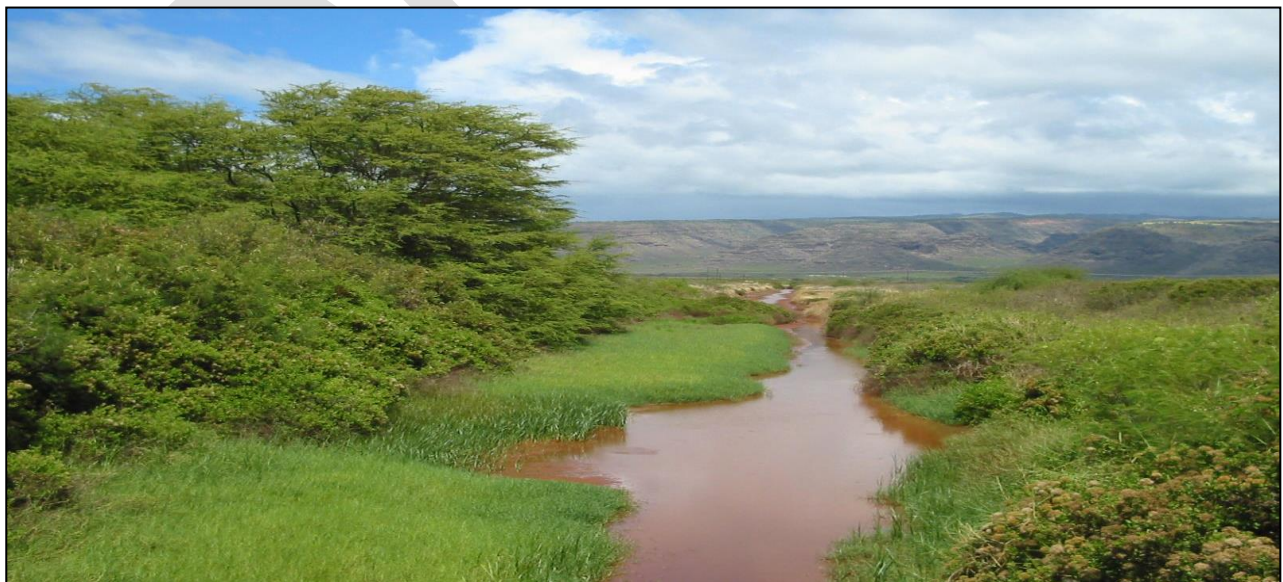
Operation and Maintenance of  
Drainage Canals and Pumps at  
**Pacific Missile Range Facility**  
Kauai, Hawaii

**Agribusiness Development Corp.**

**State of Hawaii**

235 South Beretania Street, Room 205

Honolulu, HI 96813



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## **ACRONYMS AND ABBREVIATIONS**

ADC	Agribusiness Development Corporation, Department of Agriculture
AHA	Activity Hazard Analysis form
ANSI	American National Standards Institute
APP	Accident Prevention Plan
CFR	Code of Federal Regulations
CPR	Cardiopulmonary resuscitation
CSIR	Contractor Significant Incident Report
dB(A)	Decibel A weighted
DOT	Department of Transportation
FM	Factory Mutual
GFCI	Ground fault circuit interrupter
HAZCOM	Hazard communication, 29 CFR 1910.1200
HAZWOPER	Hazardous Waste Operations and Emergency Response, 29 CFR 1910.120
HR	Heart rate
kV	Kilovolt
msl	Mean sea level
SDS	Safety Data Sheet
MSHA	Mine Safety and Health Administration, US Dept of Labor
Navy	United States Navy
NIOSH	National Institute for Occupational Safety and Health, Centers for Disease Control & Prevention
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration, US Dept. of Labor
PAR	Performance Assessment Representative
PFD	personal floatation device
PMRF	Pacific Missile Range Facility
QA/QC	quality assurance/quality control
SOP	Standard Operating Procedure
SSHO	Site Safety and Health Officer
UIAGM	International Federation of Mountain Guides
UL	Underwriters Laboratories

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## 1.0 Signature Sheet

This site-specific APP has been written for use by ADC only. ADC claims no responsibility for its use by others unless that use has been specified and defined in project or contract documents. The plan is written for the specific site conditions, purposes, dates, and personnel specified and must be amended if those conditions change.

### 1.1 Original Plan

**Prepared By:** Chun K "Archie" Yu **Date:**

Phone: 808-383-5511

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Cheung "Archie" Yu, Site Safety and Health Officer

**Reviewed By:** Lynn M. Y. Owan **Date:**

Phone: 808-586-0187

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Lynn M. Y. Owan, ADC Administrative Services Officer (Project Coordinator)

**Approved By:** James J. Nakatani **Date:**

Phone: 808-586-0186

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James J. Nakatani, Executive Director, ADC (Program Manager)

## 1.2 Revisions

**Revisions Made By:**

**Date:**

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**Revisions to Plan:**

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**Revisions Approved By:**

**Date:**

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## 2.0 Background Information

This Accident Prevention Plan (APP) will be maintained at the site during field activities and will be reviewed by field personnel as necessary. The APP will be amended or revised as project activities or conditions change, or when supplemental information becomes available. This APP adopts procedures in the Project Maintenance Plan. The Site Safety and Health Officer (SSHO) is to be familiar with these standard operating procedures (SOPs) and the contents of this plan. All project team members and subcontractors must sign the Employee Signoff Form in Attachment 1 of this APP.

Project Information and Description

**CONTRACTOR:** ADC

**PROJECT NO:** Contract No. N62478-20-D-2405

**CLIENT:** Pacific Missile Range Facility (PMRF)

**PROJECT/SITE NAME:** Operation and Maintenance of Drainage Canals and Pumps at PMRF, Kauai, Hawai'i.

**SITE ADDRESS:** Highway 50, Kekaha, Hawai'i 96752.

**ADC PROGRAM MANAGER:** James Nakatani

**ADC OFFICE:** 235 South Beretania Street, Room 235, Honolulu, Hawai'i 96813

**DATE ACCIDENT PREVENTION PLAN PREPARED:** December 4, 2013

**DATE(S) OF SITE WORK:** Year-round operation and maintenance.

**SITE ACCESS:** Restricted access (Military pass and ID required). Scheduled visits are approved by PMRF Public Works Office.

**SITE TOPOGRAPHY:** Generally flat with gentle grade to the Pacific Ocean.

**PREVAILING WEATHER:** Temperature averages a high and low of 80 to 70 degrees Fahrenheit. Precipitation ranges from 2 inches to 6 inches all year around. The subject area is located on the leeward, drier side of island. However, storms can deposit rain quickly causing flooding.

**SITE DESCRIPTION AND HISTORY.** Flooding has long been a problem in the Mana Plain located on the west side of the island of Kauai (Figure 2-1). An extensive network of interconnected drainage channels, ditches, and storage reservoirs, along with the cultivated fields themselves, serve to collect, store, and convey both irrigation and excess drainage water. In addition to lowering the groundwater level during dry weather, the pumping stations, drainage channels, and cultivated fields also played an important role in mitigation of flooding in the Mana Plain region. The PMRF (a/k/a Barking Sands) is a major United States Navy (Navy) testing and training range located along the western shoreline of the Mana Plain. The facility is bounded along the eastern boundary by the vast expanse of agricultural land.

Modern Hawai'i agriculture was traditionally large plantations of sugar cane or pineapple. Over 100 years ago, plantations on the west side of Kauai dewatered the wetlands of the Mana Plain to create additional farm land. They employed a series of ditches and pumps to

accomplish this. Until recently, this system was operated by the AMFAC plantation managers. With the demise of sugar (and AMFAC), the land reverted to the State of Hawai'i, Department of Land and Natural Resources (DLNR) and finally to ADC.

ADC is a State of Hawai'i agency, charged with helping farmers utilize former plantation lands. ADC, along with a co-op of farmers on the former plantation land, have continued to operate the system of pumps and ditches. It should be noted that the PMRF is located seaward of the former plantation land, and also benefits from the dewatering the pumps and ditches provide. After 11 September 2001 terrorist attacks, PMRF sought to increase a buffer area for its facility. As a result, the Navy entered into negotiations to take over the lease of a portion of land mountain-ward of the base. This land area includes the lower ditch system and pumping stations (Figure 2-2). The Navy has contracted ADC operate the system, with health and safety and quality assurance/quality control (QA/QC) requirements.

**CONTRACTOR ACCIDENT EXPERIENCE:** ADC will maintain an OSHA 300 Log and review safety onsite. Prior to the Navy contract, no accidents were reported to ADC at the PMRF Pump Stations sites.

**DESCRIPTION OF SPECIFIC TASKS TO BE PERFORMED:** The following is a general summary of project-specific tasks to be performed in support of this work effort:

- Vegetation control;
- Maintenance and repair of pumps and pumping stations;
- Maintenance and repair of power poles, transmission lines, and pole transformers; and,
- Maintenance of flap gates and a flood gate.
- Canal dredging

### **3.0 Statement of Safety and Health Policy**

Agribusiness Development Corporation (ADC) is committed to providing a safe and healthy workplace and to eliminating conditions and incidents that could result in personal injury or ill health. ADC requires all activities to conform to relevant state and federal occupational health regulations and established management practices. ADC's health and safety program includes training, maintenance of training records; and providing of all personnel with guidance on and training in the identification, assessment, and control of hazards in the workplace.

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## **4.0 Responsibilities and Lines of Authority**

### **4.1 Identification and Responsibilities**

The Program Manager is responsible for ensuring that ADC and subcontractor personnel are aware of appropriate health and safety procedures, and thus ensuring that projects are performed with the utmost regard for health and safety of all personnel involved. The appropriate project personnel will have received the required health and safety training. All project personnel have a responsibility for accident prevention by following the established safety procedures necessary to perform assigned work without injury. Violations, which endanger lives, health, or welfare, will not be tolerated.

The Program Manager is responsible for the following: Making decisions necessary for implementing and enforcing policies contained in this plan.

- Ensuring that all project personnel are aware of and comply with the provisions of the plan,
- Halting the project for non-compliance with the plan,
- Auditing for compliance with the policies and procedures detailed in this plan,
- Ensuring the training and re-training of personnel as necessary, and
- Ensuring that subcontractor personnel comply with this plan.

The day-to-day health and safety authority is delegated to the Site Safety and Health Officer (SSHO) or their designate. The SSHO's responsibilities include:

- Equipment inspections
- Monitoring weather conditions,
- Conduct of safety meetings and inspections,
- Proper notification of ADC and PMRF personnel,
- Response and investigation of accidents and injuries, and
- Authority to stop fieldwork if necessary.

SSHO will conduct monthly inspections of work and work sites for operation and maintenance work, and weekly inspections of work and work sites during canal dredging work.

The project personnel for the lines of responsibility are provided below:

<b>Employee Name</b>	<b>Office</b>	<b>Phone</b>	<b>Responsibility</b>
James Nakatani	Honolulu	(w) 808-586-0186	Program Manager
Lynn Owan	Honolulu	(c) 808-753-2485 (w) 808-586-0187	ADC Project Coordinator
Dan Lord	Kauai	(w) 808-332-8652 (c) 808-639-0742 (h) 808-332-5985	O&M Contractor
Brian Tuzon	Kauai	(c) 808-639-1772 (w) 808-332-8652	O&M Contractor's Competent Person
Archie Yu	Honolulu	(c) 808-383-5511	SSHO

The client contacts for PMRF relating to this project are presented below:

- Performance Assessment Representative (PAR) Contact Name: Steven Hironaka  
Phone: (808) 335-4628
  
- PMRF Public Works Department Contact Name: Scott Zenger  
Phone: (808) 335-4637
  
- PMRF Contact Name: John Hare  
Phone: (808) 335-4599

Cell phones will be used for emergency communications at the site. The SSHO is responsible for contacting the Program Manager in the event a health and safety issue arises. In general, the Program Manager will contact the client. The Program Manager is responsible for implementing the overall site strategy.

## 5.0 Subcontractors

Protection of the health and safety of subcontractor personnel (Lords Electric LLC) is provided by ensuring that individuals employed by the subcontractor are aware of potential risks and hazards associated with their assigned activities. Subcontractor personnel must also be properly trained, and comply with the appropriate requirements of this Site-Specific APP. Copies of this Site-Specific APP will be made available to subcontractor personnel.

Subcontractors may develop additional APPs and Activity Hazard Analysis forms (AHAs) for use on-site, as long as they receive approval from ADC and the Navy prior to implementation.

All subcontractor personnel involved in work activities on and adjacent to the site or operation must:

- Understand that the work is to be performed on a known operation and that protective clothing and respiratory protective devices may be required.
- Have been trained on the applicable sections of EM 385-1-1
- Agree to work under the direction of the ADC SSHO.
- Ensure that all safety equipment used by subcontractor personnel is NIOSH or Mine Safety and Health Administration (MSHA) approved, as appropriate, and is in working condition, as specified by the manufacturer.
- Ensure that all subcontractor respiratory and personnel protection programs that apply to the site or operation are in compliance with EM 385-1-1.

Subcontractors will be coordinated by ADC and will be inspected by ADC personnel or designate (e.g., contractually by the Program Manager, and SSHO) to ensure compliance with Health and Safety procedures and this plan.

## **6.0 Employee Medical Surveillance and Training**

This project does not involve tasks regulated by OSHA under 29 CFR 1910.120, HAZWOPER.

An SSHO (performing safety and occupational health management surveillance, inspections, and safety enforcement) shall be at the work site during operation and maintenance, at least once a month. During major repairs that are considered hazardous, requiring two or more persons onsite 8-hours per day, the SSHO will be onsite daily. During canal dredging work, the SSHO will be onsite weekly.

The SSHO shall meet the following requirements: A minimum of 10 years safety work of a progressive nature with at least 5 years of experience on similar projects. 30-hour OSHA construction safety class or equivalent within the last 5 years. An average of 24 hours of formal safety training each year for the past 5 years with training for competent person status for at least the following four areas of competency: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition; evaluation and control of chemical, physical, and biological agents; and personal protective equipment and clothing to include selection, use, and maintenance.

Field personnel shall be fully knowledgeable of all safety and environmental requirements associated with the work they perform. Personnel shall speak, read, and comprehend English to the extent that they can read warning signs and understand printed regulations, detailed written orders, operating procedures, and training and instruction materials.

When a medical facility or physician is not accessible within 5 minutes of an injury to a group of 2 or more employees for the treatment of injuries, at least two employees on each shift shall be qualified to administer first aid and CPR. Individuals who are required to work alone in remote areas shall be trained in first aid and provided an effective means of communication to call for assistance in the event of an emergency.

The SSHO or their designate will conduct onsite tailgate meetings at least once a month during operation and maintenance work and daily during dredging of canals, to ensure that all personnel working onsite have appropriate training, have reviewed this plan, and understand the safety precautions to be taken while completing the work tasks of the day. This information will be recorded on the daily tailgate form, presented in Attachment 2.0.

## **7.0 Safety and Health Inspections**

Internal health and safety inspection procedures will be instituted to ensure the highest possible quality of performance of its employees. The health and safety inspections are designed to evaluate site health and safety compliance and identify areas requiring improvements; inspections and follow-up/corrective actions will be documented in a logbook. Day-to-day type safety inspections will be conducted by the SSHO or a designate at least once a month during operation and maintenance work and daily during canal dredging work. Further compliance-type inspections will be conducted by the ADC Project Coordinator and/or Program Manager. In the event that non-compliance items are encountered by the SSHO, they will be corrected immediately and recorded on the daily tailgate log (so that they are also corrected/performed correctly the next day) and log book, and the Program Manager will be notified. In the event that a non-compliance item is significant (e.g., not having the correct equipment), the project will be shut down until the correction is made. A follow-up inspection will be made prior to work commencing. The results of all inspections will be forwarded to the Program Manager for review and action, if necessary.

## **8.0 Safety and Health Expectations, Incentive Programs and Compliance**

ADC is administratively attached to the Hawaii State Department of Agriculture (HDOA) and follows HDOA's Safety Policy and Program, which states that:

“The Department of Agriculture has the fundamental obligation to safeguard the health, safety and welfare of its employees; to conserve property and human resources; and to promote an attitude of safety consciousness throughout the Department.

Therefore, within the framework of the State's Safety Program, the policy of the Department of Agriculture is:

1. To develop in the entire working force a wholesome regard for safety in operations and for sanitary working conditions;
2. To encourage and promote safety consciousness among employees, supervisors, and administrators;
3. To provide training, counseling, and other activities that promote safety, develop safe working habits, and assure maximum competence;
4. To create and maintain safe working conditions;
5. To comply with all safety standards and requirements of Hawaii Occupational Safety and Health, and bargaining unit contracts.”

ADCs safety program goal is to have zero accidents, injuries and near-misses, and for each person working on an ADC project to use safe procedures all of the time. Personnel working on the ADC project should continue to strive to maintain this record. Non-compliance with safety provisions will be handled in the following manner:

Initial, non-significant violations will be given a warning with correct procedure information provided. This will be recorded in the field book. Second violations (non-significant) will be handled similarly, with the addition of re-training and a memo to the Program Manager. Third safety violations including significant incidents will include removal from the project with retraining and a memo to the Program Manager. Only with successfully demonstrated re-training, should a person be allowed back on the job site.

The primary responsibility for ensuring that safety and health procedures and policies are adhered to on ADC projects is assigned to the ADC Project Coordinator. The ADC Project Coordinator is responsible for ensuring the SSHO is implementing the appropriate safety and health procedures for the project. The SSHO is responsible for ensuring that personnel working on the project are utilizing the appropriate safety and health project procedures. Also, personnel working on the project must ensure that they adhere to proper safety procedures for the project, and work with managers to maintain or improve safety onsite.

## 9.0 Accident Reporting

In terms of accident reporting, the SSHO and/or their designate will complete the following:

- Upon any project incident (fire, spill, injury, near miss, death, etc.), immediately notify the ADC Program Manager.
- A Contractor Significant Incident Report (CSIR) needs to be completed for all OSHA recordable accidents; property damage is in excess of \$2,000, weight handling equipment (WHE) accidents, or near miss/high visibility mishaps. A copy of the CSIR and associated instructions is provided in Attachment 3.
- For ADC work-related injuries, or illnesses, contact the ADC Program Manager.
- For ADC subcontractor incidents, contact the ADC Project Coordinator.
- Notify and submit reports to PMRF as required in contract.

The CSIR is due to the Program Manager within 48 hours of occurrence.

## 10.0 Medical Support

Medical support is listed here, but can also be found in Section 12.1 Site Control Plan, under emergency response procedures. The procedures listed below may also be applied to non-emergency incidents. Injuries and illnesses must be reported to Program Manager. If there is doubt about whether medical treatment is necessary or if the injured person is reluctant to accept medical treatment, contact the ADC Project Coordinator. Follow these procedures as appropriate:

- Notify appropriate emergency response authorities.
- The SSHO will assume charge during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room. If the SSHO is not on site, then the O&M Contractor's Competent Person should assume charge until the ambulance arrives. The SSHO should be contacted in such cases.
- Prevent further injury.
- Trained personnel are encouraged, but not required, to render first aid and CPR.
- Get medical attention immediately.
- Perform decontamination where feasible; lifesaving and first aid or medical treatment take priority.
- Make certain that the injured person is accompanied to the emergency room.
- When contacting the medical consultant, state that the situation is an ADC matter, and give your name and telephone number, the name of the injured person, the extent of the injury or exposure, and the name and location of the medical facility where the injured person was taken.
- Report incident as outlined in Section 9.

## 11.0 Personal Protective Equipment (PPE)

Personal protective equipment selection for this project is based on information regarding potential hazards and chemicals of concern as described in Section 12 of this APP. The following tables list PPE that will be utilized during field activities and reasons for upgrading or downgrading level of protection, respectively.

<b>Table 11-1. PPE Specifications <sup>a</sup></b>				
<b>Task</b>	<b>Level</b>	<b>Items Required</b>	<b>Head<sup>b</sup></b>	<b>Floatation<sup>c</sup></b>
General site entry, and Operations and Maintenance	D	Work clothes; steel-toe, safety shoes; work glove.	Hard hat Safety glasses Ear Protection	Type III or IV USCG-approved vests will be worn on structures or equipment near or over water, when working alone or at night, and when a drowning hazard exists.

<sup>a</sup> Modifications are as indicated.

<sup>b</sup> Hard hat and safety glasses should be worn around heavy equipment and when there is a potential hazard for head and eye injury. Ear protection is worn when conversations can't be held at distances of 3 feet or less without shouting.

<sup>c</sup> Except where guardrails, personal fall protection system or safety nets are provided for employees.

<b>Table 11-2. Reasons for Upgrading or Downgrading Level of Protection</b>	
<b>Upgrade<sup>a</sup></b>	<b>Downgrade</b>
Request from individual performing tasks. Change in work tasks that will increase contact or potential contact with hazardous materials. Known or suspected presence of dermal hazards.	New information indicating that situation is less hazardous than originally thought. Change in site conditions or implementation of control measure that decreases risk of exposure and/or reduces the hazard. Change in work task that will reduce contact with hazardous materials.
<sup>a</sup> Performing a task that requires an upgrade to a higher level of protection is permitted only when the PPE requirements have been approved by the Program Manager, and an SSHO qualified at that level is present.	

**Limitations of PPE.** ADC and contractor personnel will adhere to manufacturers' recommendations regarding the use and limitations of the selected PPE, and the SSHO will be consulted if additional guidance is necessary to supplement the PPE program.

All PPE described in this APP will be worn when appropriate to the task at hand. It is anticipated for surveillance and O & M activities that the PPE will remain in the Level D (see PPE specifications above).

### **11.1 Evaluation of PPE**

It will be the SSHO's responsibility to monitor the site workers and site conditions by direct observations to assess the appropriateness and effectiveness of the PPE in use, based on manufacturers' specifications, and anticipated site conditions (historical analytical data and other background information). Site workers will be instructed to notify the SSHO if any site conditions change. The SSHO will assess any changes in condition and determine if the current PPE is adequate. If the SSHO determines that the current PPE is not adequate, field activities will be halted until such a time when upgraded PPE can be employed. PPE protection can only maintain its specific manufacturer's rating when in "good" operating condition. Cut, torn, overly soiled, broken, or defective PPE will be discarded and new PPE will be donned.

### **11.2 Decontamination**

This project does not involve tasks that require decontamination for personnel and/or equipment. Workers are encouraged to wash after work and dispose of trash appropriately to maintain safe and healthy working conditions.

## **12.0 Plans, Programs and Procedures Required**

### **12.1 Site-Control Plan**

The elements of the site control plan are presented below. These include Site-control procedures, pre-emergency planning, emergency equipment and supplies, incident response, emergency medical treatment, evacuation and a fire-fighting response plan. Emergency contacts are presented in Attachment 4.

#### **12.1.1 Site-Control Procedures**

The following procedures shall be followed when fieldwork is performed:

- The SSHO will conduct a site safety briefing (see below) before starting field activities, once a month or as tasks and site conditions change.
- Topics for briefing on-site safety: general discussion of the APP and the AHA applicable to the day's tasks, including site-specific hazards; locations of work zones, PPE requirements, equipment, special procedures, and emergencies.
- The SSHO will record attendance at safety briefings in a logbook and document the topics discussed.
- Post the OSHA job-site poster in a central and conspicuous location.
- Establish onsite communication consisting of the following:
  - line-of-sight and hand signals;
  - air horn; or
  - two-way radio or cellular telephone if available
- Establish offsite communication.
- Establish and maintain the "buddy system", where appropriate.
- The SSHO is to conduct periodic inspections of safety practices to determine the effectiveness of this plan. Deficiencies are to be noted, reported to the Program Manager, and corrected.

#### **12.1.2 Pre-Emergency Planning**

- The SSHO performs the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with ADC onsite personnel, the facility, and local emergency-service providers as appropriate.
- Review the facility emergency and contingency plans where applicable.
- Determine what onsite communication equipment is available (e.g., two-way radio, air horn). ADC will use cell phones for emergency communications at the site.
- Determine what offsite communication equipment is needed (e.g., nearest telephone, cell phone).
- Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to onsite personnel.

- Review changed site conditions, onsite operations, and personnel availability in relation to emergency response procedures.
- Where appropriate and acceptable to the client, inform emergency room and ambulance and emergency response teams of anticipated types of site emergencies.
- If appropriate, designate one vehicle as the emergency vehicle; place hospital directions and map inside; keep keys in vehicle during field activities.
- Inventory and check site emergency equipment, and supplies.
- Communicate emergency procedures for personnel injury, exposures, fires, explosions, and releases.
- Rehearse the emergency response plan procedures before site activities begin, including driving route to hospital.
- Brief new workers on the emergency response plan.
- The SSHO will evaluate emergency response actions and initiate appropriate follow-up actions.

### 12.1.3 Emergency Equipment and Supplies

**Table 12-1 Emergency Equipment and Supply Locations**

Emergency Equipment and Supplies	Location
20 lb (or two 10 lb) fire extinguisher (A, B, and C classes)	Support Area/Heavy Equipment
First aid kit	Support Area/Field Vehicle
Eye Wash (from contractors if necessary)	Support Area/Field Vehicle
Potable water (from contractors if necessary)	Support Area/Field Vehicle
Bloodborne pathogen kit (from contractors if necessary)	Support Area/Field Vehicle
Additional equipment as needed	Pump Stations/Field Office

<sup>a</sup> Support zone is the location of the first aid kit, plans, supplies, etc.

### 12.1.4 Incident Response

In fires, explosions, or chemical releases, actions to be taken include the following:

- Shut down ADC operations and evacuate the immediate work area.
- Notify appropriate response personnel.

- Account for personnel at the designated assembly area(s).
- Assess the need for site evacuation, and evacuate the site as warranted.
- Instead of implementing a work area evacuation, note that small fires or spills posing minimal safety or health hazards may be controlled.

### **12.1.5 Emergency Medical Treatment**

The procedures listed below may also be applied to non-emergency incidents. Injuries and illnesses must be reported to Program Manager. If there is doubt about whether medical treatment is necessary or if the injured person is reluctant to accept medical treatment, contact the ADC Program Manager. Follow these procedures as appropriate:

- Notify appropriate emergency response authorities.
- The SSHO will assume charge during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room. (See Section 10 comments)
- Prevent further injury.
- Trained personnel are encouraged, but not required, to render first aid and CPR if necessary.
- Get medical attention immediately.
- Perform decontamination where feasible; lifesaving and first aid or medical treatment take priority.
- Make certain that the injured person is accompanied to the emergency room.
- When contacting the medical consultant, state that the situation is an ADC matter, and give your name and telephone number, the name of the injured person, the extent of the injury or exposure, and the name and location of the medical facility where the injured person was taken.
- Report incident as outlined in Section 9.

### **12.1.6 Evacuation**

- Evacuation routes and assembly areas (and alternative routes and assembly areas) are specified on the site map.
- Evacuation route(s) and assembly area(s) will be designated by the SSHO before work begins.
- Personnel will assemble at the assembly area(s) upon hearing the emergency signal for evacuation.
- The SSHO and a "buddy" will remain on the site after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- The SSHO will account for all personnel in the onsite assembly area.
- A designated person will account for personnel at alternate assembly area(s).

- The SSHO will write up the incident report as soon as possible after it occurs and submit a report to the Program Manager.

**Table 12-2 Evacuation Signals**

<b>Signal</b>	<b>Meaning</b>
Grasping throat with hand	Emergency-help me.
Thumbs up	OK; understood.
Grasping buddy's wrist	Leave area now.
Continuous sounding of horn	Emergency; leave site now.

### **12.1.7 Firefighting Response Plan**

In the event of an explosion or fire on the site, the SSHO should take the following minimum actions:

- Evacuate all unnecessary personnel to the pre-arranged emergency assembly point.
- Request emergency response assistance from the fire department, hospitals, poison control centers, and any other emergency service that may be necessary.

Notify the ADC Program Manager.

### **12.2 Description of Tasks**

The following is a general summary of project-specific tasks to be performed in support of this work effort:

- Vegetation control;
- Maintenance and repair of pumps and pumping stations;
- Maintenance of canals, culverts, and embankments;
- Clearing (dredging) of canals and culverts;
- Maintenance and repair of power poles, transmission lines, and pole transformers;  
and
- Maintenance of flap gates and flood gate.

The Activity Hazard Analysis Forms for these tasks are presented in Attachment 5.

This project does not involve tasks regulated by the Occupational Safety and Health Administration (OSHA) under 29 Code of Federal Regulations (CFR) 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER). A general description of operation and maintenance (O&M) tasks is provided below. A hazard analysis (Section 12.3)

has been performed for each task and is incorporated in this plan through task-specific hazard controls and requirements for monitoring and protection. Tasks other than those listed above require an approved amendment or revision to this plan before tasks begin.

**Vegetation Control.** Vegetation control is to ensure protection against contact with electrical power lines, and to assure good housekeeping at the pump stations. Compliance with all Federal, State, or local regulations is required if chemicals are used to control vegetation.

**Operation, Maintenance and Repair of Pumps and Pumping Station.** A total of three pump at Kawaiele pumping station operate as necessary to lower the level of water at their respective wet wells to a minimum of -2.0 feet mean sea level (msl). All infrastructure that supports the pumps at the pumping station shall be maintained.

**Maintenance and Repair of Power Poles, Transmission Lines, and Pole Transformers.** The electrical power lines will be maintained such that there shall be no loss of power to the pump station. The maintenance of the power poles will include pole transformers, guy wires, cross arms, and insulators and any other related items that made the power transmission possible. This would include any tree trimming to avoid contact with the power lines. No major repair work is required other than periodic preventive maintenance.

**Maintenance of Flood Gates.** The Dry Ditch and Kinikini Ditch flap gates and the flood gate shall be maintained and operational at all times.

### 12.3 Task Hazard Analysis

The following table lists potential hazards and the associated tasks related to this project. A mark (X) indicates that the particular hazard for that task could be encountered during the field work.

**Table 12-3 Task Hazards Analysis**

TASK HAZARD	OPERATION, MAINTENANCE, AND REPAIR ACTIVITIES					VEGETATION CONTROL	DREDGING
	ROADS	PUMPS & PUMP STATION	POWER POLES, TRANSMISSION LINES, AND POLE TRANSFORMERS	CANALS, CULVERTS, AND EMBANKMENTS	FLOOD GATES		
<b>NOISE</b>	X	X		X		X	X
<b>SUSPENDED LOADS</b>		X					X
<b>FALLING DEBRIS/OBJECTS</b>			X	X		X	
<b>ELECTRICAL</b>		X	X		X		
<b>BURIED UTILITIES, ETC.</b>	X						
<b>SLIP, TRIP, FALL</b>	X	X	X	X	X	X	X
<b>BACK INJURY (MANUAL LIFTING)</b>	X	X		X	X	X	X
<b>CRANES AND HOISTING</b>		X					
<b>CHAIN SAW / CHIPPER OPERATION</b>				X		X	
<b>CONFINED SPACE ENTRY</b>							
<b>TRENCHES/EXCAVATION</b>				X			X
<b>TREE TRIMMING AND PRUNING</b>						X	
<b>ELEVATED WORK AREAS/FALLS</b>		X	X		X	X	
<b>HEAT STRESS</b>	X	X	X	X	X	X	X
<b>BIOLOGICAL HAZARDS</b>	X	X	X	X	X	X	X
<b>HEAVY EQUIPMENT</b>	X	X	X	X			X
<b>HAND AND POWER TOOLS</b>	X	X		X	X		
<b>VEHICLE TRAFFIC</b>	X		X				
<b>DROWNING HAZARDS (WORKING NEAR WATER)</b>		X		X	X		X
<b>WORKING AT NIGHT</b>							
<b>WELDING AND CUTTING</b>		X					
<b>CHEMICAL HAZARDS</b>		X	X			X	
<b>RESPIRATORY HAZARDS</b>							

## **12.4 Hazard Identification and Control Measures**

This section provides safe work practices and control measures used to reduce or eliminate potential hazards. These practices and controls are to be implemented by the party in control of either the site or the particular hazard. ADC staff and subcontractors must remain aware of the hazards affecting them regardless of who is responsible for controlling the hazards. ADC staff and subcontractors who do not understand these provisions should contact the SSHO for clarification.

### **12.4.1 Project-Specific Hazards**

The work to be performed for this project requires execution of activities that have specific hazards associated with the tasks. These project-specific hazards and control measures are presented below.

#### **12.4.1.1 Noise**

Noise can interfere with normal communication between personnel and may startle or distract personnel. Noise can also result in physical damage to the ear that may cause pain and temporary or permanent hearing loss.

There are three general classes of noise that are typically associated with site operation, maintenance and repair activities: continuous noise, intermittent noise, and impact-type noise. Continuous noise is heard when a truck or backhoe is running; intermittent noise occurs when compressors or other equipment are in use; and an impact-type noise is produced by equipment such as percussion hammers and driving tools, as well as by aircraft (e.g., sonic boom) and detonations and explosions (e.g., artillery, ordnance). Noise varies in intensity and is measured in decibels (dBA). Prolonged exposure to noise above 85 dBA from heavy equipment can cause hearing loss characterized by the inability to hear certain sounds.

Ear plugs or ear muffs will be issued by the contractors and must be worn when personnel are required to work around heavy machinery and impact tools. Hearing protection must comply with OSHA 29 CFR 1910.95.

#### **12.4.1.2 Suspended Loads**

A backhoe may be used during dredging activities (see Section 12.4.1.11) and a crane may be used in support of pump repair or replacement (see Section 12.4.1.8); presenting overhead and suspended load hazards. The following control measures shall be implemented when equipment is in operation:

- All personnel shall wear an American National Standards Institute (ANSI) Z89.1-1986 or OSHA 29 CFR 1910.135-compliant hard hat at all times.
- All personnel shall exercise extreme caution when equipment is in operation, such as keeping a safe distance from the equipment.
- Personnel shall take measures to be visible to machine operator at all times when equipment is in operation and to maintain eye contact with the operator. Personnel shall not turn their back on the operating equipment

### 12.4.1.3 Falling Debris/Objects

All personnel shall don ANSI-compliant hardhats and safety glasses to protect the head and eyes from potential airborne debris/objects during tree trimming and pole and transmission line inspection/repair activities.

### 12.4.1.4 Electrical Hazards

Operation, maintenance, and repair activities will include work associated with operating pumps, pump station and flood gate controls, and inspection and periodic preventive maintenance of power poles, transmission lines, and pole transformers. The following precautions shall be observed when operating or maintaining electrical equipment.

- Only properly trained and qualified personnel will be permitted to work on unprotected energized electrical systems.
- Only authorized personnel will be permitted to enter high-voltage areas.
- Workers shall not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lock-out/tag-out testing procedures are implemented.
- Workers shall inspect electrical equipment, power tools, and extension cords for damage prior to use. Workers shall not use defective electrical equipment. If found to be defective, electrical equipment will be removed from service.
- All temporary wiring, including extension cords and electrical power tools, will have ground fault circuit interrupters (GFCIs) installed.
- Extension cords will be:
  - equipped with third-wire grounding;
  - covered, elevated, or protected from damage when passing through work areas;
  - protected from pinching if routed through doorways; and
  - not fastened with staples, hung from nails, or suspended with wire.
- Electrical power tools and equipment will be effectively grounded or double-insulated and Underwriters Laboratories (UL) or Factory Mutual (FM) listed.
- Workers shall operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Workers shall maintain safe clearance distances between overhead power lines and any electrical conducting material unless the power lines have been de-energized and grounded, or where insulating barriers have been installed to prevent physical contact. Maintain at least 10 feet of distance from overhead power lines for voltages of 50 kilovolts (kV) or less, and 10 feet plus 1 inch for every 1 kV over 50 kV.
- Temporary lights shall not be suspended by their electric cord unless designed for suspension. Lights shall be protected from accidental contact or breakage.
- **Workers shall protect all electrical equipment, tools, switches, and outlets from environmental elements.**

The requirements of this section are to be followed by ADC or contractor employees who may be involved with or in close proximity to equipment requiring lockout/tagout for maintenance.

- Only authorized personnel may lockout or tagout machines or equipment in order to perform service or maintenance on that machine or equipment.
- Only qualified personnel may work on energized equipment that is not being controlled by lockout/tagout procedures.
- Standard lockout/tagout procedures include the following six steps: (1) notify all personnel in the affected area of the lockout/tagout; (2) shut down the equipment using normal operating controls; (3) isolate all energy sources; (4) apply an individual lock and/or tag to each energy isolating device; (5) relieve or restrain all potentially hazardous stored or residual energy; and (6) verify (test or try) that isolation and de-energization of the equipment has been accomplished. Once verified that the equipment is at the zero-energy state, work may begin. See attachment 10 for Equipment Lockout/Tagout Procedure.
- All safe guards must be put back in place when lockout/tagout is completed and all affected personnel must be notified that locks and tags have been removed.
- Controls shall be positioned in the safe mode prior to lockout/tagout removal.
- Only the individual who applied the lock and tag may remove them.
- Lockout is a more reliable means of de-energizing equipment than tagout and should always be the preferred method. Except for limited situations, the use of lockout devices will provide a more secure and effective means of protecting employees from the unexpected release of hazardous energy or startup of equipment.
- Use of master or duplicate keys with locking devices shall be prohibited.
- For unusual circumstances when authorized employees cannot be located to remove lockout/tagout devices, that employee has to be notified, then the lockout/tagout device may be removed by the supervisor.
- Hazardous energy control must be coordinated among work groups when multiple employers are involved in large projects. Each authorized employee provides his or her own lockout/tagout device on a hasp.

#### **12.4.1.5 Buried Utilities**

Buried utilities may be present, and may include electrical, water, sewer, cable, gas, and others. Prior to commencing any excavation, including dredging, the PMRF Public Works Department must be notified. Coordination must occur to ensure that the area is clear of all buried utilities.

#### **12.4.1.6 Slip, Trip, and Fall Hazards**

Falls as a result of slipping or tripping are generally the most common form of injury on project sites. These injuries typically are a result of poor housekeeping, lack of attention to detail, or simple carelessness. For this project, personnel may be working outdoors during wet conditions and in the vicinity of embankments, culverts, canals, as well as on platforms

and overhanging gangways. Personnel shall take precautions when working in areas where slip, trip, and fall hazards exist by watching their footing and being aware of their surroundings at all times.

Work areas shall be kept clear of trash, debris, and hand tools that are not in use; and personnel shall inform one another of any significant terrain hazards (e.g., ledges, sink holes, pits) in the immediate work area. Such hazards shall be marked as necessary with a traffic cone, CAUTION tape, or similar warning to avoid slips, trips, and falls.

#### **12.4.1.7 Back Injury**

Personnel will plan storage and staging of equipment and materials to minimize lifting and carrying distances. Personnel should use their best personal judgment in determining loads that they can lift safely. In general, individuals should not attempt to lift loads of 50 pounds or more without the assistance of another individual or appropriate lifting equipment (e.g., platform hydraulic lift, forklift). When possible, loads should be lifted with two hands, without rotation of the trunk, using the leg muscles (not back muscles) for elevation. Loads should also be lifted so that the center of mass is stable during the initiation and throughout the duration of the lift. Floor or ground surfaces should be in good condition (i.e., clear of obstacles, level, dry). During times of heavy or prolonged lifting, personnel and supervisors should increase rest duration and frequency as necessary to reduce injury potential.

Repetitive lifting increases the potential for injury. Ambient temperature should also be considered if lifting requires repetitive motion.

As mentioned earlier, field personnel should use their own judgment when lifting heavy objects as dexterity and muscle conditioning varies between individuals. The following recommendations should be considered when lifting or preparing to lift a heavy load:

- Split heavy loads into smaller loads, and reduce the size of individual loads.
- Bring the load close to the body.
- Remove any horizontal barriers.
- Avoid lifts near the floor or ground surface.
- If loads near the floor or ground surface cannot be avoided, the load should fit easily between the legs.
- Raise/lower the origin/destination of the lift.
- Reduce trunk rotation by rotating the feet.
- Reduce the lifting frequency and duration.
- Provide longer recovery periods.
- Provide new containers with adequate handles.
- Eliminate the need for lifting by redesigning or modifying the container characteristics.
- Use mechanical lifting aids whenever possible.
- Have someone assist with the lift -- especially for heavy or awkward loads.
- Make sure the path of travel is clear prior to the lift.

### **12.4.1.8 Cranes and Hoisting**

Pump repair or pump replacement may require use of a crane. The following precautions shall be observed when involved with, or in close proximity to crane, hoisting, and rigging operations:

- Cranes shall only be operated by certified crane operators who meet the physical qualifications described in ANSI B30.5 Section 5-3.1.2. A Certificate of Compliance for each crane entering an activity is required to ensure the crane and rigging meet applicable OSHA regulations. This includes certification that the crane operator is qualified and trained in operation of the crane to be used.
- Cranes shall have a current annual inspection (within the last 12 months) that includes load test certification meeting all state and federal safety standards. Crane operations manuals and load charts specific to each crane shall be on site and accessible.
- Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, shall be barricaded in such a manner as to prevent an employee from being struck or crushed by the crane.
- A competent person shall inspect cranes daily to ensure that they are in safe operating condition.
- All parties involved in that day's crane operation shall conduct a prelift meeting.
- Cranes are designed for vertical lifts only and should only be used for that purpose. Attempting to pull objects along the ground from side to side, toward, or away from the crane may result in crane failure.
- Never allow any part of the crane to come within 10 feet of overhead electrical power lines rated at 50 kV or less. For lines over 50 kV, increase clearance distance by 4 inches for every 10 kV over 50 kV.
- All personnel in the vicinity of the crane should make eye contact with the operator prior to passing through or near crane operations so as to make the operator aware of their presence.
- Only one person shall signal the crane operator. This person shall be thoroughly familiar with all of the crane's operation and shall be able to communicate with the crane operator with the appropriate hand signals.
- Cranes shall not swing booms or loads over live roadways, railways, industrial processes, or occupied buildings.
- No personnel shall be permitted on or under a load lifted by crane or hoist at any time.
- Crane operators shall sound an alarm or horn blast when the load is about to be lifted.
- Always consider weather conditions when lifting operations are to be performed. Lifting operations should be reevaluated whenever wind speeds exceed 25 miles per hour, or if other environmental conditions could hinder those operations.

- A critical lift procedure is in place when doing a non-routine crane lift. Please see attachment 9

#### **12.4.1.9 Chain Saw / Chipper Operation**

Vegetation control, including maintenance of roads, canals, culverts and embankments may require use of chain saw and wood chipper equipment. Personnel using this equipment must observe the following precautions.

- Only authorized personnel shall be permitted to operate chain saws or chipper equipment (authorized personnel will have previous experience and be designated by the SSHO).
- Check chain saw or chipper to ensure that all safety features are operational, (e.g., chain brake, chain blade guard, handles).
- Ensure that the chain saw or chipper is operated per the manufacturer recommended procedures, e.g., maintain sharp chain, proper chain tension and lubrication, and observe manufacturer warnings.
- Always start the chain saw on the ground; DO NOT place the chain saw on your knee when starting it.
- Always wear appropriate personal protective equipment (PPE) including hardhat, safety glasses (goggles are preferred), face shield, and hearing protection as well as work gloves, protective chaps, and steel-toed boots.
- Do not wear loose-fitting clothing or other items such as rings or watches that could get caught in moving parts. Long hair shall be restrained.
- Do not operate the chain saw with the engine above shoulder height.
- Keep the nose of the bar clear of objects to prevent kickback.
- A fire extinguisher is required when operating chain saws or chippers. A small extinguisher that fits in the chainsaw gear bag (as available from saw dealers) should be adequate.
- Never refuel a chain saw or chipper until the muffler has been allowed to cool for 10 minutes. This practice routinely starts fires and injures people.
- Chains must be guarded whenever the saw is not in use. Chain saws, gas, and oil must never be transported in the passenger compartment of vehicles unless they are adequately tied down.

#### **12.4.1.10 Tree Trimming and Pruning**

Vegetation control will include tree trimming and pruning activities. Personnel responsible for performing these activities must observe the following precautions:

Brush hooks, machetes, limb saws and similar tools used to cut brush and branches should be kept sharp. Always use leather work gloves when using sharp tools. Wear safety glasses and face shield when cutting brush to prevent eye injuries.

- Sharp cutting edges should always be guarded when transporting tools. Always carry cutting tools at your side with the cutting edge away from your body. Machetes

should always be kept in sheaths when not in use. Brush hooks, machetes, and hatchets must never be transported in the passenger compartment of vehicles unless they are adequately tied down

#### **12.4.1.11 Trenches / Excavation**

Excavation (dredging) activities will be periodically performed along existing canals using backhoe/excavator equipment, as required to maintain specified widths and depths. The following precautions shall be observed when involved with, or in close proximity to excavation operations:

- Competent person will have training, experience, and knowledge of soil analysis, use of protective systems; have the ability to detect conditions that could result in cave-ins, failures in protective systems, and other hazards; and have the authority to take prompt corrective measures to eliminate existing and predictable hazards and stop work when required.
- Prior to digging, the appropriate dig permit must be obtained and all underground utilities clearly identified. Digging within 2 feet or less of a known utility must be performed by hand digging.
- Accessible areas within the swing radius of the backhoe or excavator shall be barricaded in such a manner as to prevent an employee from being struck or crushed by the equipment.
- All personnel shall don ANSI-compliant hardhats and safety glasses to protect the head and eyes from potential airborne debris/objects.
- Test the soil to find out if it is stable or likely to collapse.
- Use a protective system to shore, brace, or slope the sides of the trench. Manufacturer tabulated data and specifications for shoring or benching will be readily available onsite for review.
- All personnel in the vicinity of the backhoe/excavator should make eye contact with the operator prior to passing through or near equipment operations so as to make the operator aware of their presence.
- Only one person shall signal the backhoe/excavator operator. This person shall be thoroughly familiar with all of the equipment operation and shall be able to communicate with the equipment operator with the appropriate hand signals.

#### **12.4.1.12 Elevated Work Areas / Falls**

Access to existing pumps and flood gates may require work around elevated platforms and gangways which can constitute a fall hazard. Additionally, maintenance activities around canals and embankments present a potential slip and corresponding water hazard (see Section 12.4.1.17). The following precautions shall be observed when working in elevated work areas:

- Please refer to fall protection program in attachment 11. A guardrail system is in place to eliminate fall hazards of 6 feet or greater. Or personal fall arrest system or positioning device system may be implemented instead of a guardrail system.

### **12.4.1.13 Heavy Equipment**

Drivers and/or operators of motor vehicles and heavy equipment must have the appropriate qualifications, training, and licensing (as necessary based upon State or local requirements) to drive or operate each specific vehicle or machine. Drivers of vehicles must take responsibility for ensuring the safety of all passengers and the stability of equipment and materials being hauled or transported. Passengers in vehicles must have a safe place to ride, and the use of seat belts will be mandated on-site.

Vehicles and equipment should be inspected by the SSHO prior to use and periodically during the on-site field activities (see Attachment 6, Heavy Equipment Safety Checklist). Operators should perform daily inspections of their own equipment and machinery and should maintain documentation of these inspections. These records, as well as the owner's manual for the equipment, should be made available to the SSHO upon request. Vehicles and heavy machinery/equipment should be utilized only for the purpose they were designed and should be operated in accordance with the manufacturer's recommendations and specified limitations.

Unattended vehicles and machines should not be left running. If the equipment operator must exit the cab or control area of the equipment, it must be properly shut down and secured before he or she exits. The extensions, arms, blades, and buckets of hydraulic equipment such as backhoes and drill rigs must be lowered, physically locked, or otherwise appropriately blocked when the operator leaves or the equipment is not being used.

The field team leader and other site personnel (including subcontractors) should coordinate the orderly flow of traffic on the job site. Vehicles entering or leaving the work area should proceed slowly and visually verify a clear path before moving in any direction. Vehicle and equipment access areas should be kept free and clear of tools, small equipment, materials, and debris in order to facilitate safe movement around the work area. The subcontractors supplying vehicles and heavy equipment to the site should provide adequate traffic signage and/or personnel as necessary to protect site personnel and/or the public.

Personnel in the direct vicinity of heavy equipment shall take precautions to stay out of harm's way when equipment is in operation. Eye contact shall be made with operators when field personnel are coming in close contact with equipment, as to minimize the potential for injury.

### **12.4.1.14 Hand and Power Tools**

Use of hand and power tools will be required in support of routine maintenance and repair activities. Safe work practices will be used when hand and/or power tools are in use.

- Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions and recommendations and shall be used only for the purpose for which designed. A copy of the manufacturer's instructions and recommendations shall be maintained with the tools.
- Hand and power tools will be inspected, tested and determined to be in safe operating condition before use; continuing periodic inspections will be made to assure safe operating condition and proper maintenance.

- Hand and power tools will be in good repair and with all required safety devices install and properly adjusted; tools having defects that will impair their strength or render them unsafe shall be removed from service.
- Power tools designed to accommodate guards shall be equipped with such guards.
- Reciprocating, rotating, and moving parts of equipment shall be guarded if exposed to contact by employees or otherwise create a hazard.
- When work is being performed overhead, tools not in use shall be secured in place in holders.
- Throwing tools or materials from one location to another or from one person to another, or dropping them to lower levels shall not be permitted.
- Loose and frayed clothing, loose long hair, dangling jewelry (including dangling rings, chains, and wristwatches) shall not be worn while working with any power tool.
- During the use of hand tools personnel will wear appropriate work wear, ANSI-compliant hard hat and safety goggles. Safe work practices will be used when hand tools are in operation.

#### **12.4.1.15 Vehicle Traffic**

Required maintenance and repair work may occur in areas where vehicular traffic can pose a hazard. Orange Department of Transportation (DOT) traffic cones will be placed around the perimeter of the working area in order to direct traffic around the work area. All ADC personnel in and around the work area shall don an ANSI class 2 reflective vest to increase visibility to passing traffic when working in these areas. Personnel shall also exercise caution and be aware of their surroundings at all times. Work will not be performed in heavy vehicle traffic areas after dark.

#### **12.4.1.16 Welding and Cutting**

Potential welding and machining activities required in support of pump maintenance and repair will most likely be performed off site. However, workers who may be involved in welding and cutting activities or overseeing subcontractor performing welding and cutting will adhere to the following precautions.

- Workers designated to operate welding and cutting equipment shall have been properly instructed and qualified to operate such equipment.
- Before welding or cutting is permitted, the area shall be inspected by the individual responsible for authorizing the welding or cutting operation. Suitable fire extinguishing equipment shall be immediately available in the work area, including at least two 20 lb 4A:20 BC rated extinguishers for normal "Hot Work".
- Flame-resistant blankets shall be used to control sparks produced by welding and cutting operations from traveling to lower levels or adjacent surfaces.
- Combustible materials less than 35 feet away must be removed prior to the start of any hot work. If combustible materials cannot be removed, then they must be covered with flame-proofed cover.

- A fire watch with a fire extinguisher must stand by during the hot work and stay on site for 30 minutes after the hot work is completed when there are appreciable combustible materials less than 35 feet away.
- If the valve on a fuel-gas cylinder is found to leak around the valve stem, the valve shall be closed and the gland nut tightened. If this does not stop the leak, the cylinder is to be tagged and removed from service.
- Nothing should be placed on top of a cylinder or manifold that will damage it or interfere with the quick closing of the valve.
- Flow gages and regulators shall be inspected prior to use and removed from cylinders when not in use.
- Hoses, leads, and cables shall not be routed through doorways and walkways unless covered, elevated, or protected from damage. Where hoses, leads, and cables pass through wall openings, adequate protection shall be provided to prevent damage.
- Fuel gas and oxygen cylinders shall be stored separately (at least 20 feet away) or provided with a 1½ -hr rated fire barrier, which is at least 5 feet high.
- Flash arresters shall be installed at the torch handle.
- Hot electrode holders shall not be dipped in water to cool them.
- Arc welding electrodes shall not be struck against compressed gas cylinders to strike an arc.
- All arc welding or cutting operations shall be shielded by noncombustible or flame resistant screens to protect employees or other persons in the vicinity from the direct rays of the arc.
- Proper ventilation shall be provided so as to maintain the level of contaminants in the breathing zone of welders below applicable permissible exposure limits.
- Arc welding equipment exposed to unusual service conditions shall require specifically designed equipment. Chief among these conditions are corrosive fumes, steam, excessive humidity, oil vapor, flammable gases, vibration or shock, dust, exposure to weather, and seacoast or shipboard conditions.

#### **12.4.1.17 Drowning Hazards**

While the majority of the canals and culverts in the subject area are gently sloped, during routine maintenance activities and/or during periods of potentially high flow, sites may pose a potential hazard of slipping from the bank into the water. In addition, work around platforms and gangways may also pose a potential trip and slip hazard. If any O&M activity is located over or adjacent to a drop-off into deep waters, the following precautions will be considered.

- Where the hazard of drowning exists, fall protection should be provided to prevent personnel from falling into water. Fall protection systems must be used to eliminate fall hazards of 6 feet or greater. Personnel exposed to fall hazards must receive project-specific fall protection training. Personnel may not use fall protection systems on which they have not been trained.

- Where fall protection systems are not provided and the danger of drowning exists, U.S. Coast Guard-approved personal floatation devices (PFDs), or life jackets, shall be worn.
- Inspect PFDs prior to use. Do not use defective PFDs.
- A minimum of one ring buoy with 90 feet of 3/8 inch solid-braid polypropylene (or equal) rope must be provided for emergency rescue.
- Use all equipment according to the manufacturer's instructions.

Assessment of the need of fall/slip arrest protection will be made in the field by each field crew leader. Canal flow, height (with respect to normal bank conditions) and bank slope / condition / stability will factor into the decision to upgrade the slip protection measures. The upgrade level of slip protection will include a two-person team approach. One crew member will don a seat harness [either ANSI or International Federation of Mountain Guides Association (UIAGM) rated for worker protection or climbing protection] and will attach a life line (braided kern mantle synthetic rope, clean and abrasion / cut free) to the harness with an over-sized locking "D" style carabineer. The second crew member will act as a safety/belay person and will meter out the life line rope, keeping a constant light pressure on the rope and sampler via a belay device rated for such use (i.e., figure eight, stitch plate, etc.) The life line and belay device will be securely attached to a tree, sampling van, bridge abutment or other object that has the minimum capacity of holding at least a 2,000 lb pull weight force. Should a slip occur the belay person would be able to arrest the slip and either hold the sampler or tie off the line to aid in their recovery. Additionally, a spare life line will be on site and used as needed in any rescue operations.

#### **12.4.1.18 Chemical Hazards**

There are no fuel products stored or distributed on site. The only chemicals identified for project-related use are listed below:

- 2-cycle oil
- Agua-Gel
- AquaMaster
- Chevron Ultra Duty Grease
- Chevron Regular Unleaded Gasoline
- Devran 224HS Primer
- Echo Bar Chain Oil
- Equipco Buffer Solution pH 7.00
- Fisher pH 4- buffer solution
- Fisher pH 7- buffer solution
- GoJo Natural Orange Pumice Hand Cleaner
- GST Oil 32
- Kearney Rust Cutter

Markson pH 4 buffer solution  
Markson pH 7 buffer solution  
Markson pH 10 buffer solution  
Never-Seez Regular Grade Compound  
Palgard Epoxy Part B  
Propane Ace Hardware  
TechGard HS Acrylic Urethane – Part A  
Krud Kutter Gel  
Wasp Freeze  
WaterPlug  
WD-40  
Roundup™ herbicide

All products are used in accordance with manufacturers' instructions. Safety data sheets (SDS) are maintained and are readily available for all chemicals used and stored onsite (see Attachment 6). The Project Specific Chemical Product Hazard Communication Form and the Chemical-Specific Training Form are presented in Attachment 7. The following precautions concerning chemical hazards will be followed.

- Employees will read SDS for the hazardous materials that will be used on site.
- PPE will be chosen based on recommendations from the SDS and the label.
- If airborne hazards are possible from chemical spray application evaluate to see if a respirator or supplemental ventilation is needed.

If a worker is exposed to chemicals, the following procedures shall be administered as applicable.

- Eye Exposure - If a contaminated solid or liquid gets into the eyes, wash eyes immediately at an emergency eyewash station (or portable eyewash) using large amounts of water and lifting the lower and upper eyelids occasionally. Obtain medical attention immediately.
- Skin Exposure - If a contaminated solid or liquid gets on the skin, remove contaminated clothing and wash the contaminated skin promptly using soap or mild detergent and water. Obtain medical attention immediately if there are symptoms of exposure.
- Inhalation - If a person inhales large amounts of gas or vapor, move him/her to fresh air at once. If he/she cannot breathe, provide artificial respiration. Keep the affected person warm and at rest. Obtain medical attention immediately.
- Ingestion - If a contaminated solid or liquid has been swallowed, contact the Poison Control Center at 1-800-222-1222. Obtain medical attention immediately.

## 12.5 General Hazards

The following sections present a listing of preventative measures associated with general hazards that may be encountered during the field effort.

### 12.5.1 Stairways and Ladders

- Stairway or ladder use is generally required when a break in elevation of 19 inches or greater exists.
- Personnel should avoid using both hands to carry objects while on stairways; if unavoidable, use extra precautions.
- Personnel must not use pan and skeleton metal stairs until permanent or temporary treads and landings are provided the full width and depth of each step and landing.
- Ladders must be inspected by a competent person for visible defects prior to each day's use. Defective ladders must be tagged and removed from service.
- Ladders must be used only for the purpose for which they were designed and shall not be loaded beyond their rated capacity.
- Only one person at a time shall climb on or work from an individual ladder.
- User must face the ladder when climbing; keep belt buckle between side rails.
- Ladders shall not be moved, shifted, or extended while in use.
- User must use both hands to climb; use rope to raise and lower equipment and materials
- Straight and extension ladders must be tied off to prevent displacement.
- Ladders that may be displaced by work activities or traffic must be secured or barricaded.
- Portable ladders must extend at least 3 feet above landing surface.
- Straight and extension ladders must be positioned at such an angle that the ladder base to the wall is one-fourth of the working length of the ladder.
- Stepladders are to be used in the fully opened and locked position.
- Users are not to stand on the top two steps of a stepladder; nor are users to sit on top or straddle a stepladder.
- Fixed ladders  $\geq$  24 feet in height must be provided with fall protection devices.
- Fall protection should be considered when working from extension, straight, or fixed ladders greater than six feet from lower levels and both hands are needed to perform the work, or when reaching or working outside of the plane of ladder side rails.

### 12.5.2 Working at Night

Work activities will be routinely conducted during daylight hours. However, emergency maintenance activities associated with pump station failure and/or flood prevention may require activities to be performed at night or during the early morning hours. Sufficient lighting (enough to read field documents, labels, placards, and warning signs) must be

provided when working in low light conditions. All workers are required to don an ANSI class 2 reflective vest.

### **12.5.3 Heat Stress**

When working in hot climates, the following precautions shall be implemented.

- Contractors are required to provide potable water for their employees. Drink 16 ounces of water before beginning work. Disposable cups and water maintained at 50°F to 60°F should be made available to all workers. Under severe conditions, drink 1 to 2 cups every 20 minutes, for a total of 1 to 2 gallons per day. Do not use alcohol in place of water or other nonalcoholic fluids. Decrease or eliminate your intake of coffee and caffeinated soft drinks during working hours.
- Acclimate yourself by slowly increasing workloads (e.g., do not begin with extremely demanding activities).
- Use cooling devices such as cooling vests to aid natural body ventilation. These devices add weight, so their use should be balanced against efficiency.
- Use mobile showers or hose-down facilities where available to reduce body temperature and cool protective clothing.
- Conduct field activities in the early morning, and rotate shifts of workers if possible.
- Avoid direct sun whenever possible, as exposure can decrease physical efficiency and increase the probability of heat stress. Take regular breaks in a cool, shaded area. Use a wide-brim hat or an umbrella when working under direct sun for extended periods.
- Provide adequate shelter/shade to protect personnel against radiant heat (e.g., sun, flames, hot metal).
- Maintain good hygiene standards by frequently changing clothing and showering.
- Observe one another for signs of heat stress. Persons who experience or observe in others the signs and symptoms of heat syncope, heat rash, or heat cramps should immediately notify the SSHO so that progression of heat-related illness can be prevented.

The following table describes the symptoms and treatment for heat stress.

**Table 12-4 Symptoms and Treatment of Heat Stress**

<b>SYMPTOMS AND TREATMENT OF HEAT STRESS</b>					
	<b>Heat Syncope</b>	<b>Heat Rash</b>	<b>Heat Cramps</b>	<b>Heat Exhaustion</b>	<b>Heat Stroke</b>
<b>Signs and Symptoms</b>	Sluggishness or fainting while standing erect or immobile in heat.	Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure.	Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours.	Fatigue, nausea, headache, giddiness; skin clammy and moist; complexion pale, muddy, or flushed; may faint on standing; rapid pulse and low blood pressure; oral temperature normal or low.	Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature.
<b>Treatment</b>	Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.	Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.	Remove to cooler area. Rest lying down. Increase fluid intake.	Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.	Cool rapidly by soaking in cool—but not cold—water. Call ambulance, and get medical attention immediately!

The following monitoring activities and work modification procedures should be considered when the ambient air temperature exceeds 70°F, the relative humidity is high (e.g., >50 percent), or when workers exhibit symptoms of heat stress.

The heart rate (HR) should be measured by taking the radial pulse for 30 seconds, as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 100 beats/minute, or 20 beats/minute above resting pulse. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 100 beats/minute at the beginning of the next rest period, the work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 100 beats/minute, or 20 beats/minute above resting pulse.

## **12.5.4 Biological Hazards**

### **12.5.4.1 Spiders**

Spiders do not represent a significant threat in the subject area. The Cane Spider may be encountered during routine maintenance activities; and although this species rarely bites, it can inject venom. The spider's bite is small and usually does not result in significant or long-term health risks. If bitten by a spider, wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction or infection; seek medical attention if a reaction or infection develops.

### **12.5.4.2 Bees and Other Stinging Insects**

Bees and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests. Wear light colored clothing, and avoid perfume or colognes. Keep exposed skin to a minimum. If you have had allergic reactions in the past, have your doctor prescribe a supply of epinephrine and a syringe for your kit, and have your kit available at all time, and inform the SSHO. If stung by a bee or other insect and if the stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction; seek medical attention if a reaction develops.

## **12.6 General Control Measures**

### **12.6.1 General Practices and Housekeeping**

- Site work should be performed during daylight hours whenever possible. Work conducted during hours of darkness requires enough illumination intensity to read a newspaper without difficulty.
- Good housekeeping must be maintained at all times in all project work areas.
- Common paths of travel should be established and kept free from the accumulation of materials, tools, and equipment.
- Keep access to aisles, exits, ladders, stairways, scaffolding, and emergency equipment free from obstructions.
- Provide slip-resistant surfaces, ropes, and/or other devices to be used.
- Specific areas should be designated for the proper storage of materials.
- Tools, equipment, materials, and supplies shall be stored in an orderly manner.
- As work progresses, scrap and nonessential materials must be neatly stored or removed from the work area.
- Containers should be provided for collecting trash and other debris and shall be removed at regular intervals.

- All spills shall be quickly cleaned up. Oil and grease shall be cleaned from walking and working surfaces. Sorbent material will be maintained in the work vehicle. Incidental spills will be contained with sorbent and disposed of properly.

### **12.6.2 Fire Prevention**

Workers shall take all necessary precautions to prevent and suppress fire in the work area. Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet. All vehicles shall be equipped with fire extinguishers for use at areas that are greater than 100 feet from an accessible building that is equipped with portable extinguishers, such as some of the more remote areas that will be encountered during the groundwater monitoring activities. If the vehicle cannot access the work area, the vehicle or the extinguisher, must be located within 100 feet of the work area. Some clearing of vegetation may be necessary if it presents a fire hazard. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 50 feet. The following requirements must be met where fire extinguishers will be maintained and used:

- Extinguishers must be maintained in a fully charged and operable condition.
- Extinguishers must be visually inspected each month and undergo a maintenance check each year.
- The area in front of the extinguisher(s) must be kept clear.
- In fixed facilities, employees must post "Exit" signs over exiting doors, and post "Fire Extinguisher" signs over extinguisher locations.
- Combustible materials stored outside should be at least 10 feet from any building.
- Solvent waste and oily rags must be kept in a fire resistant, covered container until removed from the site.
- Flammable/combustible liquids must be kept in approved containers, and containers must be stored in an approved storage cabinet.

### **12.6.3 Radiological Hazards and Controls**

No radiological materials or radioactive wastes are expected to be encountered during the O & M activities at Pacific Missile Range Facility (PMRF).

### **12.6.4 Hazard Communication**

The SSHO is to perform the following:

- Complete an inventory of chemicals brought on site using Attachment 7.
- Confirm that an inventory of chemicals brought on site by ADC subcontractors is available.
- Request or confirm locations of SDSs from the client, contractors, and subcontractors for chemicals to which on-site personnel potentially are exposed.

The contractor is to perform the following:

- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly.
- Give employees required chemical-specific hazard communication (HAZCOM) training.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

#### **12.6.5 Compressed Gas Cylinders**

Compressed gas cylinders such as oxygen and acetylene are not used on site.

#### **12.6.6 Confined Space Entry**

There are no known activities for this project that will require confined space entry.

#### **12.6.7 Abrasive Blasting**

There are no known activities for this project that will require abrasive blasting

#### **12.6.8 Access and Haul Road**

Access and haul roads have been constructed already. There are no known activities for this project that will require new access and haul roads.

#### **12.6.9 Contingency Plan for Severe Weather**

See attachment 8

#### **12.6.10 Drug Abuse Prevention**

##### **Purpose**

In compliance with the Drug-Free Workplace Act of 1988, AgriBusiness Development Corporation has a longstanding commitment to provide a safe, quality-oriented and productive work environment. Alcohol and drug abuse pose a threat to the health and safety of AgriBusiness Development Corporation contractors and to the security of the corporation's equipment and facilities. For these reasons, AgriBusiness Development Corporation is committed to the elimination of drug and alcohol use and abuse in the workplace.

##### **Scope**

This policy applies to all contractors working for AgriBusiness Development Corporation. Mr. James Nakatani is responsible for policy administration.

##### **Employee Assistance**

Employees should report to work fit for duty and free of any adverse effects of illegal drugs or alcohol. This policy does not prohibit employees from the lawful use and possession of prescribed medications. Employees must, however, consult with their doctors about the medications' effect on their fitness for duty and ability to work safely, and they must promptly disclose any work restrictions to their supervisor.

##### **Work Rules**

1. Whenever employees are present on AgriBusiness Development Corporation premise or are conducting any related work offsite, they are prohibited from:
  - a. Using, possessing, buying, selling, manufacturing or dispensing an illegal drug (to include possession of drug paraphernalia).
  - b. Being under the influence of alcohol or an illegal drug as defined in this policy.
  - c. Possessing or consuming alcohol.
2. The presence of any detectable amount of any illegal drug, illegal controlled substance or alcohol in an employee's body system, while performing company business or while in a company facility, is prohibited.
3. AgriBusiness Development Corporation will also not allow employees to perform their duties while taking prescribed drugs that are adversely affecting their ability to safely and effectively perform their job duties. Employees taking a prescribed medication must carry it in a container labeled by a licensed pharmacist or be prepared to produce the container if asked.
4. Any illegal drugs or drug paraphernalia will be turned over to an appropriate law enforcement agency and may result in criminal prosecution.

## **Required Testing**

### ***Pre-employment***

Employees being considered for job must pass a drug test before beginning work or receiving a job offer. Refusal to submit to testing will result in disqualification of further job consideration.

### ***Reasonable suspicion***

Employees are subject to testing based on (but not limited to) observations by at least two members of contractor management of apparent workplace use, possession or impairment. Program manager, Mr. James Nakatani should be consulted before sending an employee for testing. Management must use the Reasonable Suspicion Observation Checklist to document specific observations and behaviors that create a reasonable suspicion that an employee is under the influence of illegal drugs or alcohol. Examples include:

- Odors (smell of alcohol, body odor or urine).
- Movements (unsteady, fidgety, dizzy).
- Eyes (dilated, constricted or watery eyes, or involuntary eye movements).
- Face (flushed, sweating, confused or blank look).
- Speech (slurred, slow, distracted mid-thought, inability to verbalize thoughts).
- Emotions (argumentative, agitated, irritable, drowsy).
- Actions (yawning, twitching).
- Inactions (sleeping, unconscious, no reaction to questions).

When reasonable suspicion testing is warranted, both contractor management and HR will meet with the employee to explain the observations and the requirement to undergo a drug

and/or alcohol test within two hours. Refusal by an employee will be treated as a positive drug test result and will not be allowed to work on AgriBusiness Development Corporation related projects immediately.

*Under no circumstances will the employee be allowed to drive himself or herself to the testing facility. A member of contractor management must transport the employee or arrange for a cab and arrange for the employee to be transported home.*

### **Post-accident**

Employees are subject to testing when they cause or contribute to accidents that seriously damage an AgriBusiness Development Corporation vehicle, machinery, equipment or property or that result in an injury to themselves or another employee requiring offsite medical attention. A circumstance that constitutes probable belief will be presumed to arise in any instance involving a work-related accident or injury in which an employee who was operating a motorized vehicle (including a forklift, pickup truck, overhead crane or aerial/man-lift) is found to be responsible for causing the accident. In any of these instances, the investigation and subsequent testing must take place within four hours following the accident, if not sooner. Refusal by an employee will be treated as a positive drug test result and will not be allowed to work on AgriBusiness Development Corporation related projects immediately.

*Under no circumstances will the employee be allowed to drive himself or herself to the testing facility. A member of contractor management must transport the employee or arrange for a cab and arrange for the employee to be transported home.*

### **Collection and Testing Procedures**

Employees subject to alcohol testing will be transported to an AgriBusiness Development Corporation-designated facility and directed to provide breath specimens. Breath specimens will be tested by trained technicians using federally approved breath alcohol testing devices capable of producing printed results that identify the employee. If an employee's breath alcohol concentration is 0.04% or more, a second breath specimen will be tested approximately 20 minutes later. The results of the second test will be determinative. Alcohol tests may, however, be a breath, blood or saliva test, at the company's discretion. For purposes of this policy, test results generated by law enforcement or medical providers may be considered by the company as work rule violations.

Employees subject to drug testing will be transported to an AgriBusiness Development Corporation-designated testing facility and directed to provide urine specimens. Employees may provide specimens in private unless they appear to be submitting altered, adulterated or substitute specimens. Collected specimens will be sent to a federally certified laboratory and tested for evidence of marijuana, cocaine, opiates, amphetamines, PCP, benzodiazepines, methadone, methaqualone and propoxyphane use. (Where indicated, specimens may be tested for other illegal drugs.) The laboratory will screen all specimens and confirm all positive screens. There must be a chain of custody from the time specimens are collected through testing and storage.

The laboratory will transmit all positive drug test results to a medical review officer (MRO) retained by AgriBusiness Development Corporation, who will offer individuals with positive results a reasonable opportunity to rebut or explain the results. Individuals with positive test

results may also ask the MRO to have their split specimen sent to another federally certified laboratory to be tested at the applicant's or employee's own expense. Such requests must be made within 72 hours of notice of test results. If the second facility fails to find any evidence of drug use in the split specimen, the employee or applicant will be treated as passing the test. In no event should a positive test result be communicated to AgriBusiness Development Corporation until such time that the MRO has confirmed the test to be positive.

### **Consequences**

Employees who refuse to cooperate in a drug test or who test positive will not be allowed to work on any AgriBusiness Development Corporation related projects immediately.

### **Confidentiality**

Information and records relating to positive test results, drug and alcohol dependencies, and legitimate medical explanations provided to the MRO will be kept confidential to the extent required by law and maintained in secure files separate from normal personnel files. Such records and information may be disclosed among contractor managers and the program manager on a need-to-know basis and may also be disclosed when relevant to a grievance, charge, claim or other legal proceeding initiated by or on behalf of an employee or a contractor.

### **Inspections**

AgriBusiness Development Corporation reserves the right to inspect all portions of its premises for drugs, alcohol or other contraband; affected employees may have union representation involved in this process. Employees and visitors may be asked to cooperate in inspections of their persons, work areas and property that might conceal a drug, alcohol or other contraband. Employees who possess such contraband or refuse to cooperate in such inspections will not be allowed to work on AgriBusiness Development Corporation related projects immediately.

### **Crimes Involving Drugs**

AgriBusiness Development Corporation prohibits all contractors, including employees performing work under government contracts, from manufacturing, distributing, dispensing, possessing or using an illegal drug in or on company premises or while conducting company business. Employees are also prohibited from misusing legally prescribed or over-the-counter (OTC) drugs. Law enforcement personnel may be notified, as appropriate, when criminal activity is suspected.

All employees who are convicted of, plead guilty to or are sentenced for a crime involving an illegal drug are required to report the conviction, plea or sentence to AgriBusiness Development Corporation within five calendar days. They will not be allowed to work on AgriBusiness Development Corporation related projects immediately.

### **Definitions**

"Company premises" includes all buildings, offices, facilities, grounds, parking lots, lockers, places and vehicles owned, leased or managed by AgriBusiness Development Corporation or any site on which the company is conducting business.

“Illegal drug” means a substance whose use or possession is controlled by federal law but that is not being used or possessed under the supervision of a licensed health care professional. (Controlled substances are listed in Schedules I-V of 21 C.F.R. Part 1308.)

“Refuse to cooperate” means to obstruct the collection or testing process; to submit an altered, adulterated or substitute sample; to fail to show up for a scheduled test; to refuse to complete the requested drug testing forms; or to fail to promptly provide specimen(s) for testing when directed to do so, without a valid medical basis for the failure. Employees who leave the scene of an accident without justifiable explanation prior to submission to drug and alcohol testing will also be considered to have refused to cooperate and will automatically be subject to discharge.

“Under the influence of alcohol” means an alcohol concentration equal to or greater than 0.08%, or actions, appearance, speech or bodily odors that reasonably cause a supervisor to conclude that an employee is impaired because of alcohol use.

“Under the influence of drugs” means a confirmed positive test result for illegal drug use per this policy. In addition, it means the misuse of legal drugs (prescription and possibly OTC) when there is not a valid prescription from a physician for the lawful use of a drug in the course of medical treatment (containers must include the patient’s name, the name of the substance, quantity/amount to be taken and the period of authorization).

### **Enforcement**

The program manager, Mr. James Nakatani, is responsible for policy interpretation, administration and enforcement.

#### **12.6.11 Emergency Rescue**

There are no known activities e.g. confined space entry and diving that will require emergency rescue.

#### **12.6.12 Fall Protection**

The use of guard rail system is one of the options for fall protection. Please refer to attachment 11 for fall protection program.

#### **12.6.13 Health Hazard Control**

Health hazard controls are part of the Hazard Communication Program due to the use of chemicals. See 12.6.4.

#### **12.6.14 Site Layout**

The site layouts are listed in figure 2.2

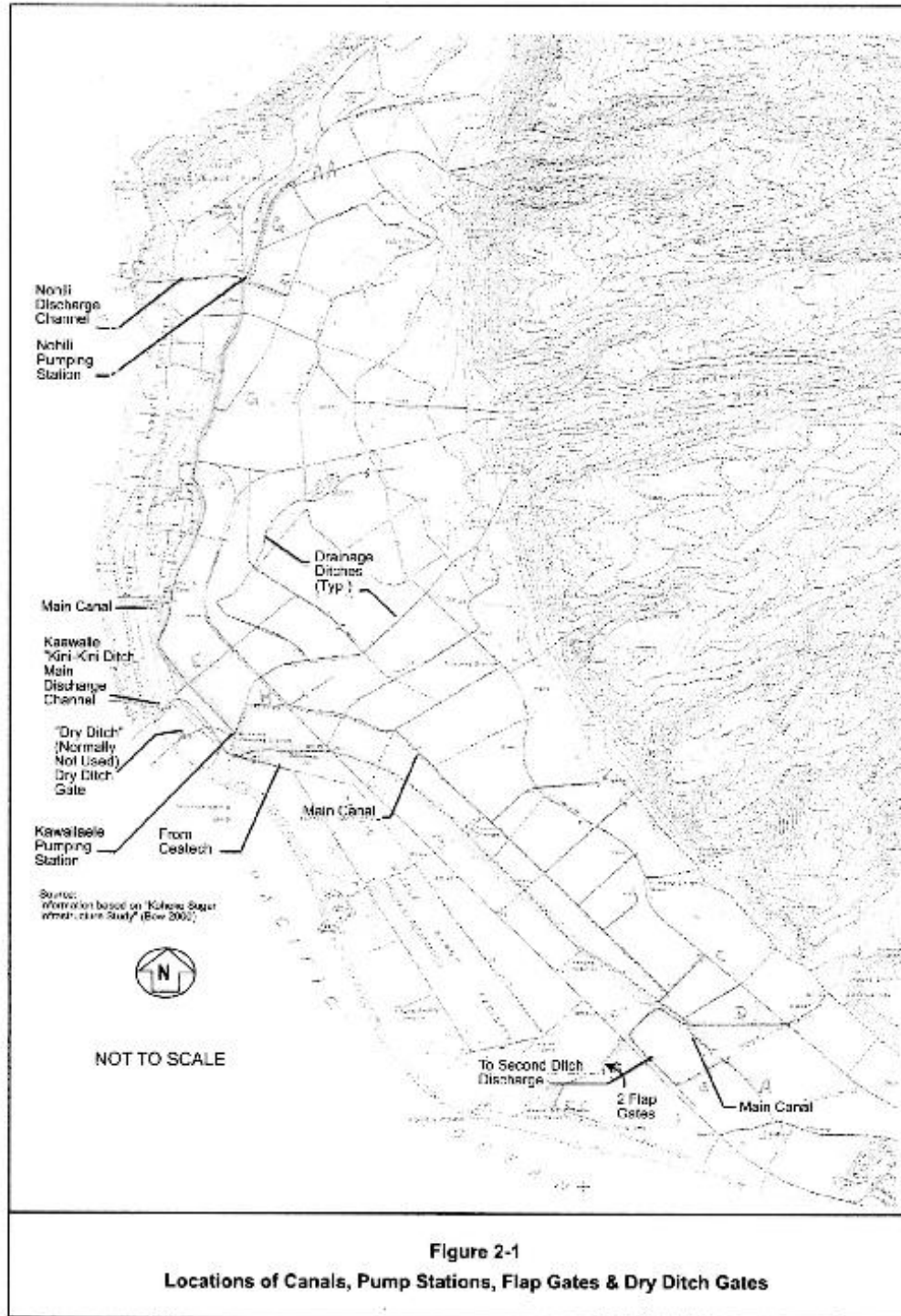
**12.6.15 Lead Abatement**

There are no known activities for this project that will require lead abatement.

**12.6.16 Respiratory Protection**

There are no known activities for this project that will require respiratory protection.

DRAFT



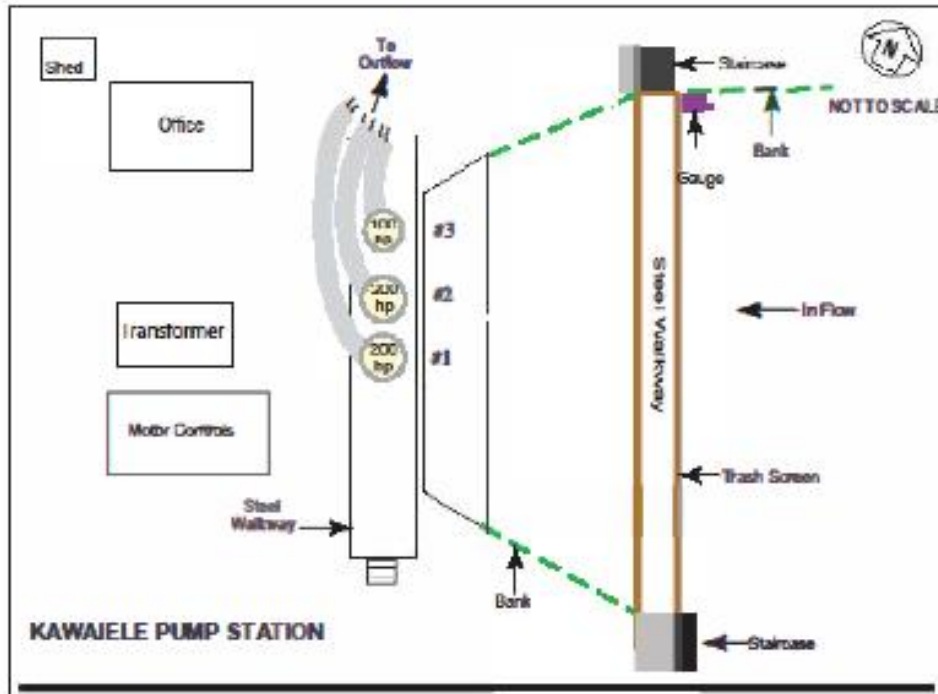


Figure 2-2  
Kawaiie Pump Station

## **ATTACHMENTS**

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ATTACHMENT 2

**DAILY HEALTH AND SAFETY TAILGATE MEETING FORM**

Site Health and Safety Officer (or designee) Conducting Meeting :

Date :

Weather:

Personnel In Attendance :

Meeting Minutes (Brief description of topics, special concerns and sites discussed):

Signature of Attendees' :

**"THE BEST JOB IS ONE DONE SAFELY! "**

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**ATTACHMENT 3**  
**CONTRACTOR SIGNIFICANT INCIDENT REPORT**

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- Initial Report
- Follow-up Report
- Final Report

## Contractor Significant Incident Report (CSIR)

1. General Information		
<b>Contracting Activity/ROICC Office:</b>		
<b>Accident Classification:</b>		
<input type="checkbox"/> Injury <input type="checkbox"/> Fatality <input type="checkbox"/> Environment <input type="checkbox"/> Procedural Issues <input type="checkbox"/> Lessons Learned <input type="checkbox"/> Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Other _____		
<b>Involving:</b>		
<input type="checkbox"/> Confined Space <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Heavy Construction Equip.) <input type="checkbox"/> Hazardous Material <input type="checkbox"/> Crane and Rigging <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Material Handling) <input type="checkbox"/> Trenching/Excavation <input type="checkbox"/> Diving <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Man-Lift/Elevated Platform) <input type="checkbox"/> Waterfront/Marine <input type="checkbox"/> Demolition/Renovation <input type="checkbox"/> Fall from Ladder <input type="checkbox"/> Fall from Scaffold <input type="checkbox"/> Other _____ <input type="checkbox"/> Electrical <input type="checkbox"/> Fall from Roof <input type="checkbox"/> Fire		
2. Personal Information		
<b>Name (Last, First, MI):</b>		<b>Age:</b>
<b>Sex:</b>		
<b>Job Title/Description:</b>	<b>Employed By:</b>	
<b>Supervisor Name (Last, First, MI) &amp; Title:</b>	<b>Was the person trained to perform this activity/task?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>What type of training was received (OJT, classroom, etc)?</b>	<b>Date of the most recent formal training and topics discussed?</b>	
3. Witness Information		
<b>Witness #1: Name (Last, First, MI):</b>	<b>Job Title/Description:</b>	
<b>Employed By:</b>	<b>Supervisor Name (Last, First, MI):</b>	
<b>Witness #2: Name (Last, First, MI):</b>	<b>Job Title/Description:</b>	
<b>Employed By:</b>	<b>Supervisor Name (Last, First, MI):</b>	
<b>Additional Witnesses:</b>		
<i>(List any additional witnesses on a separate sheet and attach.)</i>		
<input type="checkbox"/> Yes <input type="checkbox"/> No		

4. Contract Information		
<b>Type of Contract:</b> <input type="checkbox"/> A/E <input type="checkbox"/> BOS <input type="checkbox"/> CLEAN <input type="checkbox"/> Construction <input type="checkbox"/> Design Build <input type="checkbox"/> FSCC <input type="checkbox"/> FSSC <input type="checkbox"/> JOC <input type="checkbox"/> RAC <input type="checkbox"/> Service <input type="checkbox"/> Other _____		
<b>Contract Number &amp; Title:</b>		<b>Industrial Group &amp; Industrial Type:</b>
<b>Prime Contractor Name/Address/Phone &amp; Fax No:</b>		<b>Sub Contractor Name/Address/Phone &amp; FAX No:</b>
<b>Safety Manager (Last, First, MI):</b>		<b>Safety Manager (Last, First, MI):</b>
<b>Insurance Carrier:</b>		<b>Insurance Carrier:</b>
5. Accident Description		
<b>Date of Accident:</b>	<b>Time of Accident:</b>	<b>Exact Location of Accident:</b>
Describe the accident in detail in your words: <i>(Use the back of page if you need additional space)</i>		
<b>Direct Cause(s) of Accident:</b>		

<b>Indirect Cause(s) of Accident:</b>	
<b>Action(s) taken to prevent re-occurrence or provide on-going corrective actions:</b>	
<b>Corrective Action Beginning Date:</b>	<b>Anticipated Completion Date:</b>
<p><b>Personal Protective Equipment:</b></p> <p> <input type="checkbox"/> Available and used      <input type="checkbox"/> Available and not used      <input type="checkbox"/> Not Required  <input type="checkbox"/> Not related to Mishap      <input type="checkbox"/> Wrong PPE for job </p> <p><i>List PPE Used:</i></p>	
<b>Type of Construction Equipment (Make, Model, Serial #, VIN#) Involved:</b>	
<p><b>Was Hazardous Material Spilled/Released?</b>      <input type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p><i>Please List Hazardous Material(s) Involved:</i></p>	
<b>Who provided first aid or cleanup of mishap site?</b>	
<p><b>Any blood-borne pathogen exposure, other than EMTs?</b>      <input type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p><i>Who?</i></p>	
<b>List OSHA and EM-385-1-1 standards that were violated:</b>	
<p><b>Was site secured and witness statements taken immediately?</b>      <input type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p><i>By Whom?</i></p>	

6. Injury Illness/Fatality Information		
<b>Severity of Injury/Illness:</b>		
<input type="checkbox"/> Fatality	<input type="checkbox"/> Lost Workday Case Involving Days Away From Work	
<input type="checkbox"/> Temporary Disability	<input type="checkbox"/> Recordable Workday Case Involving Restricted Duty	
<input type="checkbox"/> Permanent Total Disability	<input type="checkbox"/> Other Recordable Case	<input type="checkbox"/> Recordable First Aid Case
<input type="checkbox"/> Permanent Partial Disability	<input type="checkbox"/> Non-Recordable Case	<input type="checkbox"/> No Injury
<b>Estimated Days Lost:</b>	<b>Estimated Days Hospitalized:</b>	<b>Estimated Days Restricted Duty:</b>
<b>List Primary Body Part Affected:</b>	<b>List Other Body Part(s) Affected:</b>	
<b>Nature of Injury/Illness for Primary Body Part (Examples: Amputation, Burn, Hernia):</b>		
<b>Type of Accident (Examples: Fall same level, Lifting, Bitten, Exerted):</b>		
<b>Source of Accident (Examples: Crane, Carbon Monoxide, Ladder, Welding Equipment):</b>		
7. Causal Factors (Explain answers on supplementary sheet)		
<input type="checkbox"/> Design – Design of facility, workplace, or equipment was a factor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Inspection/Maintenance – Inspection & Maintenance procedures were a factor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Persons Physical Condition – In your opinion, the physical condition of the person was a factor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Operation Procedures – Operating procedures were a factor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Job Practices – One or more job safety/health practices not being followed when the accident occurred contributed to the accident?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Human Factors – One or more human factors, such as a person’s size or strength contributed to the accident?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Environmental Factors – Heat, cold, dust, sun, glare, etc., contributed to the accident?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Chemical and Physical Agent Factors – Exposure to chemical agents, such as dust, fumes, mist, vapors, or physical agents such as noise, radiation, etc., contributed to the accident?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Office Factors – Office setting such as lifting office furniture, carrying, stooping, contributed to the accident?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Support Factors – Inappropriate tools/resources were provided to perform the task?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> PPE – Improper selection, use or maintenance of PPE contributed to the accident?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Drugs/Alcohol – In your opinion, were drugs or alcohol a factor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Job Hazard Analysis – The lack of an adequate (IAW-EM-385-1-1 Sec 01.A) activity hazard analysis was a contributing factor.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Job Hazard Analysis – JHA was not site specific and/or did not address the type of work/operations performed when the mishap occurred.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Management – A lack of adequate supervision contributed to the accident.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Management – Inadequate information was provided at pre con meeting.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

<b>8. OSHA Information</b>			
<b>Date OSHA was Notified:</b>	<b>Date(s) of Investigation:</b>	<b>Date of citation:</b> <i>(Attach Copy)</i>	<b>Dollar amount of Penalties:</b>
<b>9. Report Preparer</b>			
<b>Name (Last, First, MI):</b>		<b>Date of Report:</b>	
<b>Title:</b>		<b>Signature:</b>	
<b>Employer:</b>			
<b>Phone #:</b>			

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# CONTRACTOR SIGNIFICANT INCIDENT REPORT (CSIR) INSTRUCTIONS

Complete Sections Appropriate to Incident (Rev. 06/02).

**NOTE: THE ATTACHED CSIR FORM IS TO BE USED BY CONTRACTORS TO RECORD THE RESULTS OF THEIR ACCIDENT/INCIDENTS INVESTIGATIONS AND SHALL BE PROVIDED TO THE CONTRACTING OFFICER WITHIN THE REQUIRED TIMEFRAMES.**

**GENERAL.** Complete a separate report for each person who was injured in the accident. A report needs to be completed for all OSHA recordable accidents, property damage in excess of \$2000.00 (This amount is for record purposes only. GOV is not required to enter property damage reports into FAIR database if it is less than \$10,000.00.), WHE accidents, or near miss/high visibility mishaps. Please type or print legibly. Appropriate items shall be marked with an "X" in box(es), non-applicable sections shall be marked "N/A". If additional space is needed, provide the information on a separate sheet of paper and attach to the completed form.

Mark the report:

**INITIAL** – If this form is being used as initial notification of a Fatality or High Visibility Mishap. The initial form is due within 4 hours of a serious accident. A form marked 'Follow-up' or 'Final' is required within 5 days.

**FOLLOW-UP** – If you are providing additional information on a report previously submitted. **FINAL** – If you are providing a completed report and expect no changes.

## SECTION 1 – GENERAL INFORMATION

**CONTRACTING ACTIVITY/ROICC OFFICE** - Enter the name and address of the Contracting Office administering the contract under which the mishap took place (e.g. ROICC MCBH, ROICC NORFOLK, PWC GUAM, etc.).

**ACCIDENT CLASSIFICATION - INJURY/ILLNESS/FATALITY/PROPERTY DAMAGE/-PROCEDURAL ISSUES/-ENVIRONMENTAL/LESSONS LEARNED/OTHER** – Mark the appropriate block(s) if the incident resulted in any of these conditions.

**INVOLVING** - If the mishap involved any of the conditions listed under "Involving" mark the appropriate box(es). Specific questions associated with each of these conditions are available from the Contracting Officer to assist you in your investigation. When these questions are used they shall be attached as part of this report.

## SECTION 2 - PERSONAL INFORMATION

**NAME** - Enter last name, first name, middle initial of person involved. **AGE** - Enter age.

**SEX** - Enter M for Male and F for Female.

**JOB TITLE/DESCRIPTION** - Enter the job title/description assigned to the injured person (e.g. carpenter, laborer, surveyor, etc.). **EMPLOYED BY** - Enter employment company name of the person involved.

**SUPERVISOR'S NAME & TITLE** - Enter name and title of the immediate supervisor.

**WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?** - For the purpose of this section "trained" means the person has been provided the necessary information (either formal and/or on-the-job (OJT) training) to competently perform the activity/task in a safe and healthful manner.

**TYPE OF TRAINING** - Indicate the specific type of training (classroom or on-the-job) that the injured person received before the accident happened.

**DATE OF MOST RECENT FORMAL TRAINING/TOPICS DISCUSSED** - Enter the month, day, and year of the last *formal* training completed that covered the activity/task being performed at the time of the accident. List topics that were discussed at the training identified above.

## SECTION 3 - WITNESS INFORMATION

The following applies to Witness #1 and Witness #2:

**WITNESS NAME** - Enter last name, first name, middle initial of the witness.

**JOB DESCRIPTION/TITLE** - Enter the job title/description assigned to the witness (e.g. carpenter, laborer, surveyor, etc.). **EMPLOYED BY** - Enter the name of the employment company of the witness.

**SUPERVISORS NAME** - Enter name of immediate supervisor of the witness.

**ADDITIONAL WITNESSES** - Provide same information, as above, for each witnesses. Use additional pages if necessary.

## SECTION 4 - CONTRACTOR INFORMATION

**TYPE OF CONTRACT** - Mark appropriate box. A/E means architect/engineer. If "OTHER" is marked, specify type of contract on line provided.

**CONTRACT NUMBER/TITLE** - Enter complete contract number and title of prime contract (e.g. N62477-85-C-0100, 184 Pearl City Hsg. Revitalization).

**CONSTRUCTION INDUSTRIAL GROUP AND INDUSTRIAL TYPE** – This is the type of construction that will be done at this project.

1. First, you must choose the Industrial Group. You have 4 choices to choose from: (**NOTE !** Review of the Industrial Types below and knowing what the projects scope of work is will assist you in deciding what the Industrial Group should be.)

- a. Buildings
  - b. Heavy Industrial
  - c. Infrastructure
  - d. Light Industrial
2. Once you have chosen the Industrial Group, you now select the Industrial Type. You have multiple choices under each Group, chose the one you feel fits the project most closely because on most projects there won't be an exact match:
- a. Buildings:
    - (1) Communications Ctr.
    - (2) Dormitory/Hotel
    - (3) High-rise Office
    - (4) Hospital
    - (5) Housing
    - (6) Laboratory
    - (7) Low-rise Office
    - (8) Maintenance Facility
    - (9) Parking Garage
    - (10) Physical Fitness Ctr.
    - (11) Restaurant/Nightclub
    - (12) School
    - (13) Warehouse
  - b. Heavy Industrial:
    - (1) Chemical Mfg.
    - (2) Electrical (Generating)
    - (3) Environmental
    - (4) Metals Refining/Processing
    - (5) Mining
    - (6) Natural Gas Processing
    - (7) Oil Exploration/Production
    - (8) Oil Refining
    - (9) Pulp and Paper
  - c. Infrastructure:
    - (1) Airport
    - (2) Electrical Distribution
    - (3) Flood Control
    - (4) Highway
    - (5) Marine Facilities
    - (6) Navigation
    - (7) Rail
    - (8) Tunneling
    - (9) Water/Wastewater
  - d. Light Industrial:
    - (1) Automotive Assembly/Mfg.
    - (2) Consumer Products Mfg.
    - (3) Foods
    - (4) Microelectronics Mfg.
    - (5) Office Products Mfg.
    - (6) Pharmaceuticals Mfg.

**CONTRACTOR'S NAME/ADDRESS/PHONE NUMBER**

- (1) PRIME - Enter the exact name (title of firm), address, phone and fax numbers of the prime contractor.
- (2) SUBCONTRACTOR - Enter the exact name, address, phone and fax numbers of any subcontractor involved in the accident.

**SAFETY MANAGER'S NAME**

- (1) PRIME - Enter the name of the prime contractor safety manager.
- (2) SUBCONTRACTOR - Enter the name of the subcontractors safety manager.

**INSURANCE CARRIER**

- (1) PRIME - Enter the exact name/title of the prime's insurance company. Policy number not required.
- (2) SUBCONTRACTOR - Enter the exact name of the subcontractor's insurance company. Policy number not required.

**SECTION 5 - ACCIDENT DESCRIPTION**

**DATE OF ACCIDENT** - Enter the month, day, and year of accident.

**TIME OF ACCIDENT** - Enter the local time of accident in military time. Example: 14:30 hrs (not 2:30 p.m.).

**EXACT LOCATION OF ACCIDENT** - Enter facts needed to locate the accident scene (installation/project name, building/room number, street, direction and distance from closest landmark, etc.).

**DESCRIBE THE ACCIDENT IN DETAIL.** Fully describe the accident in the space provided. If property damage involved, give estimated dollar amount of damage and/or repair costs involved. If additional space is needed continue on a separate sheet and attach to this report. Give the sequence of events that describe what happened leading up to and including the accident. Fully identify personnel and equipment involved and their role(s) in the accident. Ensure that relationships between personnel and equipment are clearly specified. Ensure questions below regarding direct cause(s), indirect cause(s), and actions taken are answered. **NOTE!** Review questions in Section 7 below before completing.

**DIRECT CAUSE(S)** - The direct cause is that single factor which most directly lead to the accident. See examples below.

**INDIRECT CAUSE(S)** - Indirect cause are those factors, which contributed to, but did not directly initiate the occurrence of the accident.

Examples for Direct and Indirect Cause:

- 1. Employee was dismantling scaffold and fell 12 feet from unguarded opening.

*Direct cause:* Failure to provide fall protection at elevation

*Indirect causes:* Failure to enforce safety requirements: improper training/motivation of employee (possibility that employee was not knowledgeable of fall protection requirements or was lax in his attitude toward safety); failure to ensure provision of positive fall protection whenever elevated; failure to address fall protection during scaffold dismantling in phase hazard analysis.

2. Private citizen had stopped his vehicle at intersection for red light when vehicle was struck in rear by contractor vehicle. (note contractor vehicles was in proper safe working condition.)

*Direct cause:* Failure of contractor driver to maintain control of and stop contractor vehicle within safe distance. *Indirect cause:* Failure of employee to pay attention to driving (defensive driving).

**ACTION(S) TAKEN TO PREVENT RE-OCCURRENCE OR PROVIDE ON-GOING CORRECTIVE ACTIONS.** Fully describe all the actions taken, anticipated, and recommended to eliminate the cause(s) and prevent reoccurrence of similar accidents/illnesses. Continue on back or additional sheets of paper if necessary to fully explain and attach to the complete report form.

**CORRECTIVE ACTION DATES -**

(1) Beginning - Enter the date when the corrective action(s) identified above will begin.

(2) Anticipated Completion - Enter the date when the corrective action(s) identified above will be completed.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)** - Mark appropriate box(es) and list PPE which was being used by the injured person at the time of the accident (e.g. protective clothing, shoes, glasses, goggles, respirator, safety belt, harness, etc.)

**TYPE OF CONTRACTOR EQUIPMENT** - Enter the Serial Number, Model Number and specific type of equipment involved in the mishap (e.g. dump truck (off highway), crane (rubber tire), pump truck (concrete), etc.).

**WAS HAZARDOUS MATERIAL SPILLED/RELEASED?** - Mark appropriate block and list name(s) of any reportable quantities of hazardous materials spilled/released during the mishap.

**WHO PROVIDED FIRST AID OR CLEAN-UP OF MISHAP SITE?** - List name(s) of individual(s) and employer, if known.

**ANY BLOOD-BORNE PATHOGEN EXPOSURE, OTHER THAN EMT?** - Mark appropriate block and list name(s) of individual(s) and employer, if known.

**LIST OSHA AND/OR EM 385-1-1 STANDARDS THAT WERE VIOLATED.** - Self explanatory.

**WAS SITE SECURED AND WITNESS STATEMENT TAKEN IMMEDIATELY?** - Mark appropriate block and list by whom.

**SECTION 6 - INJURY/ILLNESS/FATALITY INFORMATION**

**SERVERTY OF INJURY/ILLNESS** – Mark appropriate box.

**ESTIMATED DAYS LOST** - Enter the estimated number of workdays the person will lose from work. Update when final data is known.

**ESTIMATED DAYS HOSPITALIZED** - Enter the estimated number of workdays the person will be hospitalized. Update when final data is known.

**ESTIMATED DAYS RESTRICTED DUTY** - Enter the estimated number of workdays the person, as a result of the accident, will not be able to perform all of their regular duties. Update when final data is known.

**BODY PART(S) AFFECTED** - Enter the most appropriate primary and when applicable, secondary, etc. body part(s) affected (e.g. arm: wrist: abdomen: single eye; jaw : both elbows: second finger: great toe: collar bone: kidney, etc.).

**NATURE OF INJURY/ILLNESS FOR PRIMARY BODY PART** - Enter the most appropriate nature of injury/illness (e.g. amputation, back strain, dislocation, laceration, strain, asbestosis, food poisoning, heart conditions, etc.).

**TYPE AND SOURCE OF INJURY/ILLNESS** - Type and Source Codes are used to describe what caused the incident.

(1) TYPE Code stands for an "Action" (Example: Worker, installing conduit, lost his balance and fell five feet from a ladder. Type Code: Fell different levels".) Select the most appropriate Type of injury from the list below:

**TYPE OF INJURY/ILLNESS**

STRUCK BY/AGAINST	CONTACTED CONTACTED WITH (INJURED PERSON MOVING) CONTACTED BY (OBJECT WAS MOVING)
FELL, SLIPPED, TRIPPED SAME LEVEL/DIFFERENT LEVEL/NO FALL	EXERTED LIFTED, STRAINED BY (SINGLE ACTION) STRESSED BY (REPEATED ACTION)
CAUGHT ON/IN/BETWEEN	EXPOSED INHALED/INGESTED/ABSORBED/EXPOSED TO
PUNCTURED, LACERATED PUNCTURED BY/CUT BY/STUNG BY/BITTEN BY	TRAVELING IN

(2) SOURCE Code stands for an "object or substance." (Example: Worker, installing conduit, lost his balance and fell five feet from a ladder. Source Code: "Ladder".) Select the most appropriate Source of injury from the list below:

**SOURCE OF INJURY/ILLNESS**

BUILDING OR WORKING AREA WALKING/WORKING AREA STAIRS/STEPS LADDER FURNITURE BOILER/PRESSURE VESSEL EQUIPMENT LAYOUT WINDOWS/DOORS ELECTRICITY	DUST, VAPOR, ETC. DUST (SILICA, COAT, ETC.) FIBERS ASBESTOS GASES CARBON MONOXIDE MIST, STEAM, VAPOR, FUME WELDING FUMES PARTICLES (UNIDENTIFIED)
---	---

ENVIRONMENT CONDITION TEMPERATURE EXTREME (INDOOR) WEATHER (ICE, RAIN, HEAT, ETC.) <b>FIRE, FLAME, SMOTE (NOT TABACCO)</b> NOISE RADIATION LIGHT VENTILATION TOBACCO SMOKE STRESS (EMOTIONAL) CONFINED SPACE	CHEMICAL, PLASTIC, ETC. DRY CHEMICAL - CORROSIVE DRY CHEMICAL - TOXIC DRY CHEMICAL - EXPLOSIVE DRY CHEMICAL - FLAMMABLE LIQUID CHEMICAL - CORROSIVE LIQUID CHEMICAL - TOXIC LIQUID CHEMICAL - EXPLOSIVE LIQUID CHEMICAL - FLAMMABLE PLASTIC WATER MEDICINE
MACHINE OR TOOL HAND TOOL (POWERED: SAW, GRINDER, ETC.) HAND TOOL (NON POWERED) MECHANICAL POWER TRANSMISSION APPARATUS GUARD, SHIELD (FIXED, MOVEABLE, INTERLOCK) VIDEO DISPLAY TERMINAL PUMP, COMPRESSOR, AIR PRESSURE TOOL HEATING EQUIPMENT WELDING EQUIPMENT	INANIMATE OBJECT BOX, BARREL, ETC. PAPER METAL ITEM, MINERAL NEEDLE GLASS SCRAP, TRASH, WOOD FOOD CLOTHING, APPAREL, SHOES
MACHINE OR TOOL HAND TOOL (POWERED: SAW, GRINDER, ETC.) HAND TOOL (NON POWERED) MECHANICAL POWER TRANSMISSION APPARATUS GUARD, SHIELD (FIXED, MOVEABLE, INTERLOCK) VIDEO DISPLAY TERMINAL PUMP, COMPRESSOR, AIR PRESSURE TOOL HEATING EQUIPMENT WELDING EQUIPMENT	INANIMATE OBJECT BOX, BARREL, ETC. PAPER METAL ITEM, MINERAL NEEDLE GLASS SCRAP, TRASH, WOOD FOOD CLOTHING, APPAREL, SHOES
VEHICLE AS DRIVER OF PRIVATELY OWNED, RENTAL VEH. AS PASSENGER OF PRIVATELY OWNED, RENTAL VEH. DRIVER OF GOVERNMENT VEHICLE PASSENGER OF GOVERNMENT VEHICLE COMMON CARRIER (AIRLINE, BUS, ETC.) AIRCRAFT (NOT COMMERCIAL) BOAT, SHIP, BARGE	ANIMATE OBJECT DOG OTHER ANIMAL PLANT INSECT HUMAN (VIOLENCE) HUMAN (COMMUNICABLE DISEASE) BACTERIA, VIRUS (NOT HUMAN CONTACT)
MATERIAL HANDLING EQUIPMENT EARTHMOVER (TRACTOR, BACKHOE, ETC.) CONVEYOR (FOR MATERIAL AND EQUIPMENT) ELEVATOR, ESCALATOR, PERSONNEL HOIST HOIST, SLING CHAIN, JACK CRANE FORKLIFT HANDTRUCK, DOLLY	PERSONAL PROTECTIVE EQUIPMENT PROTECTIVE CLOTHING, SHOES, GLASSES, GOGGLES RESPIRATOR, MASK DIVING EQUIPMENT SAFETY BELT, HARNESS PARACHUTE

## SECTION 7 - CAUSAL FACTORS

Review thoroughly. Answer each question by marking the appropriate block. **NOTE!** If any answer is yes, explain in section 5 above.

- (1) **DESIGN** - Did inadequacies associated with the building or work site play a role? Would an improved design or layout of the equipment or facilities reduce the likelihood of similar accidents? Were the tools or other equipment designed and intended for the task at hand?
- (2) **INSPECTION/MAINTENANCE** - Did inadequately or improperly maintained equipment, tools, workplace, etc., create or worsen any hazards that contributed to the accident? Would better equipment, facility, work site or work activity inspections have helped avoid the accident?
- (3) **PERSONS PHYSICAL CONDITION** - Do you feel that the accident would probably not have occurred if the employee was in "good" physical condition? If the person involved in the accident had been in better physical condition, would the accident have been less severe or avoided altogether? Was overexertion a factor?
- (4) **OPERATION PROCEDURES** - Did lack of or inadequacy within established operating procedures contribute to the accident? Did any aspect of the procedures introduce any hazard to, or increase the risk associated with the work process? Would establishment or improvement of operating procedures reduce the likelihood of similar accidents?
- (5) **JOB PRACTICES** - Were any of the provision of the Safety and Health Requirements Manual (EM 385-1-1) violated? Was the task being accomplished in a manner which was not in compliance with an established job hazard analysis or activity hazard analysis? Did any established job practice (including EM 385-1-1) fail to adequately address the task or work process? Would better job practices improve the safety of the task?
- (6) **HUMAN FACTORS** - Was the person under undue stress (either internal or external to the job)? Did the task tend toward overloading the capabilities of the person: i.e., did the job require tracking and reacting to many external inputs such as displays, alarms, or signals? Did the arrangement of the workplace tend to interfere with efficient task performance? Did the task require reach strengths, endurance, agility, etc., at or beyond the capabilities of the employee? Was the work environment ill-adapted to the person? Did the person need more training, experience, or practice in doing the task? Was the person inadequately rested to perform safely?
- (7) **ENVIRONMENTAL FACTORS** - Did any factors such as moisture, humidity, rain, snow, sleet, hail, ice, fog, cold, heat, sun temperature changes, wind, tides, floods, currents, terrain; dust, mud, glare, pressure changes, lighting, etc., play a part in the accident?

(8) **CHEMICAL AND PHYSICAL AGENT FACTORS** - Did exposure to chemical agents (either single shift exposure or long-term exposure such as dusts, fibers, (asbestos, etc.), silica, gases (carbon, monoxide, chlorine, etc.), mists, steam, vapors, fumes, smoke, other particulates, liquid or dry chemicals that are corrosive, toxic, explosive or flammable, by-products of combustion or physical agents such as noise, ionizing radiation, non-ionizing radiation (UV radiation created during welding, etc.) contribute to the accident/incident?

(9) **OFFICE FACTORS** - Did the fact that the accident occurred in an office setting or to an office worker have a bearing on its cause? For example, office workers tend to have less experience and training in performing tasks such as lifting office furniture. Did physical hazards within the office environment contribute to the hazard?

(10) **SUPPORT FACTORS** - Was the person using an improper tool for the job? Was inadequate time available or utilized to safely accomplish the task? Were less than adequate personnel resources (in terms of employee skills, number of workers, and adequate supervision) available to get the job done properly? Was funding available, utilized and adequate to provide proper tools, equipment, personnel, site preparation, etc.

(11) **PERSONAL PROTECTIVE EQUIPMENT** - Did the person fail to use appropriate personal protective equipment (gloves, eye protection, hard-toed shoes, respirator, etc) for the task or environment? Did protective equipment provided or worn fail to provide adequate protection from the hazard(s)? Did lack of or inadequate maintenance of protective gear contribute to the accident?

(12) **DRUGS/ALCOHOL** - Is there any reason to believe the person's mental or physical capabilities, judgment, etc., were impaired or altered by the use of drugs or alcohol? Consider the effects of prescription medicine and over the counter medications as well as illicit drug use. Consider the effect of drug or alcohol induced "hangovers".

(13) **JOB/ACTIVITY HAZARD ANALYSIS** - Was a written Job/Activity Analysis completed for the task being performed at the time of the accident? If one was made, did it address the hazard adequately or does it need to be updated? If none made, will one be made? These may also need to be addressed in the Corrective Actions Taken section. Mark the appropriate box. If one was made, attach a copy of the analysis to the report.

(14) **MANAGEMENT** - Did the lack of supervisor or management support play a part in the mishap? Mark the appropriate box.

## **SECTION - 8 OSHA INFORMATION - Complete this section if applicable**

### **SECTION 9 - REPORT PREPARER**

**Providing a completed CSIR to the Contracting Officer is the PRIME CONTRACTOR'S RESPONSIBILITY.** Enter the name, date of report, title, employer, phone number and signature of person completing the accident report and provide it to the Contracting Officer, or his representative, responsible for oversight of that contractor activity. **NOTE!** If prepared by other than the Prime Contractor, a person employed by the Prime Contractor must sign that they have reviewed and concur with the report and it's findings (e.g. company owner, project supervisor/foreman, Safety Officer, etc.).

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## ATTACHMENT 4

### Emergency Contacts

<b>Medical Emergency – 911</b> Facility Medical Response #: (808) 335-4203 Local Ambulance #: 911	<b>Local Occupational Physician (Resource)<sup>a</sup></b> Name: Michael Kusaka, MD Straub 839 S. Beretania St. Honolulu, Oahu, HI 96813 Phone: (808) 522-4320
<b>Fire/Spill Emergency – 911</b> Facility Fire Response #: (808) 335-4333 Local Fire Dept #: 911	<b>ADC Health and Safety and Human Resources Contact</b> Name: James Nakatani Phone: (808) 586-0186
<b>Security &amp; Police – 911</b> Facility Security #: (808) 335-4523/4649 Local Police #: 911	<b>Site Safety and Health Officer (SSHO)</b> Name: Archie Yu Cell: 808-383-5511
<b>Utilities Emergency</b> All Base Utilities: Name: Steven Hironaka PMRF Public Works Department Phone: (808) 335-4628/c: (808)651-9814	<b>O &amp; M Competent Person</b> Name: Brian Tuzon Cell: (808) 639-1772 Office: (808) 332-8652
<b>ADC Program Manager</b> Name: James Nakatani Phone: (808) 586-0186	

<p><b>Facility Contact</b>  Name : Commanding Officer Capt Vincent Young  PMRF Public Works Department  Phone : (808) 335-4252</p>	<p><b>Worker's Compensation and Auto Claims</b>  Report fatalities AND report vehicular accidents involving pedestrians, motorcycles, or more than two cars to the Program Manager.</p>
<p><b>Navy Point of Contact</b>  Name: Jon Hare (Contractor Manu Kai)  Phone: (808) 335-4599</p>	
<p><b>Base Information</b> (808) 335-4111</p>	<p><b>Evacuation Assembly Area(s):</b> PMRF Main gate along Nohili Road.</p>
<p><b>Facility/Site Evacuation Route(s):</b> Proceed along Nohili Road to PMRF entrance along Hwy 50.</p>	
<p><b>Hospital Name/Address:</b>  Kauai Veterans Memorial Hospital  4643 Waimea Canyon Road  Waimea, Kauai, Hawaii</p>	<p><b>Hospital Phone #:</b>  (808) 338-9431</p>

<sup>a</sup> Local Occupational Physician is an available resource, the physician is not under contract to ADC.

**Destination**

**Kauai Veterans Memorial Hospital**

<b>Directions To Hospital</b>			
<b>Starting From:</b>	<b>Arriving At:</b>	<b>Distance:</b>	<b>Approximate Travel Time:</b>
Pacific Missile Range Facility	4643 Waimea Canyon Rd. Waimea, Kauai, HI	6.5 miles	15 minutes
	<b>Directions</b>	<b>miles</b>	
1.	Start out going southeast on Kaumualii Hwy/Hwy 50 towards Lighthouse Rd.	6.2	
2.	Turn left onto Waimea Canyon Drive/Hwy 550	0.2	
3.	End at 4643 Waimea Canyon Drive		

**Hospital Maps:**

See pages that follow.



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**ATTACHMENT 5**  
**ACTIVITY HAZARD ANALYSIS FORMS**

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**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

<b>Activity: <i>Maintenance of Canals, Culverts, and Ravines.</i></b>	<b>Date:</b>
	<b>Project:</b> <b>Kawaiele and Nohili Pump Stations</b>
<b>Description of the work:</b> Canals are to be maintained at the prescribed width and depth. Culverts and ravines are to be cleared of excessive debris at all times, especially during periods of heavy rain to prevent water from backing up to the canals and possibly causing the canal walls to collapse.	<b>Site Supervisor:</b>
	<b>Site Safety Officer:</b>
	<b>Review for latest use:</b> Before the job is performed.

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Visually inspect conditions of existing canals, culverts, and ravines for damage, overgrowth of vegetation, and proper hydraulic function.	Elevated work hazards	Access to canals, culverts, and ravines may require elevated work activities on embankments, platforms, and gangways which can constitute a fall hazard. Fall protection systems shall be used to eliminate fall hazards of 6 feet or greater.
	Slip, trip, fall hazards	<p>Personnel shall take precautions when working in areas where slip, trip, and fall hazards exist by watching their footing and being aware of their surroundings at all times.</p> <p>Work areas shall be kept clear of trash, debris, and hand tools that are not in use, and personnel shall inform one another of any significant terrain hazards (e.g., embankments) in the immediate work area. Such hazards shall be marked as necessary with a traffic cone, CAUTION tape, or similar warning to avoid slips, trips, and falls.</p>
Control vegetation, as necessary to maintain proper hydraulic function.	Heavy lifting hazard	Personnel will plan storage and staging of equipment and materials to minimize lifting and carrying distances. Personnel should use their best personal judgment in determining loads that they can lift safely. In general, individuals should not attempt to lift loads of 50 pounds or more without the assistance of another individual or appropriate lifting equipment

**Activity Hazard Analysis**  
**Kawaiele and Nohili Pump Stations**  
**Pacific Missile Range Facility, Kauai, HI**

<p style="text-align: center;"><b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)</p>	<p style="text-align: center;"><b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)</p>	<p style="text-align: center;"><b>Hazard Controls</b> (Develop specific controls for each potential hazard)</p>
<p>Control vegetation, as necessary to maintain proper hydraulic function. (cont.)</p>	<p>Heavy equipment hazards</p>	<p>Drivers and/or operators of motor vehicles and heavy equipment must have the appropriate qualifications, training, and licensing (as necessary based upon State or local requirements) to drive or operate each specific vehicle or machine. Heavy equipment operators shall be aware of the location of all other site workers while operating the equipment, and site workers shall maintain contact with the operators through verbal communication, line of sight, or other means as appropriate. Drivers of vehicles must take responsibility for ensuring the safety of all passengers and the stability of equipment and materials being hauled or transported.</p> <p>Vehicles and equipment should be inspected by the site safety officer prior to use and periodically during the on-site field activities. Operators should perform daily inspections of their own equipment and machinery and should maintain documentation of these inspections. Vehicles and heavy machinery/equipment should be utilized only for the purpose they were designed and should be operated in accordance with the manufacturer's recommendations and specified limitations.</p>
	<p>Hand/power tool hazards</p>	<p>Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions, and recommendations shall be used only for the purpose for which designed.</p> <p>Hand and power tools will be in good repair and with all required safety devices install and properly adjusted: Power tools designed to accommodate guards shall be equipped with such guards. Reciprocating, rotating and moving parts of equipment shall be guarded if exposed to contact by employees or otherwise create a hazard.</p>
	<p>Excavation (canal dredging) hazards</p>	<p>Competent person will have training, experience, and knowledge of soil analysis; use of protective systems; have the ability to detect conditions that could result in cave-ins, failures in protective systems, and other hazards; and have the authority to take prompt corrective measures to eliminate existing and predictable hazards and stop work when required.</p> <p>Prior to digging, the appropriate dig permit must be obtained and all underground utilities clearly identified. Digging within 2 feet or less of a known utility must be performed by hand digging.</p> <p>Accessible areas within the swing radius of the backhoe or excavator shall be barricaded in such a manner as to prevent an employee from</p>

**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

		<p>being struck or crushed by the equipment. All personnel shall don ANSI compliant hardhats and safety glasses to protect the head and eyes from potential airborne debris/objects.</p> <p>Test the soil to find out if it is stable or likely to collapse. Use a protective system to shore, brace, or slope the sides of the trench. Manufacturer's tabulated data and specifications for shoring or benching will be readily available onsite for review.</p> <p>All personnel in the vicinity of the backhoe/excavator should make eye contact with the operator prior to passing through or near equipment operations so as to make the operator aware of their presence. Only one person shall signal the backhoe/excavator operator. This person shall be thoroughly familiar with all of the equipments operation and shall be able to communicate with the equipment operator with the appropriate hand signals.</p>
	Chemical use/application hazards	<p>Roundup™ may be used for vegetation control in accordance with manufacturers' instructions. Employees will read MSDS for vegetation control materials that will be used on site. If airborne hazards are possible from chemical spray application either suspend activity until hazard is abated or evaluate to see if a respirator is needed.</p>

<b>Equipment to be used</b> (List equipment to be used in the work activity)	<b>Inspection Requirements</b> (List inspection requirements for the work activity)	<b>Training Requirements</b> (List training requirements including hazard communication)
PPE-Level D as specified in Section 4 of APP.	Before each use.	NA
Earth moving equipment (e.g., backhoe,/excavator)	Before each use.	Heavy equipment operator must have the appropriate qualifications, training, and licensing specific to that equipment. Equipment should have safe operating certificate. Competent persons should have training, experience, and knowledge of soil analysis, use of protective systems; have the ability to detect conditions that could result in cave-ins, failures in protective systems, hazardous atmospheres, and other hazards

**Activity Hazard Analysis**  
**Kawaiele and Nohili Pump Stations**  
**Pacific Missile Range Facility, Kauai, HI**

<b>Equipment to be used</b> (List equipment to be used in the work activity)	<b>Inspection Requirements</b> (List inspection requirements for the work activity)	<b>Training Requirements</b> (List training requirements including hazard communication)
		including those associated with confined spaces; and have the authority to take prompt corrective measures to eliminate existing and predictable hazards and stop work when required.
Tree/brush trimmers	Before each use (per manufacturer's specification).	NA
Hand/Power Tools	Before each use (per manufacturer's specification)	NA

**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

**PRINT NAME**

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**Supervisor Name:** \_\_\_\_\_

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**Date/Time:** \_\_\_\_\_

**Safety Officer Name:** \_\_\_\_\_

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**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

<b>Activity: <i>Flood Gates - Operation and Maintenance</i></b>	<b>Date:</b>
	<b>Project:</b> <b>Kawaiele and Nohili Pump Stations</b>
<b>Description of the work:</b> The dry ditch flood gates and flap gates shall be maintained and operational at all times.	<b>Site Supervisor:</b>
	<b>Site Safety Officer:</b>
	<b>Review for latest use:</b> Before the job is performed.

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Inspect flood and flap gates for damage and perform basic maintenance for proper operation and function.	Elevated work hazards	Access to existing flood gates may require elevated work activities on embankments, platforms, and gangways which can constitute a fall hazard. Fall protection systems shall be used to eliminate fall hazards of 6 feet or greater.
	Entanglement hazards	Equipment shall not be repaired while it is in operation. Loose or frayed clothing shall not be worn where it can become entangled.
	Hand/power tool hazards	Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions and recommendations and shall be used only for the purpose for which designed.  Hand and power tools will be in good repair and with all required safety devices install and properly adjusted: Power tools designed to accommodate guards shall be equipped with such guards. Reciprocating, rotating and moving parts of equipment shall be guarded if exposed to contact by employees or otherwise create a hazard.
	Drowning	Use caution when working near steep banks, elevated work areas, and deep or fast water. Where applicable, work in teams of two or more. Assess the need of fall/slip arrest protection (see above) Use flotation device as indicated in Section 4.0.

**Activity Haard Analysis**  
**Kawaiele and Nohili Pump Stations**  
**Pacific Missile Range Facility, Kauai, HI**

<b>Equipment to be used</b> (List equipment to be used in the work activity)	<b>Inspection Requirements</b> (List inspection requirements for the work activity)	<b>Training Requirements</b> (List training requirements including hazard communication)
PPE-Level D as specified in Section 4 of APP.	Before each use.	NA
Hand/Power Tools	Before each use (per manufacturer's specification)	NA

**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

**PRINT NAME**

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**Supervisor Name:** \_\_\_\_\_

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**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

<b>Activity: Maintenance of Power Poles, Transmission Lines, and Pole Transformers.</b>	<b>Date:</b>
	<b>Project:</b> <b>Kawaiele and Nohili Pump Stations</b>
<b>Description of the work:</b> The electrical power lines must be maintained such that there shall be no loss of power to the pump stations. The maintenance work will include pole transformers, guy wires, cross arms, and insulators and any other related items that made the power transmission possible. Specific tasks will include any tree trimming to avoid contact with the power lines. No major repair work is required other than periodic preventive maintenance.	<b>Site Supervisor:</b>
	<b>Site Safety Officer:</b>
	<b>Review for latest use:</b> Before the job is performed.

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Visually inspect power poles, transmission lines, and pole transformers	Traffic hazards	All personnel in and around the work area will wear orange safety vests to increase visibility to passing traffic when working in these areas. Personnel shall also exercise caution and be aware of their surroundings at all times.
	Electrical hazards	Workers shall not tamper with electrical wiring and equipment unless qualified to do so. Only qualified personnel may work on energized equipment that is not being controlled by lockout/tagout procedures. All electrical wiring and equipment must be considered energized until lock-out/tag-out testing procedures are implemented. Only authorized personnel may lockout or tagout machines or equipment in order to perform servicing or maintenance on that machine or equipment.
	Slip, trip, fall hazards	Personnel shall take precautions when working in areas where slip, trip, and fall hazards exist by watching their footing and being aware of their surroundings at all times.  Work areas shall be kept clear of trash, debris, and hand tools that are not in use, and personnel shall inform one another of any significant terrain hazards (e.g., embankment, potholes) in the immediate work area. Such hazards shall be marked as necessary with a traffic cone, CAUTION tape, or similar warning to avoid slips, trips, and falls.
Control vegetation as necessary to eliminate potential contact with power lines.	Traffic hazards	Orange DOT traffic cones will be placed around the perimeter of the working area in order to direct traffic around the work area. All personnel in and around the work area will wear orange safety vests to increase visibility to passing traffic when working in these areas. Personnel shall also exercise caution and be aware of their surroundings at all times. Work will not be performed in heavy vehicle traffic areas after dark.

**Activity Hazard Analysis**  
**Kawaiele and Nohili Pump Stations**  
**Pacific Missile Range Facility, Kauai, HI**

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Control vegetation as necessary to eliminate potential contact with power lines.	Heavy equipment use	<p>Drivers and/or operators of motor vehicles and heavy equipment must have the appropriate qualifications, training, and licensing (as necessary based upon State or local requirements) to drive or operate each specific vehicle or machine. Drivers of vehicles must take responsibility for ensuring the safety of all passengers and the stability of equipment and materials being hauled or transported. Heavy equipment operators shall be aware of the location of all other site workers while operating the equipment, and site workers shall maintain contact with the operators through verbal communication, line of sight, or other means as appropriate.</p> <p>Vehicles and equipment should be inspected by the site safety officer prior to use and periodically during the on-site field activities. Operators should perform daily inspections of their own equipment and machinery and should maintain documentation of these inspections. Vehicles and heavy machinery/equipment should be utilized only for the purpose they were designed and should be operated in accordance with the manufacturer's recommendations and specified limitations.</p>
	Tree/brush pruning hazards	<p>Brush hooks, machetes, limb saws and similar tools used to cut brush and branches should be kept sharp. Always use leather work gloves when using sharp tools. Wear safety glasses when cutting brush to prevent eye injuries. All personnel shall don ANSI-compliant hardhats and safety glasses to protect the head and eyes from potential airborne debris/objects during tree trimming activities.</p> <p>Sharp cutting edges should always be guarded when transporting tools. Always carry cutting tools at your side with the cutting edge away from your body. Machetes should always be kept in sheaths when not in use. Brush hooks, machetes, and hatchets must never be transported in the passenger compartment of vehicles unless they are adequately tied down</p>
	Hand/power tool use	<p>Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions and recommendations and shall be used only for the purpose for which designed.</p> <p>Hand and power tools will be in good repair and with all required safety devices installed and properly adjusted; power tools designed to accommodate guards shall be equipped with such guards. Reciprocating, rotating and moving parts of equipment shall be guarded if exposed to contact by employees or otherwise pose a hazard.</p>

**Activity Hazard Analysis**  
**Kawaiele and Nohili Pump Stations**  
**Pacific Missile Range Facility, Kauai, HI**

<b>Equipment to be used</b> (List equipment to be used in the work activity)	<b>Inspection Requirements</b> (List inspection requirements for the work activity)	<b>Training Requirements</b> (List training requirements including hazard communication)
PPE-Level D as specified in Section 4 of APP.	Before each use.	NA
Heavy equipment (e.g., man-lift), repairs	Before each use.	Heavy equipment operator must have the appropriate qualifications, training, and licensing specific to that equipment. Equipment should have safe operating certificate. Workers completing work on electrical equipment at height should also be trained in electrical safety and fall protection. Examples of controls would be shutting down the power supplying the area where work will be performed, placing guards to prevent direct contact with the lines if the worker falls while on the man lift, etc.
Tree/brush trimmers	Before each use (per manufacturer's specification).	NA
Hand/Power Tools	Before each use (per manufacturer's specification)	NA

**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

**PRINT NAME**

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**Supervisor Name:** \_\_\_\_\_

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**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

<b>Activity: Pump Station Operation and Maintenance</b>	<b>Date:</b>
	<b>Project:</b> Kawaiele and Nohili Pump Stations
<b>Description of the work:</b> A total of six pumps at two pumping stations operate as necessary to lower the level of water at their respective wet wells to a minimum of -2.0 feet mean sea level (msl). All infrastructure that supports the pumps at the pumping stations shall be maintained.	<b>Site Supervisor:</b>
	<b>Site Safety Officer:</b>
	<b>Review for latest use:</b> Before the job is performed.

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Visually inspect all pumps and associated pump station infrastructure for damage and proper function.	Elevated work hazards	Access to existing flood gates and pump stations may require elevated work activities on embankments, platforms, and gangways which can constitute a fall hazard. Fall protection systems shall be used to eliminate fall hazards of 6 feet or greater.
	Slip, trip, fall hazards	Personnel shall take precautions when working in areas where slip, trip, and fall hazards exist by watching their footing and being aware of their surroundings at all times.  Work areas shall be kept clear of trash, debris, and hand tools that are not in use; and personnel shall inform one another of any significant terrain hazards (e.g., embankments) in the immediate work area. Such hazards shall be marked as necessary with a traffic cone, CAUTION tape, or similar warning to avoid slips, trips, and falls.
Maintain pumps as necessary to ensure they are operational and functioning as designed.	Entanglement hazards	Equipment shall not be repaired while it is in operation. Loose or frayed clothing shall not be worn where it can become entangled.
	Electrical hazards	Workers shall not tamper with electrical wiring and equipment unless qualified to do so. Only qualified personnel may work on energized equipment that is not being controlled by lockout/tagout procedures. All electrical wiring and equipment must be considered energized until lock-out/tag-out testing procedures are implemented. Only authorized personnel may lockout or tagout machines or equipment in order to perform servicing or maintenance on that machine or equipment.

**Activity Hazard Analysis**  
**Kawaiele and Nohili Pump Stations**  
**Pacific Missile Range Facility, Kauai, HI**

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Maintain pumps as necessary to ensure they are operational and functioning as designed.	Hand/power tool hazards	Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions, and recommendations shall be used only for the purpose for which designed. Hand and power tools will be maintained in good repair and with all required safety devices installed and properly adjusted; power tools designed to accommodate guards shall be equipped with such guards. Reciprocating, rotating, and moving parts of equipment shall be guarded if exposed to contact by employees or otherwise pose a hazard.
General work area considerations.	Drowning	Use caution when working near steep banks, elevated work areas, and deep or fast-moving water. Where appropriate, work in teams of two or more. Assess the need of fall/slip arrest protection (see above). Use flotation device as indicated in Section 4.0.

<b>Equipment to be used</b> (List equipment to be used in the work activity)	<b>Inspection Requirements</b> (List inspection requirements for the work activity)	<b>Training Requirements</b> (List training requirements including hazard communication)
PPE-Level D as specified in Section 4 of APP.	Before each use.	NA
Hand/Power Tools	Before each use (per manufacturer's specification)	NA

**Activity Hazard Analysis  
Kawaiele and Nohili Pump Stations  
Pacific Missile Range Facility, Kauai, HI**

**PRINT NAME**

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**Supervisor Name:** \_\_\_\_\_

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## ATTACHMENT 6

### Chemical List

2-cycle oil  
Aqua-Gel  
AquaMaster  
Chevron Ultra Duty Grease  
Chevron Regular Unleaded Gasoline  
Devran 224HS Primer  
Echo Bar Chain Oil  
Equipco Buffer Solution pH 7.00  
Fisher pH 4- buffer solution  
Fisher pH 7- buffer solution  
GoJo Natural Orange Pumice Hand Cleaner  
GST Oil 32  
Kearney Rust Cutter  
Markson pH 4 buffer solution  
Markson pH 7 buffer solution  
Markson pH 10 buffer solution  
Never-Seez Regular Grade Compound  
Palgard Epoxy Part B  
Propane Ace Hardware  
TechGard HS Acrylic Urethane – Part A  
Krud Kutter Gel  
Wasp Freeze  
WaterPlug  
WD-40  
Roundup™ herbicide





**ATTACHMENT 7**

**CHEMICAL SPECIFIC TRAINING FORM**

**CONTINUED**

The SSHO shall use the product MSDS to provide the following information concerning each of the products listed above.

Physical and health hazards

Control measures that can be used to provide protection (including appropriate work practices, emergency procedures, and personal protective equipment to be used)

Methods and observations used to detect the presence or release of the regulated product in the workplace (including periodic monitoring, continuous monitoring devices, visual appearance or odor of regulated product when being released, etc.)

Training participants shall have the opportunity to ask questions concerning these products and, upon completion of this training, will understand the product hazards and appropriate control measures available for their protection.

Copies of MSDSs, chemical inventories, and written hazard communication program shall be made available for employee review in the facility/project hazard communication file.

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# Severe Weather Contingency Plan

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## I. General

This Severe Weather Contingency Plan identifies protective actions to take in the event of impending or actual severe weather conditions.

### A. Assignment of Responsibility

Event Leader Name: Brian Tuzon

Email: Hooipo2uz@hotmail.com

Phone Number (Day of Event): 808-639-1772/808-652-6667

- a. The Event Leader shall manage the Severe Weather Contingency Plan.
- b. The Event Leader is responsible for notifying crew members of any impending severe weather and finding a safe designated assembly area in the event severe weather occurs.
- c. The Event Leader will monitor weather conditions during work hours.

## II. Contingency Plan

The possibility of severe weather exists at any time, and has the potential to negatively impact our regular works. To ensure proper considerations have been taken, weather conditions will be monitored during work hours.

**In the event of severe weather, regular work will be immediately interrupted and the Severe Weather Contingency Plan will be activated.**

### A. Weather Forecast

Event leader needs to check local weather at least twice a day, or more if needed.

### B. Procedures

- a. In case of flash flood watch, inform all the crew and be ready to leave a pump station immediately. In case of flash warning, stop all work in the pump station, and report to Brian, and return to the base yard.

If lightning is observed, all work in open areas shall stop. All crew shall stay in the vehicle and roll up the windows. A determination shall be made as to the proximity to the operation being performed. Once lightning is seen, count the number of sections until you hear the thunder. Divide number of seconds by 5 to get the distance the lightning is away from you. If lightning is 10 miles away or less, wait at least 30 minutes after the last clap of thunder before leaving your vehicle. Report to Brian.

- C. Notification: All emergencies will be reported to the site safety and health officer at 808-383-5511.

## Critical Lift Plan

Critical lift is a non-routine crane lift requiring detailed planning and additional or unusual safety precautions. Critical plan can be one of the followings:

1. A lift that exceeds 75% of the rated capacity of the crane, or derrick;
2. Requires the use of more than one crane or derrick;
3. Load testing;
4. Hoist/lift personnel;
5. Lifts involving hazardous materials e.g. explosives, highly volatile substances);
6. Lifts without the use of outriggers using rubber tire load charts;
7. Lift involving submerged loads except lifts that were engineered to travel in guided slots throughout the lift and have fixed rigging and/or lifting beams, i.e. intake gates, tailgates/logs)
8. Lift out of the operator's view except if hand signals or radio communications are in use, load weights less than 2 tons, and is determined a routine lift by the competent person.
9. Any lift the operator believes should be considered critical.

Company \_\_\_\_\_

Reference # \_\_\_\_\_

Site Location: \_\_\_\_\_ Date: \_\_\_\_\_

Type of Lifting Equipment (brand, model, Serial #, capacity):

\_\_\_\_\_

Date and Duration of Lifting Operation: \_\_\_\_\_

Details of Working Area/where Equipment will be Sited or regularly Operated. Attached sketch if necessary:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name of Crane Company: (if applicable) \_\_\_\_\_

Name of Competent Person: \_\_\_\_\_

Name of Signaler: \_\_\_\_\_

Name of Crane Operator, certificate #, expiration date:

\_\_\_\_\_

Name of Slinger: \_\_\_\_\_

Method of Communication: Radio / Hand signals / Others (please specify)

Lift Details

Description of Load to be Lifted: \_\_\_\_\_

Max Weight of Load: (estimate or exact) \_\_\_\_\_

Radius at which Load is to be Placed \_\_\_\_\_

Boom length to be Used \_\_\_\_\_

Safe Working Load Capacity at Given Radius \_\_\_\_\_

Weight of Hook blocks, Lifting Equipment and Extension (if applicable) \_\_\_\_\_

Max. Available Lifting Capacity for Load to be Lifted \_\_\_\_\_

Acceptable? Yes or No

Details of Lifting Gears (attach sketch if appropriate), e.g. chains, slings, lift points, sharp edges.

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Risk Assessments (if yes, please explain):

1. Adjacent structures
2. Manhole covers
3. Other lifting equipment
4. Access/egress routes
5. Width restrictions
6. Overhead cables
7. Underground services
8. Ground conditions (soft, slope, etc)
9. Excavations

10. Wind speed greater than 20 mph
11. Traffic control problem
12. Other hazards, be specific

**Written Program**  
**for**  
**Control of Hazardous Energy**  
**(Lockout/Tagout)**  
**At**  
**Kawaiele Pump Station**

# The Control of Hazardous Energy (Lockout/Tagout) Procedure

## Table of Contents

- I. Objective
- II. Assignment of Responsibility
- III. Procedures
  - A. Preparation for Lockout or Tagout
  - B. Electrical
  - C. Release from Lockout/Tagout
  - D. Service or Maintenance Involving More than One Person
  - E. Removal of an Authorized Employee's Lockout/Tagout by the Company
  - F. Shift or Personnel Changes
  - G. Procedures for Outside Personnel/Contractors
  - H. Training and Communication
  - I. Periodic Inspection
- IV. Attachments
  - A. List of Authorized Personnel for Lockout/Tagout Procedures Form
  - B. Certification of Training of Authorized Personnel Form
  - C. Certification of Training of Affected Personnel Form
  - D. Lockout/Tagout Inspection Certification Form
  - E. Lockout/Tagout Energy Control Procedures

# Kawaiele Pump Station

## Lockout/Tagout Procedure

### I. OBJECTIVE

The objective of this procedure is to establish a means of positive control to prevent the accidental starting or activating of electrical systems while they are being repaired, cleaned and/or serviced. This program serves to:

- A. Establish a safe and positive means of shutting down machinery, equipment and systems.
- B. Prohibit unauthorized personnel from starting machinery or equipment while it is being serviced.
- C. Provide a secondary control system (tagout) when it is impossible to positively lockout the machinery or equipment.
- D. Establish responsibility for implementing and controlling lockout/tagout procedures.
- E. Ensure that only approved locks, standardized tags and fastening devices provided by the company will be utilized in the lockout/tagout procedures.

### II. ASSIGNMENT OF RESPONSIBILITY

- A. Brian Tuzon will be responsible for implementing the lockout/tagout program.
- B. Brian Tuzon is responsible for enforcing the program and insuring compliance with the procedures in their departments.
- C. Brian Tuzon is responsible for monitoring the compliance of this procedure and will conduct the annual inspection and certification of the authorized employees.
- D. Authorized employees (those listed in Attachment A) are responsible for following established lockout/tagout procedures.
- E. Affected employees (all other employees in the facility) are responsible for insuring they do not attempt to restart or re-energize machines or equipment which are locked out or tagged out.

### III. PROCEDURES

The ensuing items are to be followed to ensure both compliance with the OSHA Control of Hazardous Energy Standard and the safety of our employees.

#### A. Preparation for Lockout or Tagout

Employees who are required to utilize the lockout/tagout procedure (see Attachment A) must be knowledgeable of the different energy sources and the proper sequence of shutting off or disconnecting energy means. The four types of energy sources are:

1. electrical (most common form);
2. hydraulic or pneumatic;

Control of Hazardous Energy (Lockout/Tagout)

3. fluids and gases; and
4. mechanical (including gravity).

For the motor control circuit at Kawaiie pump station, there is only electrical energy. See Attachment F for specific procedure format.

## **B. Electrical**

1. Shut off power at machine and disconnect.
2. Disconnecting means must be locked or tagged.
3. Press start button to see that correct systems are locked out.
4. All controls must be returned to their safest position.
5. Points to remember:
  - a. If a machine or piece of equipment contains capacitors, they must be drained of stored energy.
  - b. Possible disconnecting means include the power cord, power panels (look for primary and secondary voltage), breakers, the operator's station, motor circuit, relays, limit switches, and electrical interlocks.
  - c. Some equipment may have a motor isolating shut-off and a control isolating shut-off.
  - d. If the electrical energy is disconnected by simply unplugging the power cord, the cord must be kept under the control of the authorized employee or the plug end of the cord must be locked out or tagged out.

## **C. Release from Lockout/Tagout**

1. Inspection: Make certain the work is completed and inventory the tools and equipment that were used.
2. Clean-up: Remove all towels, rags, work-aids, etc.
3. Replace guards: Replace all guards possible. Sometimes a particular guard may have to be left off until the start sequence is over due to possible adjustments. However, all other guards should be put back into place.
4. Check controls: All controls should be in their safest position.
5. The work area shall be checked to ensure that all employees have been safely positioned or removed and notified that the lockout/tagout devices are being removed.
6. Remove locks/tags. Remove only your lock or tag.

## **D. Service or Maintenance Involving More than One Person**

When servicing and/or maintenance is performed by more than one person, each authorized employee shall place his own lock or tag on the energy isolating source. This shall be done by utilizing a multiple lock scissors clamp if the equipment is capable of being locked out. If the equipment cannot be locked out, then each authorized employee must place his tag on the equipment.

## **E. Removal of an Authorized Employee's Lockout/Tagout by the Company**

Each location must develop written emergency procedures that comply with 1910.147(e)(3) to be utilized at that location. Emergency procedures for removing lockout/tagout should include the following:

1. Verification by employer that the authorized employee who applied the device is not in the facility.
2. Make reasonable efforts to advise the employee that his/her device has been removed. (This can be done when he/she returns to the facility).
3. Ensure that the authorized employee has this knowledge before he/she resumes work at the facility.

#### **I. Shift or Personnel Changes**

Each facility must develop written procedures based on specific needs and capabilities. Each procedure must specify how the continuity of lockout or tagout protection will be ensured at all times. See 1910.147(e)(4).

#### **J. Procedures for Outside Personnel/Contractors**

Outside personnel/contractors shall be advised that the company has and enforces the use of lockout/tagout procedures. They will be informed of the use of locks and tags and notified about the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

The company will obtain information from the outside personnel/contractor about their lockout/tagout procedures and advise affected employees of this information.

The outside personnel/contractor will be required to sign a certification form. If outside personnel/contractor has previously signed a certification that is on file, additional signed certification is not necessary.

#### **K. Training and Communication**

Each authorized employee who will be utilizing the lockout/tagout procedure will be trained in the recognition of applicable hazardous energy sources, type and magnitude of energy available in the work place, and the methods and means necessary for energy isolation and control.

Each affected employee (all employees other than authorized employees utilizing the lockout/tagout procedure) shall be instructed in the purpose and use of the lockout/tagout procedure, and the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

Training will be certified using Attachment B (Authorized Personnel) or Attachment C (Affected Personnel). The certifications will be retained in the employee personnel files.

#### **L. Periodic Inspection**

A periodic inspection (at least annually) will be conducted of each authorized employee under the lockout/tagout procedure. This inspection shall be performed by the Brian Tuzon or others as appointed by Lord Electric.

The inspection will include a review between the inspector and each authorized employee of that employee's responsibilities under the energy control (lockout/tagout) procedure. The inspection will also consist of a physical inspection of the authorized employee while performing work under the procedures.

The responsible person, Brian Tuzon, shall certify in writing that the inspection has been performed. The written certification (Attachment D) shall be retained in the individual's personnel file.

ATTACHMENT A

**List of Authorized Personnel  
for  
Lockout/Tagout Procedures**

NAME	JOB TITLE
Brian Tuzon	Electrician

ATTACHMENT B

**Certification of Training  
(Authorized Personnel)**

I certify that I received training as an authorized employer under Lord Electric Lockout/Tagout program. I further certify that I understand the procedures and will abide by those procedures.

\_\_\_\_\_  
AUTHORIZED EMPLOYEE SIGNATURE

\_\_\_\_\_  
DATE

ATTACHMENT C

**Certification of Training  
(Affected Personnel)**

I certify that I received training as an Affected Employee under Lord Electric Lockout/Tagout Program. I further certify and understand that I am prohibited from attempting to restart or re-energize machines or equipment that are locked out or tagged out.

\_\_\_\_\_  
AFFECTED EMPLOYEE SIGNATURE

\_\_\_\_\_  
DATE

ATTACHMENT D

**Lockout/Tagout Inspection Certification**

I certify that     **Motor Control Circuit**     was inspected on this date utilizing  
lockout/tagout procedures. The inspection was performed while working on  
    **Motor Control Circuit**     .

\_\_\_\_\_  
AUTHORIZED EMPLOYEE SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
INSPECTOR'S SIGNATURE

\_\_\_\_\_  
DATE

ATTACHMENT E

**Lockout/Tagout  
Energy Control Procedures  
Specific to Each Machine**

Preparation for Shut Down

1. Identify equipment to be shut down: \_\_\_\_\_
2. Location in facility: \_\_\_\_\_
3. Procedures to notify all **affected employees**: \_\_\_\_\_  
\_\_\_\_\_
4. Identify **all** power sources:
  - a) Electrical: \_\_\_\_\_
  - b) Other: \_\_\_\_\_
5. Identify lockout/tagout devices to be used: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Shut Down

Description of the shut down procedures: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Isolation

Procedures for isolation of equipment from **all** power sources: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lockout/Tagout Device Application

Procedure for locking out or tagging out equipment: \_\_\_\_\_  
\_\_\_\_\_

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### Release of Stored Energy

Procedures for the release of stored energy (where applicable): \_\_\_\_\_

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### Verification of Isolation

Procedures to ensure that equipment is isolated from **all** power sources: \_\_\_\_\_

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### Start-Up

1. Visual inspection of the machine and equipment. Ensure all tools have been removed. Return guards to place.
2. Notify all **affected employees** and **other** employees of the start up.
3. Remove all lockout/tagout devices and restore power.

**Fall Protection Plan**  
**for**  
**Kawaiele Pump Station**

# **Fall Protection Program Table of Contents**

- I. Objective
- II. Policy
- III. Assignment of Responsibility
- IV. Training
- V. Fall Protection Systems
  - A. Covers
  - B. Guardrail Systems
  - C. Personal Fall Arrest Systems
  - D. Positioning Device Systems
- VI. Tasks and Work Areas Requiring Fall Protection
  - A. Holes
  - B. Leading Edges
  - C. Ramps, Runways, and Other Walkways
- VII. Accident Investigations
- VIII. Changes to the Plan
- IX. Glossary

**Fall Protection Program**  
**for**  
***Agribusiness Development Corporation***

**I. OBJECTIVE**

The objective of the ***Agribusiness Development Corporation*** Fall Protection Program is to identify and evaluate fall hazards to which employees/contractors will be exposed, and to provide specific training as required by the Occupational Safety and Health Administration (OSHA) Fall Protection Standard, 29 CFR 1926, Subpart M.

**II. POLICY**

It is the policy of ***Agribusiness Development Corporation*** to protect its employees/contractors from occupational injuries by implementing and enforcing safe work practices and appointing a competent person(s) to manage the Fall Protection Program. The ***Agribusiness Development Corporation*** Fall Protection Program shall comply with the OSHA requirements. A copy of the OSHA Fall Protection Standard shall be made available to all employees/contractors, and may be obtained from Mr. Brian Tuzon.

**III. ASSIGNMENT OF RESPONSIBILITY**

A. Contractor

The contractor for ***Agribusiness Development Corporation*** is to provide fall protection to affected employees, and to ensure that all employees understand and adhere to the procedures of this plan and follow the instructions of Mr. Brian Tuzon.

B. Program Manager

It is the responsibility Mr. Brian Tuzon as the Fall Protection Program Manager to implement this program by:

1. performing routine safety checks of work operations;
2. enforcing safety policy and procedures;
3. correcting any unsafe practices or conditions immediately;
4. training employees in recognizing fall hazards and the use of fall protection systems;
5. maintaining records of training, equipment issue, and fall protection systems used at ***Agribusiness Development Corporation*** jobsites; and

6. investigating and documenting all incidents that result in employee injury.

### C. Employees

It is the responsibility of all employees to:

1. understand and adhere to the procedures outlined in this Fall Protection Program;
2. follow the instructions of Mr. Brian Tuzon;
3. bring to management's attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees; and
4. report any incident that causes injury to an employee, regardless of the nature of the injury.

## IV. TRAINING

A. All employees who may be exposed to fall hazards are required to receive training on how to recognize such hazards, and how to minimize their exposure to them. Employees shall receive training as soon after employment as possible, and before they are required to work in areas where fall hazards exist.

B. A record of employees who have received training and training dates shall be maintained by the site safety and health officer. Training of employees by site safety and health officer shall include:

1. Nature of the fall hazards employees may be exposed to.
2. Correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems.
3. Use and operation of guardrails, personal fall arrest systems.
4. Requirements of the OSHA Fall Protection Standard, 29 CFR 1926, Subpart M.
5. Requirements for reporting incidents that cause injury to an employee to Agribusiness Development Corporation.

C. Additional training shall be provided on an annual basis, or as needed when changes are made to this Fall Protection Program, or the OSHA Fall Protection Standard.

## **V. FALL PROTECTION SYSTEMS**

### **A. Covers**

1. All covers shall be secured to prevent accidental displacement.
2. Covers shall be color-coded or bear the markings “HOLE” or “COVER”.
3. Covers located in roadways shall be able to support twice the axle load of the largest vehicle that might cross them.
4. Covers shall be able to support twice the weight of employees, equipment, and materials that might cross them.

### **B. Guardrail Systems**

Guardrail systems shall be erected at unprotected edges, ramps, runways, or holes where it is determined by the Site Safety and Health Officer that erecting such systems will not cause an increased hazard to employees. The following specifications will be followed in the erection of guardrail systems. Toprails shall be:

1. at least ¼ inch in diameter (steel or plastic banding is unacceptable);
2. flagged every six (6) feet or less with a high visibility material if wire rope is used;
3. inspected by Mr. Brian Luzon as frequently as necessary to ensure strength and stability;
4. forty-two (42) inches (plus or minus three (3) inches) above the walking/working level; and
5. adjusted to accommodate the height of stilts, if they are in use.

Midrails, screens, mesh, intermediate vertical members, and solid panels shall be erected in accordance with the OSHA Fall Protection Standard.

Gates or removable guardrail sections shall be placed across openings of hoisting areas or holes when they are not in use to prevent access.

### C. Personal Fall Arrest Systems

1. Personal fall arrest systems shall be used by employees/contractors as determined by the site safety and health officer and may consist of anchorage, connectors, body harness, deceleration device, lifeline, or suitable combinations. Personal fall arrest systems shall:

- a. limit the maximum arresting force to 1800 pounds;
- b. be rigged so an employee cannot free fall more than six (6) feet or contact any lower level;
- c. bring an employee to a complete stop and limit the maximum deceleration distance traveled to three and a half (3½) feet;
- d. be strong enough to withstand twice the potential impact energy of an employee free falling six (6) feet (or the free fall distance permitted by the system, whichever is less);
- e. be inspected prior to each use for damage and deterioration; and
- f. be removed from service if any damaged components are detected.

2. All components of a fall arrest system shall meet the specifications of the OSHA Fall Protection Standard, and shall be used in accordance with the manufacturer's instructions.

- a. The use of non-locking snaphooks is prohibited.
- b. Dee-rings and locking snaphooks shall:
  - i. have a minimum tensile strength of 5000 pounds; and
  - ii. be proof-tested to a minimum tensile load of 3600 pounds without cracking, breaking, or suffering permanent deformation.
- c. Lifelines shall be:
  - i. designed, installed, and used under the supervision of Mr. Brian Luzon
  - ii. protected against cuts and abrasions; and
  - iii. equipped with horizontal lifeline connection devices capable of locking in both directions on the lifeline when

used on suspended scaffolds or similar work platforms that have horizontal lifelines that may become vertical lifelines.

- d. Self-retracting lifelines and lanyards must have ropes and straps (webbing) made of synthetic fibers, and shall:
  - i. sustain a minimum tensile load of 3600 pounds if they automatically limit free fall distance to two (2) feet; or
  - ii. sustain a minimum tensile load of 5000 pounds (includes ripstitch, tearing, and deforming lanyards).
- e. Anchorages must support at least 5000 pounds per person attached and shall be:
  - i. designed, installed, and used under the supervision of Mr. Brian Luzon;
  - ii. capable of supporting twice the weight expected to be imposed on it; and
  - iii. independent of any anchorage used to support or suspend platforms.

#### D. Positioning Device Systems

Body belt or body harness systems shall be set up so that an employee can free fall no farther than two (2) feet, and shall be secured to an anchorage capable of supporting twice the potential impact load or 3000 pounds, whichever is greater. Requirements for snaphooks, dee-rings, and other connectors are the same as detailed in this Program under *Personal Fall Arrest Systems*.

## **VI. TASKS AND WORK AREAS REQUIRING FALL PROTECTION**

Unless otherwise specified, Mr. Brian Luzon shall evaluate the worksite(s) and determine the specific type(s) of fall protection to be used in the following situations.

#### A. Holes

Covers or guardrail systems shall be erected around holes (including skylights) that are six (6) feet or more above lower levels. If covers or guardrail systems must be removed, employees are required to use personal fall arrest systems.

#### B. Leading Edges

Guardrail systems, or personal fall arrest systems shall be used when employees/contractors are standing on a leading edge that is six (6) feet or more above lower levels.

### C. Ramps, Runways, and Other Walkways

Employees using ramps, runways, and other walkways six (6) feet or more above the lower level shall be protected by guardrail systems.

## VII. ACCIDENT INVESTIGATIONS

All incidents that result in injury to workers, as well as near misses, regardless of their nature, shall be reported and investigated. Investigations shall be conducted by site safety and health officer as soon after an incident as possible to identify the cause and means of prevention to eliminate the risk of reoccurrence.

In the event of such an incident, the Fall Protection Program shall be reevaluated by site safety and health officer to determine if additional practices, procedures, or training are necessary to prevent similar future incidents.

## VIII. CHANGES TO THE PLAN

Any changes to the Fall Protection Program shall be approved by site safety and health officer, as the job progresses to determine additional practices, procedures or training needs necessary to prevent fall injuries. Affected employees shall be notified of all procedure changes, and trained if necessary. A copy of this plan shall be maintained at the jobsite by Mr. Brian Luzon.

## IX. RESCUE PLAN

A rough terrain telescopic forklift with a man basket is readily available on site.

## X. GLOSSARY

**Anchorage**: a secure point of attachment for lifelines, lanyards, or deceleration devices.

**Body belt**: a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

**Body harness**: straps that may be secured about the person in a manner that distributes the fall-arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with a means for attaching the harness to other components of a personal fall arrest system.

**Connector**: A device that is used to couple (connect) parts of a personal fall arrest system or positioning device system together. **Deceleration device**: any mechanism, such as a rope, grab, ripstitch lanyard, specially-woven lanyard,

tearing lanyard, deforming lanyard, or automatic self-retracting lifeline/lanyard, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limits the energy imposed on an employee during fall arrest.

**Deceleration distance:** the additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.

**Guardrail system:** a barrier erected to prevent employees from falling to lower levels.

**Hole:** a void or gap two (2) inches (5.1 centimeters) or more in the least dimension in a floor, roof, or other walking/working surface.

**Lanyard:** a flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

**Leading edge:** the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as a deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed.

**Lifeline:** a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), that serves as a means for connecting other components of a personal fall arrest system to an anchorage.

**Opening:** a gap or void 30 inches (76 centimeters) or more high and 18 inches (46 centimeters) or more wide, in a wall or partition through which employees can fall to a lower level.

**Personal fall arrest system:** a system including but not limited to an anchorage, connectors, and a body harness used to arrest an employee in a fall from a working level.

**Positioning device system:** a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning backwards.

**Rope grab:** a deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.

**Self-retracting lifeline/lanyard:** a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension during normal employee movement and which, after onset of a fall, automatically locks the drum and arrests the fall.

**Snaphook**: a connector consisting of a hook-shaped member with a normally closed keeper, or a similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically, closes to retain the object.

**Unprotected sides and edges**: any side or edge (except at entrances to points of access) of a walking/working surface (e.g., floor, roof, ramp, or runway) where there is no wall or guardrail system at least 39 inches (1 meter) high.

**Walking/working surface**: any surface, whether horizontal or vertical, on which an employee walks or works, including but not limited to floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel. Does not include ladders, vehicles, or trailers on which employees must be located to perform their work duties.



# DEVTRAN® 224HS

## High Solids Epoxy Coating

Cat. # 224FNXXXX/224GN0908

### PRODUCT DESCRIPTION

**Generic:** Catalyzed Polyamide Epoxy

**General Description:** A high performance, multi-purpose, surface tolerant, two-component chemically-cured epoxy semi-gloss coating for industrial or high performance architectural coating (HIPAC) applications. For use on properly prepared steel or masonry surfaces.

**Typical Uses:** Ideal for structural steel, piping, tanks, and equipment in chemical, fertilizer, power plants, petroleum refineries, pulp and paper mills, water and sewage treatment plants and mining operations.

Can also be used in the hard service areas of correctional facilities, schools, commercial and restaurant kitchens where a high performance architectural coating (HIPAC) is required.

**Special Qualifications:** Performance alternate for Federal Specifications TT-C-550, TT-C-535B, MIL-C-22750F, and MIL-P-23377F Type I.

### FEATURES

**Advantages:**

- Excellent corrosion protection
- Resists splash and spillage of solvents, alkalis, salts, moisture, oils, greases, foodstuffs and detergents
- Cold weather cure – Use cold weather additive for application down to 25°F (-4°C)
- Surface tolerant
- Low VOC
- Self-priming on steel or masonry
- Abrasion resistant
- High build/high solids coating

**Limitations of Use:** Exterior exposure will cause a color change, early dulling, and loss of gloss, but this does not affect protective properties. Epoxy coatings may yellow during application and cure if exposed to the combustion by-products of improperly vented fossil fuel burning heaters. Commonly finished with DEVTHANE® Urethane Enamel for maximum exterior color & gloss retention. Use only products that are in compliance with local VOC regulations.

### SPECIFICATION DATA

**Color:** Off White, ready-mixed & custom colors

**Finish:** Semi-Gloss

**Weight/Gallon:** 12.5 lbs./gal. (1.5 kg/L) – varies with color.

**VOC (EPA24):** 1.8 lbs./gal. (212 g/L) – varies with color.

When thinned 5% with T-10 thinner, VOC < 250 g/L (2.08 lbs./gal)

When thinned 10% with T-10 thinner, VOC < 275 g/L (2.29 lbs./gal)

224FN3501 VOC (EPA 24) (TBAC Exempt): < 100 g/L (0.83 lbs./gal.)

224FN3501 VOC (TBAC Non-Exempt): <250 g/L (2.08 lbs./gal.)

**Solids By Volume (ASTM D 2697-7days):** 75%±2% – varies with color.

**Theoretical Coverage at 1.0 Mil (25 microns) Dry:** 1203 sq. ft./gal. (29.5 m<sup>2</sup>/L).

**Recommended Film Thickness:** 4.0-8.0 mils (100-200 microns) dry – 5.3-10.7 mils (155-267 microns) wet.

**Systems:** Please consult the appropriate system guide, the particular job specification or your ICI Paints Representative for proper systems using this product. Systems must be selected considering the particular environment involved.

**Minimum Dry Time (ASTM D 1640):** At 6 mils (150 microns) DFT (Use of cold weather additive will decrease times noted. See cold weather applications on back page.)

Substrate Temperature	40°F (4°C)	60°F (16°C)	70°F (21°C)	80°F (27°C)
Minimum Recoat	20 Hours	8 Hours	6 Hours	3 Hours
Dry Hard	42 Hours	16 Hours	9 Hours	5 Hours
Maximum Recoat				
Self	30 Days	30 Days	30 Days	30 Days
359, 389	15 Days	10 Days	7 Days	7 Days
378, 379	10 Days	7 Days	5 Days	3 Days

Ventilation, film thickness, humidity, thinning and other factors can influence the rate of dry.

**Warning:** The above table provides general guidelines only. Always consult your ICI Paints Representative for appropriate recoat windows since the maximum aged recoat time of this product may be significantly shortened or lengthened by a variety of conditions, including, but not limited to humidity, surface temperature, and the use of additives or thinners. The use of accelerators or force curing may shorten the aged recoat of individual coatings. The above recoat windows may not apply if recoating with a product other than those listed above. If the maximum aged recoat window is exceeded, please consult your ICI Paints Representative for appropriate recommendations to enhance adhesion. Failure to observe these precautions may result in intercoat delamination.

**Shelf Life:** Over 24 months at 77°F (25°C) – unopened

**Mix Ratio By Volume:** 1 (base): 1 (converter) – see mixing instructions.

**Induction:** 15 minutes at 60-80°F (16-27°C) – see mixing instructions.

**Pot Life:** 6 hours @ 77°F (25°C) & 50% R.H

### PERFORMANCE DATA

**Adhesion:** (ASTM D 4541) – Excellent

**Salt Spray Resistance:** (ASTM B 117) – Excellent

**Direct Impact Resistance:** (ASTM D 2794) – Very Good

**Abrasion Resistance:** (ASTM D 4060) – Excellent

**Humidity Resistance:** (ASTM D 4585) – Excellent

**Exterior Exposure:** (45° South – Lt. Industrial) – Very Good (Normal, expected loss of gloss for epoxy coatings)

**Service Temperature Limits:** 250°F (121°C) dry

**Hardness:** (ASTM D 3363), 7 day cure @ 77°F (25°C) – 3H

**Chemical Resistance:** (ASTM D 1308 – 24 hr. contact) – Excellent.

Resists splash and spillage of alkalis, salts, moisture, oils, greases, food stuffs, and detergents, 50% 3, 25% citric acid, 25% lactic acid, 10% sulfuric acid, crude oil, 10% hydrochloric acid, 20% tannic acid, 5% sodium chloride, 10% ammonium hydroxide, sewage, 50% ethanol, gasoline, methanol, kerosene, naphtha, xylol. All results based on testing of system comprised of two coats of DEVTRAN 224HS coating at 4 mils (100 microns) DFT per coat.

**DANGER! COMBUSTIBLE. HARMFUL OR FATAL IF SWALLOWED.** Read label and Material Safety Data Sheet Prior to Use. See other cautions on last page.

DSF2-0790

09800

FINISHES SPECIAL COATINGS (9800)

DEVOE COATINGS



DEVOE COATINGS

FINISHES SPECIAL COATINGS (9800)

## GENERAL SURFACE PREPARATION

Surfaces must be dry, clean, free of oil, grease, form release agents, curing compounds, laitance, other foreign matter and be structurally sound. Remove all loose paint, mortar spatter, mill scale, and rust. All direct to metal coatings provide maximum performance over blasted surfaces. There are situations and cost limitations which preclude blasting. DEVRAN® 224HS was designed to provide excellent protection over less than ideal surface preparation. The minimum standard for non-immersion service is SSPC-SP2 (ISO-St2); for immersion service the minimum standard is SSPC-SP10 (ISO-Sa2 1/2). **These minimum surface preparation standards apply to steel that has been previously abrasive blasted, coated and deteriorated.** Where very rusty surfaces still remain after cleaning use PRE-PRIME™ 167 Sealer before application of DEVRAN 224HS coating. **All direct to metal coatings provide maximum performance over near-white blasted surfaces.**

**New Surfaces: Steel** –New steel surfaces should be initially blasted to near-white metal surface cleanliness in accordance with SSPC-SP10 or ISO-Sa2 1/2 for immersion service or commercial blast cleanliness in accordance with SSPC-SP6 or ISO-Sa2 for non-immersion service. Blast profile on steel should be 1.2 to 2.5 mils (38-63 microns) in depth and be of a sharp, jagged nature as opposed to a “peen” pattern (from shot blasting). Surfaces must be free of grit dust. **Concrete Block** –Remove loose aggregate and repair voids. Fill with this product or TRU-GLAZE-WB™ 4015 filler. **Concrete Floors, Poured Concrete** – Cure at least 30 days. Acid etch or abrasive blast slick,

glazed concrete or concrete with laitance. Prime with PRE-PRIME 167 sealer or this coating. **Galvanized Steel** –Remove dirt and oils by solvent cleaning or with DEVPREP® 88 cleaner or other suitable cleaner followed by a thorough water rinsing. For non-immersion service, prime with DEVRAN 205 or DEVRAN 203 epoxy primers. For immersion or severe moisture condition, abrasive blasting is recommended before priming with this product or DEVRAN 201. Choice of primer depends on local VOC and air quality regulations.

**Previously Painted Surfaces:** Old coatings should be tested for lifting. If lifting occurs, remove the lifted coating. Otherwise scuff sand glossy areas and aged epoxy coatings. Clean aged epoxy or urethane coatings with DEVPREP 88 cleaner. Remove cracked and peeling paint. Prime bare areas with primer specified under **New Surfaces**.

**WARNING! If you scrape, sand, or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD or log on to [www.epa.gov/lead](http://www.epa.gov/lead).**

## DIRECTIONS FOR USE

**Tinting:** Tint the appropriate base with CHROMA-CHEM® 844 colorants. (Do not use water based colorants). Add colorants to only the base portion. Mix thoroughly before adding the Converter portion.

**Thinning:** For compliance to VOC regulations, thin as follows: South Coast Air Quality Management District (SCAQMD) available in DC224FN3501 only: Thinning is not required, however, if thinning is desired, add acetone or T-0 thinner at no more than 5% by volume. Read and follow all hazard and precautionary information found on labels, data sheets and MSDS's. **California outside of SCAQMD:** Thinning is not required, however, if thinning is desired, add T10 Thinner at no more than 5% by volume. **All other areas:** Thinning is not required, however, if thinning is desired, 10% or less by volume of T-10 Thinner can be added depending on local VOC and air quality regulations. Any solvent addition should be made after the two components are thoroughly mixed.

**Mixing:** DEVRAN 224HS Coating is a two component product supplied in 10 gallon and 2 gallon kits which contain the proper ratio of ingredients. The entire contents of each container must be mixed together. Power mix both portions first to obtain a smooth, homogeneous condition. Then add the converter slowly with continued agitation. After the converter add is complete, continue to mix slowly. Allow the mixed material to stand 15 minutes at 60-80°F (16-27°C) before use. Always restir before use. Avoid storing or placing containers in direct sunlight.

**Application:** Spray is preferred for appearance and film build control. For air spray application, use a fluid tip of .070" or larger, a professional grade conventional gun and an air cap with good break-up. The fluid pressure should be kept low, with just enough air pressure to get good break-up of the coating. Excessive air pressure can cause over-spray problems. Where airless equipment is used, an airless spray pump capable of 3,000 psi (207 bars) and .019" to .025" tip size will provide a good spray pattern. Ideally, fluid hoses should not be less than 3/8" ID and not longer than 50 feet to obtain optimum results. Longer hose length may require an increase in pump capacity, pressure, and/or thinning. DEVRAN 224HS epoxy may also be applied by brush or roller.

Care should be taken that proper and uniform thicknesses are obtained. For roller work use a clean synthetic roller with 1/4"-1/2" nap. New rollers should be thoroughly wet with the specified thinner and spun vigorously to remove loose fibers. Brushing and rolling may require multiple coats to achieve correct film thickness and/or hiding.

**Cold Weather Applications:** For substrate temperatures between 25°F (-4°C) and 40°F (5°C) cold weather additive 060A000 may be added. Two pint containers of 060A000 may be added to the converter portion of a 10 gallon kit of DEVRAN 224HS coating. Thoroughly mix the 060A000 additive in the converter with a power mixer prior to adding the converter to the base portion

**Dry Time (ASTM D 1640):** At 6 Mil (150 microns) DFT with Cold Weather Additive (060A0000)

Substrate Temperature	25°F(-4°C)	30°F(-1°C)	40°F(4°C)
To Recoat	25 hours	16 hours	11 hours2
Dry Hard	>32 hours	24 hours	16 hours

**Spreading Rate:** Apply at 150-300 sq. ft. per gallon (4-7m<sup>2</sup>/L) depending on surface texture and porosity. Make allowance for any losses due to overspray or surface irregularities.

**Dry Time (ASTM D 1640):** At 77°F (25°C) & 50% R.H., dries to recoat with epoxy or urethane in 6 hours and dry hard in 9 hours.

**Clean-up:** Use T-10 Thinner, except in the South Coast Air Quality Management District use acetone, T-0 thinner or other solvent in compliance with local VOC and air quality regulations.

## PRECAUTIONS

**DANGER! COMBUSTIBLE LIQUID AND VAPOR. CORROSIVE. CAUSES EYE AND SKIN BURNS. HARMFUL OR FATAL IF SWALLOWED. ASPIRATION HAZARD - CAN ENTER LUNGS AND CAUSE DAMAGE. HARMFUL IF INHALED. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS, INCLUDING DIZZINESS, HEADACHE OR NAUSEA. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION. OVEREXPOSURE MAY CAUSE BLOOD, LIVER, KIDNEY DAMAGE. CONTAINS CRYSTALLINE SILICA WHICH CAN CAUSE LUNG CANCER AND OTHER LUNG DAMAGE IF INHALED. USE ONLY WITH ADEQUATE VENTILATION. KEEP OUT OF THE REACH OF CHILDREN. NOTICE: Products in this series contain solvents.** Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. For emergency information call (800) 545-2643. **Note: These warnings encompass the product series. Prior to use, read and follow product-specific MSDS and label information.** For emergency information call (800) 545-2643. For additional safety information, refer to the Material Safety Data Sheet for this product. Keep away from heat, sparks and flame. **Do not** smoke. Vapors may ignite. Extinguish all flames, burners, stoves, heaters and pilot lights and disconnect all electrical motors and appliances before use and until all vapors are gone. Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation. If sanding, wear a dust mask to avoid breathing of sanding dust. Do not breathe vapors or spray mist. Ensure fresh air entry during application and drying. Avoid contact with eyes and skin. If you experience eye watering, headaches, or dizziness, leave the area. If properly used, a respirator may offer additional protection. Obtain professional advice before using. Close container after each use. **FIRST AID:** For skin contact, wash thoroughly with soap and water. If any product remains, gently rub with petroleum jelly, vegetable or mineral/baby oil then wash again with soap and water. Repeat as needed. Remove contaminated clothing. For eye contact, flush immediately with plenty of water for at least 15 minutes. **Get medical attention.** If swallowed, **get medical attention immediately.** If inhalation causes discomfort, remove to fresh air. If discomfort persists or breathing difficulty occurs, get medical attention. **KEEP FROM FREEZING.**

DS177-0306

## SHIPPING

<b>Flash Point:</b>	100°F (38°C)	
<b>Packaging:</b>	2 gallon kit (7.570L)	10 gallon kit (37.850L)
	1.00 gallon base	5.00 gallon base
	1.00 gallon converter	5.00 gallon converter

**Shipping Weight::** 4 gallon case (base or converter) - 53 lbs. (24.0 kg)  
10 gallon kit - 133 lbs. (60.3 kg)

224HS (05/07)  
Ad Stock #68634E

\*CHROMA-CHEM is a Registered Trademark of Degussa GmbH.



Strongsville, Ohio U.S.A.  
800-654-2616  
[www.devoecoatings.com](http://www.devoecoatings.com)

**LIMITATION OF LIABILITY:** To the best of our knowledge, the technical data contained herein are true and accurate at the date of issuance but are subject to change without prior notice. We guarantee our product to conform to the specifications contained therein. WE MAKE NO OTHER WARRANTY OR GUARANTEE OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE. Liability, if any, is limited to replacement of the product or refund of the purchase price. LABOR OR COST OF LABOR AND OTHER CONSEQUENTIAL DAMAGES ARE HEREBY EXCLUDED.



# MATERIAL SAFETY DATA SHEET prepared 11/05/08

## HAZARDS IDENTIFICATION (ANSI Section 3)

**Primary route(s) of exposure :** Inhalation, skin contact, eye contact, ingestion.

**Effects of overexposure :**

- Inhalation :** Irritation of respiratory tract. Prolonged inhalation may lead to mucous membrane irritation, fatigue, drowsiness, dizziness and/or lightheadedness, headache, uncoordination, nausea, vomiting, diarrhea, gastro-intestinal disturbances, abdominal pain, chest pain, blurred vision, coughing, choking, difficulty with speech, apathy, central nervous system depression, intoxication, tightness of chest, metallic taste, anesthetic effect or narcosis, difficulty of breathing, allergic response, fever and chills, dehydration, tremors, abnormal blood pressure, liver damage, kidney damage, pulmonary edema, pneumoconiosis, loss of consciousness, cyanosis, respiratory failure, asphyxiation, death. Possible sensitization to respiratory tract.
  - Skin contact :** Irritation of skin. Prolonged or repeated contact can cause dermatitis, defatting, blistering, allergic response, severe skin irritation, severe skin irritation or burns. Possible sensitization to skin.
  - Eye contact :** Irritation of eyes. Prolonged or repeated contact can cause conjunctivitis, blurred vision, tearing of eyes, redness of eyes, severe eye irritation, severe eye irritation or burns, corneal injury.
  - Ingestion :** Ingestion may cause lung inflammation and damage due to aspiration of material into lungs, mouth and throat irritation, mucous membrane irritation, drowsiness, dizziness and/or lightheadedness, headache, uncoordination, nausea, vomiting, diarrhea, gastro-intestinal disturbances, abdominal pain, visual disturbances, apathy, central nervous system depression, anesthetic effect or narcosis, burns of the mouth, throat, stomach, liver damage, kidney damage, pulmonary edema, loss of consciousness, respiratory failure, death.
- Medical conditions aggravated by exposure :** Eye, skin, respiratory disorders, nervous system disorders, respiratory disorders, allergies.

## FIRST-AID MEASURES (ANSI Section 4)

- Inhalation :** Remove to fresh air. Restore and support continued breathing. Get emergency medical attention. Have trained person give oxygen if necessary. Get medical help for any breathing difficulty. Remove to fresh air if inhalation causes eye watering, headaches, dizziness, or other discomfort.
- Skin contact :** Wash thoroughly with soap and water. If any product remains, gently rub petroleum jelly, vegetable or mineral/baby oil onto skin. Repeated applications may be needed. Remove contaminated clothing. Wash contaminated clothing before re-use. Dispose of contaminated leather items, such as shoes and belts. If irritation occurs, consult a physician.
- Eye contact :** Flush immediately with large amounts of water, especially under lids for at least 15 minutes. If irritation or other effects persist, obtain medical treatment.
- Ingestion :** If swallowed, obtain medical treatment immediately.

## FIRE-FIGHTING MEASURES (ANSI Section 5)

**Fire extinguishing media :** Dry chemical or foam water fog. Carbon dioxide. Closed containers may explode when exposed to extreme heat or fire. Vapors may ignite explosively at ambient temperatures. Vapors are heavier than air and may travel long distances to a source of ignition and flash back. Vapors can form explosive mixtures in air at elevated temperatures. Closed containers may burst if exposed to extreme heat or fire. May decompose under fire conditions emitting irritant and/or toxic gases.

**Fire fighting procedures :** Water may be used to cool and protect exposed containers. Firefighters should use full protective clothing, eye protection, and self-contained breathing apparatus. Self-contained breathing apparatus recommended.

**Hazardous decomposition or combustion products :** Carbon monoxide, carbon dioxide, oxides of nitrogen, acid fumes, oxides of sulfur, aldehydes, toxic gases, barium compounds, smoke and soot. Phenolics, cyanides.

## ACCIDENTAL RELEASE MEASURES (ANSI Section 6)

**Steps to be taken in case material is released or spilled :** Comply with all applicable health and environmental regulations. Eliminate all sources of ignition. Ventilate area. Spills may be collected with absorbent materials. Use non-sparking tools. Evacuate all unnecessary personnel. Place collected material in proper container. Complete personal protective equipment must be used during cleanup. Large spills - shut off leak if safe to do so. Dike and contain spill. Pump to storage or salvage vessels. Use absorbent to pick up excess residue. Keep salvageable material and rinse water out of sewers and water courses. Small spills - use absorbent to pick up residue and dispose of properly.

## HANDLING AND STORAGE (ANSI Section 7)

**Handling and storage :** Store below 100f (38c). Keep away from heat, sparks and open flame.

**Other precautions :** Use only with adequate ventilation. Do not take internally. Keep out of reach of children. Avoid contact with skin and eyes, and breathing of vapors. Wash hands thoroughly after handling, especially before eating or smoking. Keep containers tightly closed and upright when not in use. Avoid conditions which result in formation of inhalable particles such as spraying or abrading (sanding) painted surfaces. If such conditions cannot be avoided, use appropriate respiratory protection as directed under exposure controls/personal protection. Empty containers may contain hazardous residues. Ground equipment when transferring to prevent accumulation of static charge.

## EXPOSURE CONTROLS/PERSONAL PROTECTION (ANSI Section 8)

**Respiratory protection :** Control environmental concentrations below applicable exposure standards when using this material. When respiratory protection is determined to be necessary, use a NIOSH/MSHA (Canadian z94.4) Approved elastomeric sealing- surface facepiece respirator outfitted with organic vapor cartridges and paint spray (dust/mist) prefilters. Determine the proper level of protection by conducting appropriate air monitoring. Consult 29CFR1910.134 For selection of respirators (Canadian z94.4).

**Ventilation :** Provide dilution ventilation or local exhaust to prevent build-up of vapors. Use explosion-proof equipment.

**Personal protective equipment :** Eye wash, safety shower, safety glasses or goggles. Impervious gloves, impervious clothing, face shield, apron.

## STABILITY AND REACTIVITY (ANSI Section 10)

**Under normal conditions :** Stable see section 5 fire fighting measures

**Materials to avoid :** Oxidizers, acids, bases, aldehydes, amines, nitric acid, combustible materials, mineral acids, Nitrates.

**Conditions to avoid :** Elevated temperatures, contact with oxidizing agent, storage near acids, sparks, open flame, ignition sources.

**Hazardous polymerization :** Will not occur may polymerize in presence of aliphatic amines.

The information contained herein is based on data available at the time of preparation of this data sheet which ICI Paints believes to be reliable. However, no warranty is expressed or implied regarding the accuracy of this data. ICI Paints shall not be responsible for the use of this information, or of any product, method or apparatus mentioned and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and the health and safety of your employees and the users of this material. Complies with OSHA hazard communication standard 29CFR1910.1200.

**TOXICOLOGICAL INFORMATION**

**(ANSI Section 11)**

**Supplemental health information :** Contains a chemical that is moderately toxic by ingestion. Contains a chemical that may be absorbed through skin. Notice - reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Other effects of overexposure may include toxicity to liver, kidney, central nervous system, blood.

**Carcinogenicity :** Inhalation of non-asbestiform cosmetic grade talc for 2 years at 6 and 18 mg/m<sup>3</sup> produced clear evidence of carcinogenicity in female rats (lung and adrenal tumors) and some evidence of carcinogenicity in male rats (adrenal tumors). No evidence of carcinogenicity was demonstrated in male and female mice exposed under the same conditions. Microscopic examination of the lungs of rats and mice exposed to talc revealed additional exposure related effects primarily associated with the inflammatory response. Contains crystalline silica which is considered a hazard by inhalation. IARC has classified crystalline silica as carcinogenic to humans (group 1). Crystalline silica is also a known cause of silicosis, a noncancerous lung disease. The national toxicology program (NTP) has classified crystalline silica as a known human carcinogen. The international agency for research on cancer (IARC) has evaluated ethylbenzene and classified it as a possible human carcinogen (group 2b) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans. In a 2 year inhalation study conducted by the national toxicology program (NTP), ethylbenzene vapor at 750 ppm produced kidney and testicular tumors in rats and lung and liver tumors in mice. Genetic toxicity studies showed no genotoxic effects. The relevance of these results to humans is not known. In a lifetime inhalation study, exposure to 250 mg/m<sup>3</sup> titanium dioxide resulted in the development of lung tumors in rats. These tumors occurred only at dust levels that overwhelmed the animals' lung clearance mechanisms and were different from common human lung tumors in both type and location. The relevance of these findings to humans is unknown but questionable. The international agency for research on cancer (IARC) has classified titanium dioxide as possibly carcinogenic to humans (group 2b) based on inadequate evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.

**Reproductive effects :** High exposures to xylene in some animal studies, often at maternally toxic levels, have affected embryo/fetal development. The significance of this finding to humans is not known.  
**Mutagenicity :** No mutagenic effects are anticipated  
**Teratogenicity :** No teratogenic effects are anticipated

**ECOLOGICAL INFORMATION**

**(ANSI Section 12)**

No ecological testing has been done by ICI paints on this product as a whole.

**DISPOSAL CONSIDERATIONS**

**(ANSI Section 13)**

**Waste disposal :** Dispose in accordance with all applicable regulations. Avoid discharge to natural waters.

**REGULATORY INFORMATION**

**(ANSI Section 15)**

As of the date of this MSDS, all of the components in this product are listed (or are otherwise exempt from listing) on the TSCA inventory. This product contains 10% or greater of a chemical classified by DOT as a marine pollutant (see Chemical Hazard Data table). This product has been classified in accordance with the hazard criteria of the CPR (controlled products regulations) and the MSDS contains all the information required by the CPR.

**Physical Data**

**(ANSI Sections 1, 9, and 14)**

Product Code	Description	Wt. / Gal.	VOC gr. / ltr.	% Volatile by Volume	Flash Point	Boiling Range	HMS	DOT, proper shipping name
224F3501N	devran 224hs high build epoxy coating white base p	13.01	91.43	31.21	100 f	208-208	*320	UN1263, paint, combustible liquid, PGIII
224G0908	devran 224hs high build epoxy coating, neutral con	11.74	125.83	27.62	100 f	208-415	*320	UN2924, flammable liquid, corrosive, n.o.s.,(resin solution, alkylpheno's), 3(B), PGIII

**Ingredients**

**Product Codes with % by Weight (ANSI Section 2)**

Chemical Name	Common Name	CAS. No.	224F3501N	224G0908
benzene, ethyl-	ethylbenzene	100-41-4	.1-1.0	.1-1.0
1,2-ethanediamine, n,n'-bis(2-aminoethyl)-	triethylenetetramine	112-24-3		1-5
antigorite	antigorite	12135-86-3	1-5	1-5
benzene, dimethyl-	xylene	1330-20-7	.1-1.0	1-5
titanium oxide	titanium dioxide	13463-67-7	20-30	
tremolite, nonasbestiform	tremolite	14567-73-8	5-10	1-5
talc	talc	14807-96-6	1-5	1-5
quartz	quartz	14808-60-7	10-20	5-10
anthophyllite, nonasbestiform	anthophyllite	17068-78-9	.1-1.0	.1-1.0
oxirane,2,2'-((1-methylethylidene)bis(4,1-phenyleneoxymethylene))bis, homopolymer	epoxy resin	25085-99-8	30-40	
acetic acid, 1,1-dimethylethyl ester	tert-butyl acetate	540-88-5	10-20	5-10
solvent naphtha (petroleum), light aromatic	light aromatic solvent naphtha	64742-95-6		1-5
fatty acids, c18-unsatd., dimers, reaction products with polyethylenepolyamines	polyamide resin	68410-23-1		20-30
1-butanol	n-butanol	71-36-3	1-5	
sulfuric acid, barium salt	barium sulfate	7727-43-7		20-30
phenol, 4-nonyl-, branched	4-nonylphenol, branched	84652-15-3		10-20
benzene,1,2,4-trimethyl-	pseudocumene	95-63-6		1-5

**Chemical Hazard Data**

(ANSI Sections 2, 8, 11, and 15)

Common Name	CAS. No.	ACGIH-TLV				OSHA-PEL				S.R. Std.	S2	S3	CC	H	M	N	I	O
		8-Hour TWA	STEL	C	S	8-Hour TWA	STEL	C	S									
ethylbenzene	100-41-4	100 ppm	125 ppm	not est.	not est.	100 ppm	not est.	not est.	not est.	not est.	n	y	y	y	n	n	y	n
triethylenetetramine	112-24-3	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
antigorite	12135-86-3	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
xylene	1330-20-7	100 ppm	150 ppm	not est.	not est.	100 ppm	not est.	not est.	not est.	not est.	n	y	y	y	n	n	n	n
titanium dioxide	13463-67-7	10 mg/m3	not est.	not est.	not est.	10 mg/m3	not est.	not est.	not est.	not est.	n	n	n	n	n	y	y	n
tremolite	14567-73-8	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
talc	14807-96-6	2 mg/m3	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
quartz	14808-60-7	.025 mg/m3	not est.	not est.	not est.	0.1 mg/m3	not est.	not est.	not est.	not est.	n	n	n	n	n	y	y	n
anthophyllite	17068-78-9	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
epoxy resin	25085-99-8	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
tert-butyl acetate	540-88-5	200 ppm	not est.	not est.	not est.	200 ppm	not est.	not est.	not est.	not est.	n	n	y	n	n	n	n	n
light aromatic solvent naphtha	64742-95-6	not est.	not est.	not est.	not est.	500x ppm	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
polyamide resin	68410-23-1	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
n-butanol	71-36-3	20 ppm	not est.	not est.	not est.	100 ppm	not est.	not est.	not est.	not est.	n	y	y	n	n	n	n	n
barium sulfate	7727-43-7	10 mg/m3	not est.	not est.	not est.	5 mg/m3	not est.	not est.	not est.	not est.	n	n	n	n	n	n	n	n
4-nonylphenol, branched	84852-15-3	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	n	n	n	p	n	n	n
pseudocumene	95-63-6	25 ppm	not est.	not est.	not est.	not est.	not est.	not est.	not est.	not est.	n	y	n	n	n	n	n	n

**Footnotes:**  
 C=Ceiling - Concentration that should not be exceeded, even instantaneously.  
 S=Skin - Additional exposure, over and above airborne exposure, may result from skin absorption.  
 n/a=not applicable  
 not est.=not established  
 CC=CERCLA Chemical  
 ppm=parts per million  
 mg/m3=milligrams per cubic meter  
 Sup Conf=Supplier Confidential  
 S2=Sara Section 302 EHS  
 S3=Sara Section 313 Chemical  
 S.R.Std.=Supplier Recommended Standard  
 H=Hazardous Air Pollutant, M=Marine Pollutant  
 P=Pollutant, S=Severe Pollutant  
 Carcinogenicity Listed By:  
 N=NTP, I=IARC, O=OSHA, y=yes, n=no

# Safety Data Sheet



## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### CHEVRON and TEXACO REGULAR UNLEADED GASOLINES

**Product Use:** Fuel

**Product Number(s):** CPS201000 [See Section 16 for Additional Product Numbers]

**Synonyms:** Calco Regular Unleaded Gasoline, Chevron Regular Unleaded Gasoline, Chevron UL/CQ Gasoline, Gasolines, Automotive, Texaco Unleaded Gasoline

**Company Identification**

Chevron Products Company  
Marketing, MSDS Coordinator  
6001 Bollinger Canyon Road  
San Ramon, CA 94583  
United States of America

**Transportation Emergency Response**

CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**

MSDS Requests: <http://www.chevron.com/contact>

Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

## SECTION 2 HAZARDS IDENTIFICATION

**CLASSIFICATION:** Flammable liquid: Category 1. Aspiration toxicant: Category 1. Carcinogen: Category 1A. Target organ toxicant (repeated exposure): Category 1. Eye irritation: Category 2A. Germ Cell Mutagen: Category 1B. Skin irritation: Category 2. Reproductive toxicant (developmental): Category 2. Target organ toxicant (central nervous system): Category 3. Acute aquatic toxicant: Category 2. Chronic aquatic toxicant: Category 2.



**Signal Word:** Danger

**Physical Hazards:** Extremely flammable liquid and vapor.

**Health Hazards:** May be fatal if swallowed and enters airways. May cause genetic defects. May cause cancer. Causes skin irritation. Causes serious eye irritation. Suspected of damaging the unborn child. May cause drowsiness or dizziness.

**Environmental Hazards:** Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

**Target Organs:** Causes damage to organs (Blood/Blood Forming Organs) through prolonged or repeated exposure.

**PRECAUTIONARY STATEMENTS:**

**General:** Keep out of reach of children. Read label before use.

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. -- No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting/equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Use personal protective equipment as required. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment.

**Response:** IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water/shower. IF SWALLOWED: Immediately call a poison center or doctor/physician. Do NOT induce vomiting. Call a poison center or doctor/physician if you feel unwell. Get medical advice/attention if you feel unwell. IF exposed or concerned: Get medical advice/attention. In case of fire: Use media specified in the SDS to extinguish. Specific treatment (see Notes to Physician on this label). Collect spillage.

**Storage:** Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

**Disposal:** Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %vol/vol
Toluene (methylbenzene)	108-88-3	1 - 35 %vol/vol
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	1330-20-7	1 - 15 %vol/vol
Pentane, 2,2,4-trimethyl- (Isooctane)	540-84-1	1 - 13 %vol/vol
Butane	106-97-8	1 - 12 %vol/vol
Ethanol	64-17-5	0 - 10 %vol/vol

Benzene	71-43-2	0.1 - 4.9 %vol/vol
Hexane	110-54-3	1 - 5 %vol/vol
Heptane	142-82-5	1 - 4 %vol/vol
Ethyl benzene	100-41-4	0.1 - 3 %vol/vol
Cyclohexane	110-82-7	1 - 3 %vol/vol
Naphthalene	91-20-3	0.1 - 2 %vol/vol
Methylcyclohexane	108-87-2	1 - 2 %vol/vol

Motor gasoline is considered a mixture by EPA under the Toxic Substances Control Act (TSCA). The refinery streams used to blend motor gasoline are all on the TSCA Chemical Substances Inventory. The appropriate CAS number for refinery blended motor gasoline is 86290-81-5. The product specifications of motor gasoline sold in your area will depend on applicable Federal and State regulations.

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

**Eye:** Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get immediate medical attention.

**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

**Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.

**Most important symptoms and effects, both acute and delayed**

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Contact with the eyes causes severe irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

**Skin:** Contact with the skin causes irritation. Symptoms may include pain, itching, discoloration, swelling, and blistering. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response.

**Ingestion:** Highly toxic; may be fatal if swallowed. Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.

**Inhalation:** Excessive or prolonged breathing of this material may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

**DELAYED OR OTHER HEALTH EFFECTS:**



**Reproduction and Birth Defects:** Contains material that may cause harm to the unborn child if inhaled above the recommended exposure limit.

**Cancer:** Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

**Genetic Toxicity:** Contains material that may cause heritable genetic damage based on animal data.

**Target Organs:** Contains material that may cause damage to the following organ(s) following repeated inhalation at concentrations above the recommended exposure limit: Blood/Blood Forming Organs Risk depends on duration and level of exposure. See Section 11 for additional information.

#### **Indication of any immediate medical attention and special treatment needed**

**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

### **SECTION 5 FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Unusual Fire Hazards:** See Section 7 for proper handling and storage.

#### **PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

### **SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

**SECTION 7 HANDLING AND STORAGE**

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Never siphon gasoline by mouth.

Do not store in open or unlabeled containers. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. Do not get in eyes, on skin, or on clothing. Do not get in eyes. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

**General Storage Information:** DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

**SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

**GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**ENGINEERING CONTROLS:**

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eye/Face Protection:** Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.

**Skin Protection:** Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated



Polyethylene), Nitrile Rubber, Polyurethane, Viton.

**Respiratory Protection:** Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

**Occupational Exposure Limits:**

Component	Agency	TWA	STEL	Ceiling	Notation
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	--	A3
Toluene (methylbenzene)	ACGIH	50 ppm (weight)	--	--	Skin A4
Toluene (methylbenzene)	OSHA Z-2	200 ppm (weight)	--	300 ppm (weight)	--
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	ACGIH	100 ppm (weight)	150 ppm (weight)	--	A4
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	OSHA Z-1	435 mg/m3	--	--	--
Pentane, 2,2,4-trimethyl-(Isooctane)	OSHA Z-1	2350 mg/m3	--	--	--
Pentane, 2,2,4-trimethyl-(Isooctane)	ACGIH	300 ppm (weight)	--	--	--
Butane	ACGIH	1000 ppm (weight)	--	--	--
Ethanol	ACGIH	1000 ppm (weight)	--	--	A4 A3
Ethanol	OSHA Z-1	1900 mg/m3	--	--	--
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	--	Skin A1 Skin
Benzene	OSHA SRS	1 ppm (weight)	5 ppm (weight)	--	--
Benzene	OSHA Z-2	10 ppm (weight)	--	25 ppm (weight)	--
Benzene	CVX	1 ppm (weight)	5 ppm (weight)	--	--
Hexane	ACGIH	50 ppm (weight)	--	--	Skin
Hexane	OSHA Z-1	1800 mg/m3	--	--	--
Heptane	ACGIH	400 ppm (weight)	500 ppm (weight)	--	--

Heptane	OSHA Z-1	2000 mg/m3	--	--	--
Ethyl benzene	ACGIH	20 ppm (weight)	125 ppm (weight)	--	A3
Ethyl benzene	OSHA Z-1	435 mg/m3	--	--	--
Cyclohexane	ACGIH	100 ppm (weight)	--	--	--
Cyclohexane	OSHA Z-1	1050 mg/m3	--	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin
Naphthalene	OSHA Z-1	50 mg/m3	--	--	--
Methylcyclohexane	ACGIH	400 ppm (weight)	--	--	--
Methylcyclohexane	OSHA Z-1	2000 mg/m3	--	--	--

Refer to the OSHA Benzene Standard (29 CFR 1910.1028) and Table Z-2 for detailed training, exposure monitoring, respiratory protection and medical surveillance requirements before using this product. Consult local authorities for appropriate values.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Colorless to yellow

**Physical State:** Liquid

**Odor:** Petroleum odor

**Odor Threshold:** No data available

**pH:** Not Applicable

**Vapor Pressure:** 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)

**Vapor Density (Air = 1):** 3 - 4 (Typical)

**Initial Boiling Point:** 27.2°C (81°F) - 204.4°C (400°F) (Typical)

**Solubility:** Insoluble in water; miscible with most organic solvents.

**Freezing Point:** Not Applicable

**Melting Point:** Not Applicable

**Specific Gravity:** 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F) (Typical)

**Viscosity:** <1 SUS @ 37.8°C (100°F)

**Evaporation Rate:** No data available

**Decomposition temperature:** No Data Available

**Octanol/Water Partition Coefficient:** 2 - 7

### FLAMMABLE PROPERTIES:

**Flammability (solid, gas):** No Data Available

**Flashpoint:** (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)

**Autoignition:** > 280 °C (> 536 °F)

**Flammability (Explosive) Limits (% by volume in air):** Lower: 1.4 Upper: 7.6

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides,

etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** None known (None expected)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

**Serious Eye Damage/Irritation:** The eye irritation hazard is based on evaluation of data for product components.

**Skin Corrosion/Irritation:** For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.

**Skin Sensitization:** This material did not cause skin sensitization reactions in a Buehler guinea pig test.

**Acute Dermal Toxicity:** LD50: >3.75g/kg (rabbit).

**Acute Oral Toxicity:** LD50: >5 ml/kg (rat)

**Acute Inhalation Toxicity:** 4 hour(s) LD50: >20000mg/m<sup>3</sup> (rat).

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The hazard evaluation is based on data for components or a similar material.

**Carcinogenicity:** Refer to ADDITIONAL TOXICOLOGY INFORMATION below. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

**Reproductive Toxicity:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Single Exposure:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Repeated Exposure:** The hazard evaluation is based on data for components or a similar material.

### ADDITIONAL TOXICOLOGY INFORMATION:

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to

present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2/3, 8 and 15 of this MSDS. More detailed information on the health hazards of specific gasoline components can be obtained calling the Chevron Emergency Information Center (see Section 1 for phone numbers). Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.

Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.

**MUTAGENICITY:** Gasoline was not mutagenic, with or without activation, in the Ames assay (*Salmonella typhimurium*), *Saccharomyces cerevisiae*, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells.

**EPIDEMIOLOGY:** To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

This product contains cyclohexane.

Cyclohexane primarily affects the central nervous systems of laboratory animals and humans. Acute or prolonged inhalation of cyclohexane at levels below the recommended exposure limits does not result in toxic effects while acute exposures to levels above these recommended limits can cause reversible central nervous system depression. Prolonged exposures of laboratory animals to high levels (up to low thousands of parts per million) have also caused reversible effects which included hyperactivity, diminished response to stimuli, and adaptive liver changes while very high levels (high thousands of parts per million) were fatal. No developmental effects were seen in rats or rabbits following exposures of up to 7000 ppm cyclohexane. No reproductive effects occurred in rats, although postnatal pup growth was reduced at 7000 ppm in a

similar manner as observed in the parental animals. Cyclohexane has not been shown to be mutagenic in several in vitro and in vivo assays and has not produced tumors in several dermal application long-term bioassays. Based on these results and the lack of any mutagenic or genotoxic metabolites, cyclohexane is not expected to be mutagenic or genotoxic. Following dermal exposure, cyclohexane is rapidly absorbed, metabolized, and excreted.

This product contains naphthalene.

**GENERAL TOXICITY:** Exposure to naphthalene has been reported to cause methemoglobinemia and/or hemolytic anemia, especially in humans deficient in the enzyme glucose-6-phosphate dehydrogenase. Laboratory animals given repeated oral doses of naphthalene have developed cataracts. **REPRODUCTIVE TOXICITY AND BIRTH DEFECTS:** Naphthalene did not cause birth defects when administered orally to rabbits, rats, and mice during pregnancy, but slightly reduced litter size in mice at dose levels that were lethal to the pregnant females. Naphthalene has been reported to cross the human placenta. **GENETIC TOXICITY:** Naphthalene caused chromosome aberrations and sister chromatid exchanges in Chinese hamster ovary cells, but was not a mutagen in several other in-vitro tests. **CARCINOGENICITY:** In a study conducted by the National Toxicology Program (NTP), mice exposed to 10 or 30 ppm of naphthalene by inhalation daily for two years had chronic inflammation of the nose and lungs and increased incidences of metaplasia in those tissues. The incidence of benign lung tumors (alveolar/bronchiolar adenomas) was significantly increased in the high-dose female group but not in the male groups. In another two-year inhalation study conducted by NTP, exposure of rats to 10, 30, and 60 ppm naphthalene caused increases in the incidences of a variety of nonneoplastic lesions in the nose. Increases in nasal tumors were seen in both sexes, including olfactory neuroblastomas in females at 60 ppm and adenomas of the respiratory epithelium in males at all exposure levels. The relevance of these effects to humans has not been established. No carcinogenic effect was reported in a 2-year feeding study in rats receiving naphthalene at 41 mg/kg/day.

This product contains ethanol (ethyl alcohol).

Chronic ingestion of ethanol can damage the liver, nervous system and heart. Chronic heavy consumption of alcoholic beverages has been associated with an increased risk of cancer. Ingestion of ethanol during pregnancy can cause human birth defects such as fetal alcohol syndrome.

This product contains butane.

An atmospheric concentration of 100,000 ppm (10%) butane is not noticeably irritating to the eyes, nose or respiratory tract, but will produce slight dizziness in a few minutes of exposure. No chronic systemic effect has been reported from occupational exposure.

This product contains n-hexane.

**TARGET ORGAN TOXICITY:** Prolonged or repeated ingestion, skin contact or breathing of vapors of n-hexane has been shown to cause peripheral neuropathy. Recovery ranges from no recovery to complete recovery depending upon the severity of the nerve damage. Exposure to 1000 ppm n-hexane for 18 hr/day for 61 days has been shown to cause testicular damage in rats. However, when rats were exposed to higher concentrations for shorter daily periods (10,000 ppm for 6 h/day, 5 days/wk for 13 weeks), no testicular lesions were seen.

**CARCINOGENICITY:** Chronic exposure to commercial hexane (52% n-hexane) at a concentration of 9000ppm was not carcinogenic to rats or to male mice, but did result in an increased incidence of liver tumors in female mice. No carcinogenic effects were observed in female mice exposed to 900 or 3000 ppm hexane or in male mice. The relevance for humans of these hexane-induced mouse liver tumors is questionable.

**GENETIC TOXICITY:** n-Hexane caused chromosome aberrations in bone marrow of rats, but was negative in the AMES and mouse lymphoma tests.

This product contains toluene.

**GENERAL TOXICITY:** The primary effects of exposure to toluene in animals and humans are on the

central nervous system. Solvent abusers, who typically inhale high concentrations (thousands of ppm) for brief periods of time, in addition to experiencing respiratory tract irritation, often suffer permanent central nervous system effects that include tremors, staggered gait, impaired speech, hearing and vision loss, and changes in brain tissue. Death in some solvent abusers has been attributed to cardiac arrhythmias, which appear to be have been triggered by epinephrine acting on solvent sensitized cardiac tissue. Although liver and kidney effects have been seen in some solvent abusers, results of animal testing with toluene do not support these as primary target organs.

**HEARING:** Humans who were occupationally exposed to concentrations of toluene as low as 100 ppm for long periods of time have experienced hearing deficits. Hearing loss, as demonstrated using behavioral and electrophysiological testing as well as by observation of structural damage to cochlear hair cells, occurred in experimental animals exposed to toluene. It also appears that toluene exposure and noise may interact to produce hearing deficits.

**COLOR VISION:** In a single study of workers exposed to toluene at levels under 50 ppm, small decreases in the ability to discriminate colors in the blue-yellow range have been reported for female workers. This effect, which should be investigated further, is very subtle and would not likely have been noticed by the people tested.

**REPRODUCTIVE/DEVELOPMENTAL TOXICITY:** Toluene may also cause mental and/or growth retardation in the children of female solvent abusers who directly inhale toluene (usually at thousands of ppm) when they are pregnant. Toluene caused growth retardation in rats and rabbits when administered at doses that were toxic to the mothers. In rats, concentrations of up to 5000 ppm did not cause birth defects. No effects were observed in the offspring at doses that did not intoxicate the pregnant animals. The exposure level at which no effects were seen (No Observed Effect Level, NOEL) is 750 ppm in the rat and 500 ppm in the rabbit.

This product contains xylene.

**ACUTE TOXICITY:** The primary effects of exposure to xylene in animals and humans are on the central nervous system. In addition, in some individuals, xylene exposure can sensitize cardiac tissue to epinephrine which may precipitate fatal ventricular fibrillation. **DEVELOPMENTAL TOXICITY:** Xylene has been reported to cause developmental toxicity in rats and mice exposed by inhalation during pregnancy. The effects noted consisted of delayed development and minor skeletal variations. In addition, when pregnant mice were exposed by ingestion to a level that killed nearly one-third of the test group, lethality (resorptions) and malformations (primarily cleft palate) occurred. Since xylene can cross the placenta, it may be appropriate to prevent exposure during pregnancy. **GENETIC TOXICITY/CARCINOGENICITY:** Xylene was not genotoxic in several mutagenicity testing assays including the Ames test. In a cancer study sponsored by the National Toxicology Program (NTP), technical grade xylene gave no evidence of carcinogenicity in rats or mice dosed daily for two years. **HEARING:** Mixed xylenes have been shown to cause measurable hearing loss in rats exposed to 800 ppm in the air for 14 hours per day for six weeks. Exposure to 1450 ppm xylene for 8 hours caused hearing loss while exposure to 1700 ppm for 4 hours did not. Although no information is available for lower concentrations, other chemicals that cause hearing loss in rats at relatively high concentrations do not cause hearing loss in rats at low concentrations. Worker exposure to xylenes at the permissible exposure limit (100 ppm, time-weighted average) is not expected to cause hearing loss.

This product contains benzene.

**GENETIC TOXICITY/CANCER:** Repeated or prolonged breathing of benzene vapor has been associated with the development of chromosomal damage in experimental animals and various blood diseases in humans ranging from aplastic anemia to leukemia (a form of cancer). All of these diseases can be fatal. In some individuals, benzene exposure can sensitize cardiac tissue to epinephrine which may precipitate fatal ventricular fibrillation.

**REPRODUCTIVE/DEVELOPMENTAL TOXICITY:** No birth defects have been shown to occur in pregnant laboratory animals exposed to doses not toxic to the mother. However, some evidence of fetal toxicity such as delayed physical development has been seen at such levels. The available information on the effects of benzene on human pregnancies is inadequate but it has been established that benzene can cross the

human placenta.

OCCUPATIONAL: The OSHA Benzene Standard (29 CFR 1910.1028) contains detailed requirements for training, exposure monitoring, respiratory protection and medical surveillance triggered by the exposure level. Refer to the OSHA Standard before using this product.

This product contains ethylbenzene.

**BIRTH DEFECTS AND REPRODUCTION:** Ethylbenzene is not expected to cause birth defects or other developmental effects based on well-conducted studies in rabbits and rats sponsored by NIOSH. Other studies in rats and mice which reported urinary tract malformations have many deficiencies and have limited usefulness in evaluating human risk. Reproductive effects are not expected based on a NIOSH study of fertility, and lack of effects observed for sperm counts and motility, estrous cycle and pathology of reproductive organs following repeated exposures. **HEARING:** Statistically significant losses in outer hair cells (OHCs) were observed in rats exposed to  $\geq 200$  ppm ethylbenzene, 6 hours/day, 6 days/week for 13 weeks, after an 8-week recovery period. Following longer exposure, inner hair cells losses were also observed in rats exposed to  $\geq 600$  ppm ethylbenzene, but only occasionally in rats exposed to 400 ppm. The Lowest Observed Adverse Effect Level in rats (LOAEL) was 200 ppm for losses of OHCs. Guinea pigs exposed to ethylbenzene at 2,500 ppm, 6 hours/day for 5 days did not show auditory deficits or losses in OHCs. The concentration of ethylbenzene used in the JP-8 study was approximately 10 ppm. **GENETIC TOXICITY:** Ethylbenzene tested negative in the bacterial mutation test, Chinese Hamster Ovary (CHO) cell in vitro assay, sister chromatid exchange assay and an unscheduled DNA synthesis assay. Conflicting results have been reported for the mouse lymphoma cell assay. Increased micronuclei were reported in an in vitro Syrian hamster embryo cell assay; however, two in vivo micronuclei studies in mice were negative. In Syrian hamster embryo cells in vitro, cell transformation was observed at 7 days of incubation but not at 24 hours. Based on these results, ethylbenzene is not expected to be mutagenic or clastogenic. **CARCINOGENICITY:** In studies conducted by the National Toxicology Program, rats and mice were exposed to ethylbenzene at 25, 250 and 750 ppm for six hours per day, five days per week for 103 weeks. In rats exposed to 750 ppm, the incidence of kidney tubule hyperplasia and tumors was increased. Testicular tumors develop spontaneously in nearly all rats if allowed to complete their natural life span; in this study, the development of these tumors appeared to be enhanced in male rats exposed to 750 ppm. In mice, the incidences of lung tumors in males and liver tumors in females exposed to 750 ppm were increased as compared to control mice but were within the range of incidences observed historically in control mice. Other liver effects were observed in male mice exposed to 250 and 750 ppm. The incidences of hyperplasia were increased in the pituitary gland in female mice at 250 and 750 ppm and in the thyroid in male and female mice at 750 ppm.

## SECTION 12 ECOLOGICAL INFORMATION

### ECOTOXICITY

This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

96 hour(s) LC50: 2.7 mg/l (Oncorhynchus mykiss)

96 hour(s) LC50: 1.8 mg/l (Mysidopsis bahia)

96 hour(s) LC50: 8.3 mg/l (Cyprinodon variegatus)

48 hour(s) LC50: 3.0 mg/l (Daphnia magna)

### MOBILITY

No data available.

### PERSISTENCE AND DEGRADABILITY

This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

**POTENTIAL TO BIOACCUMULATE**

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: 2 - 7

**SECTION 13 DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations. Check governmental regulations and local authorities for approved disposal of this material.

**SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** UN1203, GASOLINE, 3, II; **OPTIONAL DISCLOSURE:** UN1203, GASOLINE, 3, II, MARINE POLLUTANT (GASOLINE)

**IMO/IMDG Shipping Description:** UN1203, GASOLINE, 3, II, FLASH POINT SEE SECTION 5 OR 9, MARINE POLLUTANT (GASOLINE)

**ICAO/IATA Shipping Description:** UN1203, GASOLINE, 3, II

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**  
Not applicable

**SECTION 15 REGULATORY INFORMATION**

<b>EPCRA 311/312 CATEGORIES:</b>	1. Immediate (Acute) Health Effects:	YES
	2. Delayed (Chronic) Health Effects:	YES
	3. Fire Hazard:	YES
	4. Sudden Release of Pressure Hazard:	NO
	5. Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:



01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Naphthalene	01-2B, 02, 03, 04, 05, 06, 07
Cyclohexane	03, 05, 06, 07
Heptane	05, 06, 07
Toluene (methylbenzene)	03, 04, 05, 06, 07
Ethyl benzene	01-2B, 03, 04, 05, 06, 07
Methylcyclohexane	05, 06, 07
Hexane	03, 05, 06, 07
Butane	05, 06, 07
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	03, 05, 06, 07
Pentane, 2,2,4-trimethyl- (Isooctane)	05, 06, 07
Ethanol	01-1, 02, 04, 05, 06, 07
Gasoline	01-2B, 06, 07
Benzene	01-1, 02, 03, 04, 05, 06, 07

**CERCLA REPORTABLE QUANTITIES(RQ)/EPCRA 302 THRESHOLD PLANNING QUANTITIES(TPQ):**

Component	Component RQ	Component TPQ	Product RQ
Benzene	10 lbs	None	186 lbs
Cyclohexane	1000 lbs	None	34188 lbs
Ethyl benzene	1000 lbs	None	34964 lbs
Hexane	5000 lbs	None	129149 lbs
Naphthalene	100 lbs	None	4000 lbs
Pentane, 2,2,4-trimethyl- (Isooctane)	1000 lbs	None	6270 lbs
Toluene (methylbenzene)	1000 lbs	None	2627 lbs
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	100 lbs	None	649 lbs

**CHEMICAL INVENTORIES:**

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health: 1 Flammability: 4 Reactivity: 0

**HMIS RATINGS:** Health: 2\* Flammability: 4 Reactivity: 0  
 (0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating

Association (for HMIS ratings).

**Additional Product Number(s):** CPS201023, CPS201054, CPS201055, CPS201075, CPS201090, CPS201105, CPS201106, CPS201120, CPS201121, CPS201122, CPS201126, CPS201128, CPS201131, CPS201136, CPS201141, CPS201142, CPS201148, CPS201153, CPS201158, CPS201161, CPS201162, CPS201168, CPS201175, CPS201181, CPS201185, CPS201186, CPS201188, CPS201216, CPS201217, CPS201218, CPS201236, CPS201237, CPS201238, CPS201266, CPS201267, CPS201268, CPS201277, CPS201278, CPS201279, CPS201286, CPS201287, CPS201289, CPS201296, CPS201297, CPS201298, CPS201849, CPS201850, CPS201855, CPS201856, CPS201857, CPS204000, CPS204001, CPS204002, CPS204003, CPS204010, CPS204011, CPS204022, CPS204023, CPS204046, CPS204047, CPS204070, CPS204071, CPS204088, CPS204089, CPS204104, CPS204105, CPS204116, CPS204117, CPS204140, CPS204141, CPS204164, CPS204165, CPS204188, CPS204189, CPS204200, CPS204201, CPS204207, CPS204212, CPS204213, CPS204224, CPS204225, CPS204248, CPS204249, CPS204272, CPS204273, CPS204290, CPS204291, CPS204322, CPS204323, CPS204324, CPS204350, CPS204352, CPS204354, CPS204356, CPS204358, CPS204359, CPS204364, CPS204365, CPS204370, CPS204371, CPS204376, CPS204377, CPS204382, CPS204383, CPS204388, CPS204389, CPS204394, CPS204395, CPS204400, CPS204401, CPS204406, CPS204407, CPS204412, CPS204413, CPS204418, CPS204419, CPS204424, CPS204425, CPS204430, CPS204431, CPS204436, CPS204437, CPS204442, CPS204446, CPS204450, CPS204454, CPS204458, CPS204462, CPS204466, CPS204467, CPS204484, CPS204485, CPS204502, CPS204503, CPS204520, CPS204521, CPS204538, CPS204539, CPS204556, CPS204557, CPS204574, CPS204575, CPS204592, CPS204593, CPS204610, CPS204611, CPS204628, CPS204629, CPS204646, CPS204647, CPS204664, CPS204665, CPS204682, CPS204690, CPS204691, CPS204696, CPS204697, CPS204702, CPS204703, CPS204708, CPS204709, CPS204721, CPS204722, CPS204727, CPS204728, CPS204739, CPS241765

**REVISION STATEMENT:** This revision updates the following sections of this Safety Data Sheet: 1-16  
**Revision Date:** MARCH 18, 2015

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the**

**date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**

# Safety Data Sheet



**SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

## Chevron Ultra-Duty Grease EP NLGI 0, 1, 2

**Product Use:** Grease

**Product Number(s):** 238011, 238012, 238013

**Company Identification**

Chevron Products Company  
a division of Chevron U.S.A. Inc.  
6001 Bollinger Canyon Rd.  
San Ramon, CA 94583  
United States of America  
www.chevronlubricants.com

**Transportation Emergency Response**

CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**

email : lubemsds@chevron.com  
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

**SECTION 2 HAZARDS IDENTIFICATION**

**CLASSIFICATION:** Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

**Environmental Hazards:** Harmful to aquatic life with long lasting effects.

**PRECAUTIONARY STATEMENTS:**

**Prevention:** Avoid release to the environment.

**Disposal:** Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt
Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %wt/wt

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

**Most important symptoms and effects, both acute and delayed**

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

**Ingestion:** Not expected to be harmful if swallowed.

**Inhalation:** Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation

may include coughing and difficulty breathing.

**DELAYED OR OTHER HEALTH EFFECTS:** Not classified

**Indication of any immediate medical attention and special treatment needed**

**Note to Physicians:** In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

**SECTION 5 FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

**PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

**SECTION 7 HANDLING AND STORAGE**

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** Keep out of the reach of children.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this

material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

**SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

**GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**ENGINEERING CONTROLS:**

Use in a well-ventilated area.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eye/Face Protection:** No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

**Skin Protection:** No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

**Respiratory Protection:** No respiratory protection is normally required. If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

**Occupational Exposure Limits:**

Component	Agency	TWA	STEL	Ceiling	Notation

Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Zinc dialkyldithiophosphate	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Red

**Physical State:** Semi-solid

**Odor:** Petroleum odor

**Odor Threshold:** No data available

**pH:** Not Applicable

**Vapor Pressure:** <0.01 mmHg Maximum @ 100 °C (212 °F)

**Vapor Density (Air = 1):** >1 Minimum

**Initial Boiling Point:** 260°C (500°F) Minimum

**Solubility:** Soluble in hydrocarbons; insoluble in water

**Freezing Point:** No data available

**Melting Point:** 165°C (329°F) (Min)

**Specific Gravity:** 1.10 @ 15.6°C (60.1°F) (Estimated)

**Density:** No data available

**Viscosity:** No data available

**Evaporation Rate:** No data available

**Decomposition temperature:** No data available

**Octanol/Water Partition Coefficient:** No data available

### FLAMMABLE PROPERTIES:

**Flammability (solid, gas):** No Data Available

**Flashpoint:** 274 °C (525 °F) Minimum

**Autoignition:** No data available

**Flammability (Explosive) Limits (% by volume in air):** Lower: Not Applicable Upper: Not Applicable

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** None known (None expected)  
**Hazardous Polymerization:** Hazardous polymerization will not occur.

**SECTION 11 TOXICOLOGICAL INFORMATION**

**Information on toxicological effects**

**Serious Eye Damage/Irritation:** The eye irritation hazard is based on evaluation of data for product components.

**Skin Corrosion/Irritation:** The skin irritation hazard is based on evaluation of data for product components.

**Skin Sensitization:** The skin sensitization hazard is based on evaluation of data for product components.

**Acute Dermal Toxicity:** The acute dermal toxicity hazard is based on evaluation of data for product components.

**Acute Oral Toxicity:** The acute oral toxicity hazard is based on evaluation of data for product components.

**Acute Inhalation Toxicity:** The acute inhalation toxicity hazard is based on evaluation of data for product components.

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The hazard evaluation is based on data for components or a similar material.

**Carcinogenicity:** The hazard evaluation is based on data for components or a similar material.

**Reproductive Toxicity:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Single Exposure:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Repeated Exposure:** The hazard evaluation is based on data for components or a similar material.

**ADDITIONAL TOXICOLOGY INFORMATION:**

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

## SECTION 12 ECOLOGICAL INFORMATION

### ECOTOXICITY

This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

The product has not been tested. The statement has been derived from the properties of the individual components.

### MOBILITY

No data available.

### PERSISTENCE AND DEGRADABILITY

This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

The product has not been tested. The statement has been derived from the properties of the individual components.

### POTENTIAL TO BIOACCUMULATE

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

## SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

## SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

**IMO/IMDG Shipping Description:** PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

**ICAO/IATA Shipping Description:** PETROLEUM LUBRICATING GREASE; NOT REGULATED AS

DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:  
Not applicable

**SECTION 15 REGULATORY INFORMATION**

<b>EPCRA 311/312 CATEGORIES:</b>	1. Immediate (Acute) Health Effects:	NO
	2. Delayed (Chronic) Health Effects:	NO
	3. Fire Hazard:	NO
	4. Sudden Release of Pressure Hazard:	NO
	5. Reactivity Hazard:	NO

**REGULATORY LISTS SEARCHED:**

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc dialkyldithiophosphate 06

**CHEMICAL INVENTORIES:**

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

**NEW JERSEY RTK CLASSIFICATION:**

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health: 0 Flammability: 1 Reactivity: 0

**HMIS RATINGS:** Health: 0 Flammability: 1 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** This revision updates the following sections of this Safety Data Sheet: 9, 16

**Revision Date:** June 10, 2016

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

<p style="text-align: center;"><b>MONSANTO COMPANY</b> Safety Data Sheet Commercial Product</p>
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## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1. Product identifier

#### AquaMaster® Herbicide

##### 1.1.1. Chemical name

Not applicable.

##### 1.1.2. Synonyms

None.

##### 1.1.3. EPA Reg. No.

524-343

### 1.2. Product use

Herbicide

### 1.3. Company

MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

**Telephone:** 800-332-3111, **Fax:** 314-694-5557

**E-mail:** safety.datasheet@monsanto.com

### 1.4. Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).  
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

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## 2. HAZARDS IDENTIFICATION

### 2.1. Classification

OSHA Hazard Communication Standard, 29 CFR 1910.1200 (2012)

Not classified as hazardous.

### 2.2. Appearance and odour (colour/form/odour)

Colourless-Amber /Liquid, (viscous) / Odourless

### 2.3. OSHA Status

This product is not hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Refer to section 11 for toxicological and section 12 for environmental information.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

### Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	53.8
Water	7732-18-5	46.2

## 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

### 4.1. Description of first aid measures

- 4.1.1. Eye contact:** If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
- 4.1.2. Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothes and clean shoes before re-use.
- 4.1.3. Inhalation:** If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- 4.1.4. Ingestion:** Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison center or doctor. Do not give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

- 4.2.1. Eye contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.2. Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.3. Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.4. Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

### 4.3. Indication of any immediate medical attention and special treatment needed

- 4.3.1. Advice to doctors:** This product is not an inhibitor of cholinesterase.
- 4.3.2. Antidote:** Treatment with atropine and oximes is not indicated.

## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

- 5.1.1. Recommended:** Water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

### 5.2. Special hazards

#### 5.2.1. Unusual fire and explosion hazards

None.  
Minimise use of water to prevent environmental contamination.  
Environmental precautions: see section 6.

#### 5.2.2. Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (P<sub>x</sub>O<sub>y</sub>), nitrogen oxides (NO<sub>x</sub>)

- 5.3. Fire fighting equipment:** Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

### 5.4. Flash point

Does not flash.

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Environmental precautions

#### SMALL QUANTITIES:

Low environmental hazard.

#### LARGE QUANTITIES:

Minimise spread.

Keep out of drains, sewers, ditches and water ways.

### 6.2. Methods for cleaning up

#### SMALL QUANTITIES:

Absorb only in non-combustible material.

Sweep, scoop or vacuum to remove.

#### LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Flush residues with small quantities of water.

Minimise use of water to prevent environmental contamination.

Refer to section 7 for types of containers.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

---

## 7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

### 7.1. Precautions for safe handling

Avoid contact with eyes, skin and clothing. When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Wash contaminated clothing before re-use. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Refer to section 13 of the safety data sheet for disposal of rinse water.

### 7.2. Conditions for safe storage

Minimum storage temperature: -15 °C

Maximum storage temperature: 50 °C

**Compatible materials for storage:** stainless steel, fibreglass, plastic

**Incompatible materials for storage:** galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Keep container tightly closed in a cool, well-ventilated place.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.

If frozen, place in warm room and shake frequently to put back into solution.

Minimum shelf life: 5 years.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

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**8.2. Engineering controls:** No special requirement when used as recommended.

**8.3. Recommendations for personal protective equipment**

**8.3.1. Eye protection:** No special requirement when used as recommended.

**8.3.2. Skin protection:** No special requirement when used as recommended.

**8.3.3. Respiratory protection:** No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Colourless - Amber
Odour:	Odourless
Form:	Liquid, (viscous)
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1.206 @ 20 °C / 15.6 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	No data.
Evaporation rate:	No data.
Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	1.206 g/cm <sup>3</sup> @ 20 °C
Solubility:	Water: Completely miscible.
pH:	4.6 - 4.8 @ 63 g/l
Partition coefficient:	log Pow: < 0.000 (active ingredient)

## 10. STABILITY AND REACTIVITY

**10.1. Reactivity**

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

**10.2. Stability**

Stable under normal conditions of handling and storage.

**10.3. Possibility of hazardous reactions**

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

#### 10.4. Incompatible materials

galvanised steel;unlined mild steel;see section 10.;  
Compatible materials for storage: see section 7.2.

#### 10.5. Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

---

## 11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

**Likely routes of exposure:** Skin contact, eye contact, inhalation

#### Potential health effects

**Eye contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

Data obtained on product, similar products and on components are summarized below.

#### Isopropylamine salt of glyphosate (62%)

Data obtained on product and components are summarized below.

##### Acute oral toxicity

**Rat, LD50 (limit test):** > 5,000 mg/kg body weight

Practically non-toxic. No mortality.

**Mouse, LD50 (limit test):** > 5,000 mg/kg body weight

Practically non-toxic. No mortality.

##### Acute dermal toxicity

**Rabbit, LD50 (limit test):** > 5,000 mg/kg body weight

Practically non-toxic. No mortality.

##### Skin irritation

**Rabbit, 6 animals, Draize test:**

Days to heal: 3

Primary Irritation Index (PII): 0.0/8.0

Essentially non irritating.

##### Eye irritation

**Rabbit, 6 animals, OECD 405 test:**

Days to heal: 0

Essentially non irritating.

##### Acute inhalation toxicity

**Rat, LC50, 4 hours, aerosol:** > 4.24 mg/L

Practically non-toxic. No mortality. Maximum attainable concentration.

##### Skin sensitization

**Guinea pig, 3-induction Buehler test:**

Positive incidence: 0 %

Negative.

#### N-(phosphonomethyl)glycine; { glyphosate acid}

**Genotoxicity**

Not genotoxic.

**Carcinogenicity**

Not carcinogenic in rats or mice.

**Reproductive/Developmental Toxicity**

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.

Reproductive effects in rats only in the presence of significant maternal toxicity.

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## 12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on components are summarized below.

**Isopropylamine salt of glyphosate (62%)**

Data obtained on product and components are summarized below.

**Aquatic toxicity, fish**

**Bluegill sunfish (*Lepomis macrochirus*):**

Acute toxicity, 96 hours, static, LC50: > 1,000 mg/L  
Practically non-toxic.

**Rainbow trout (*Oncorhynchus mykiss*):**

Acute toxicity, 96 hours, static, LC50: > 1,000 mg/L  
Practically non-toxic.

**Aquatic toxicity, invertebrates**

**Water flea (*Daphnia magna*):**

Acute toxicity, 48 hours, static, EC50: 930 mg/L  
Practically non-toxic.

**Aquatic toxicity, algae/aquatic plants**

**Green algae (*Scenedesmus subspicatus*):**

Acute toxicity, 72 hours, static, EbC50 (biomass): 72.9 mg/L  
Slightly toxic.

**Green algae (*Scenedesmus subspicatus*):**

Acute toxicity, 72 hours, static, NOEC (growth rate): 26.4 mg/L

**Soil organism toxicity, invertebrates**

**Earthworm (*Eisenia foetida*):**

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil  
Practically non-toxic.

**N-(phosphonomethyl)glycine; { glyphosate acid}**

**Avian toxicity**

**Bobwhite quail (*Colinus virginianus*):**

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet  
No more than slightly toxic.

**Mallard duck (*Anas platyrhynchos*):**

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet  
No more than slightly toxic.

**Bobwhite quail (*Colinus virginianus*):**

Acute oral toxicity, single dose, LD50: > 3,851 mg/kg body weight  
Practically non-toxic.

**Arthropod toxicity**

**Honey bee (*Apis mellifera*):**

Oral, 48 hours, LD50: 100 µg/bee

**Honey bee (*Apis mellifera*):**

Contact, 48 hours, LD50: > 100 µg/bee  
Practically non-toxic.

**Bioaccumulation**

**Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

**Dissipation**

**Soil, field:**

Half life: 2 - 174 days

Koc: 884 - 60,000 L/kg

Adsorbs strongly to soil.

**Water, aerobic:**

Half life: < 7 days

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## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### 13.1.1. Product

Not classified as hazardous waste by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Follow all local/regional/national/international regulations.

#### 13.1.2. Container

Dispose of as non hazardous industrial waste. See the individual container label for disposal information. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Empty packaging completely. Triple or pressure rinse empty containers. Pour rinse water into spray tank. Do NOT contaminate water when disposing of rinse waters. Do NOT re-use containers. Store for collection by approved waste disposal service. Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

---

## 14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

### 14.1. US Dept. of Transportation (DOT) Hazardous Materials Regulations (49 CFR Parts 105-180)

Proper Shipping Name (Technical Name if required):	Not regulated for domestic ground transportation. ()
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### 14.2. IMDG Code

Proper Shipping Name (Technical Name if required):	Not regulated for transport under IMO Regulations ()
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### 14.3. IATA/ICAO

Proper Shipping Name (Technical Name if required):	Not regulated for transport under IATA/ICAO Regulations ()
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## 15. REGULATORY INFORMATION

### 15.1. Environmental Protection Agency

#### 15.1.1. TSCA Inventory

All components are on the US EPA's TSCA Inventory

#### 15.1.2. SARA Title III Rules

Section 311/312 Hazard Categories: Not applicable.

Section 302 Extremely Hazardous Substances: Not applicable.

Section 313 Toxic Chemical(s): Not applicable.

#### 15.1.3. CERCLA Reportable quantity

Not applicable.

#### 15.1.4. Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION!

Acute oral toxicity: FIFRA category IV.

Acute oral toxicity: FIFRA category IV.

Acute dermal toxicity: FIFRA category IV.

Acute inhalation toxicity: FIFRA category IV.

Skin irritation: FIFRA category IV.

Eye irritation: FIFRA category IV.

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## 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

For more information refer to product label.

Please consult Monsanto if further information is needed.

In this document the British spelling was applied.

® Registered trademark of Monsanto Company or its subsidiaries.

	Health	Flammability	Instability	Additional Markings
NFPA	0	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE

OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.



Revision  
date: 08.11.2016

Date of issue: 08-02-18

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<b>Trade name:</b>	<b>Aqua-Gel® II Utility Cable Pulling Lubricant</b>
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**SECTION 1: Identification**

**Product identifier:** Aqua-Gel® II Utility Cable Pulling Lubricant.  
**Synonyms:** None available.  
**Product Code Number:** 31-371(G), 31-375(G), 31-378(G), 31-3855.  
**SDS number:** ID001  
**Recommended use:** Wire Pulling Lubricant.  
**Recommended restrictions:** None known.

**Manufacturer/Importer/Supplier/Distributor information:**

**Company Name:** IDEAL INDUSTRIES, INC.  
**Company Address:** Becker Place,  
Sycamore, IL 60178  
**Company Telephone:** Office hours (Mon – Fri)  
7AM - 5 PM (CDT)  
(815)895-5181  
**Company Contact Name:** Darryl Docter.  
**Company Contact Email:** IDEAL@IDEALINDUSTRIES.COM  
**Emergency phone number:** 24 HOUR EMERGENCY NUMBER:  
(815)895-5181.

**SECTION 2: Hazard(s) identification**

**Classification of the chemical in accordance with paragraph (d) of §1910.1200:**

*Physical hazards*

Not classified as a physical hazard under GHS criteria

*Health hazards*

Not classified as a health hazard under GHS criteria

*Environmental hazards*

Not classified as a physical hazard under GHS criteria.

**GHS Signal word:** Not applicable.

**GHS Hazard statement(s):** Not applicable.

**GHS Hazard symbol(s):** Not applicable.

**GHS Precautionary statement(s):**

**Prevention:**

No prevention precautionary statements required.

**Response:**

No response precautionary statements required

**Storage:**

No storage precautionary statements required.

**Disposal:**

No disposal precautionary statements required.

**Hazard(s) not otherwise**

**Classified (HNOC):** None known.

**Percentage of ingredient(s) of unknown acute toxicity:**

Not applicable.

**SECTION 3: Composition/information on ingredients**

**Mixture:**

Chemical name	CAS#	Concentration (weight %)
Potassium Hydroxide (20% solution)	1310-58-3	< 2%

Note: The balance of the ingredients are not classified as hazardous or below the threshold concentration, under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

**SECTION 4: First-aid Measures**

**Description of necessary measures:**

**Inhalation:** Obtain medical attention if there are signs of breathing difficulties.

**Skin contact:** Wash with plenty of soap and water. Remove contaminated clothing and thoroughly clean before reuse.

**Eye contact:** Flush eyes with water for at least 15 minutes, occasionally lifting eyelids. If pain or redness persists after flushing, obtain medical attention.

**Ingestion:** Do not induce vomiting. Consult physician or local poison control center.

**Most important symptoms/effects, acute and delayed:** None expected.

**Indication of immediate medical attention and special treatment needed:** If any symptoms are observed, contact a physician and give them this SDS sheet. If exposed or concerned: Get medical advice/attention.

#### **SECTION 5: Fire-fighting measures**

**Suitable extinguishing media:** Not flammable. Use extinguishing media suitable for surrounding materials.

**Unsuitable extinguishing media:** No data available.

**Specific hazards arising from the chemical:** Extreme temperatures of combustion or burning and contact with nitrites could result in the formation of nitrosamines which are potential carcinogens. This condition is unlikely to occur.  
Combustion products - Carbon monoxide, Carbon dioxide.

**Special protective equipment and precautions for fire-fighters:** For fire involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of combustion products and oxygen deficiencies.

#### **SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures:** Stay upwind and away from spill/release. For large spillages, notify persons downwind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

#### **Methods and material for containment and cleaning up:**

Persons not wearing protective equipment should be excluded from area of spill until cleanup has been completed. Stop spill at source, wipe up, shovel or vacuum spilled material. Clean up spills immediately as they can be dangerously slippery. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required.

#### **SECTION 7: Handling and Storage**

**Precautions for safe handling:** Wash thoroughly after handling. Wear protective gloves/clothing and eye/face protection. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

**Conditions for safe storage, including any incompatibles:** Store at temperatures between 40 - 180°F. Avoid freezing. Keep away from children, infants and pets. Keep container(s) tightly closed and properly labeled. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

**SECTION 8: Exposure controls/personal protection**

**Control Parameters:**

**Occupational exposure limits:**

<b>US OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200): Permissible Exposure Limits</b>		
<b>Substance</b>	<b>PEL-TWA (8 hour)</b>	<b>PEL-STEL (15 min)</b>
Potassium Hydroxide	No data available	No data available

<b>US ACGIH Threshold Limit Values</b>		
<b>Substance</b>	<b>TLV-TWA (8 hour)</b>	<b>TLV-STEL (15 min)</b>
Potassium Hydroxide	2 mg/m <sup>3</sup> Ceiling	No data available

<b>NIOSH Exposure Limits</b>		
<b>Substance</b>	<b>TWA</b>	<b>STEL</b>
Potassium Hydroxide	2 mg/m <sup>3</sup> Ceiling	No data available

**Appropriate engineering controls:** General (mechanical) room ventilation is expected to be adequate. Special local ventilation is suggested at points where vapors can be expected to escape to the workplace air or in enclosed areas.

**Individual protection measures, such as personal protective equipment:**

**Eye/face protection:** None normally required, but the use of OSHA compliant safety glasses or splash goggles recommended.

**Skin and Hand protection:** None normally needed -Neoprene if necessary. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Respiratory protection:** None normally required.

**Other:** Eye wash / eye bath in the work area is recommended but not necessary.

**Thermal hazards:** No data available.

**SECTION 9: Physical and chemical properties**

<b>Appearance</b>	
<b>Physical state:</b>	Gel
<b>Form:</b>	Clear gel.
<b>Color:</b>	Blue.
<b>Odor:</b>	Mild odor.
<b>Odor threshold:</b>	No data available
<b>pH:</b>	6.5 – 8.0
<b>Melting point/freezing point:</b>	No data available
<b>Initial boiling point and boiling range:</b>	100°C (212°F)
<b>Flash point:</b>	None
<b>Evaporation rate:</b>	No data available
<b>Flammability (solid, gas):</b>	Not applicable
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit – lower (%):</b>	No data available
<b>Flammability limit – upper (%):</b>	No data available
<b>Explosive limit – lower (%):</b>	No data available
<b>Explosive limit – upper (%):</b>	No data available
<b>Vapor pressure:</b>	No data available
<b>Vapor density:</b>	No data available
<b>Relative Density:</b>	0.9930-1.0330
<b>Solubility(ies):</b>	Infinite.
<b>Partition coefficient (n-octanol/water):</b>	No data available
<b>Auto-ignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	20000-40000 cps
<b>Other information:</b>	
<b>% Volatile by volume:</b>	< 90%
<b>Percent solids by weight:</b>	~10

**SECTION 10: Stability and Reactivity**

<b>Reactivity:</b>	Not chemically reactive.
<b>Chemical stability:</b>	Stable under normal ambient and anticipated conditions of use.
<b>Possibility of hazardous reactions:</b>	Hazardous reactions not anticipated.
<b>Conditions to avoid:</b>	Avoid prolonged storage at temperatures exceeding 190°F. Extreme temperatures of combustion or burning and contact with nitrites could result in the formation of nitrosamines which are potential carcinogens. This condition is unlikely to occur.
<b>Incompatible materials:</b>	Avoid contact with strong oxidizers and nitrites.

**Hazardous decomposition Products:** In the unlikely event of combustion of dried residue, oxides and nitrogen may be released.

**SECTION 11: Toxicological information**

**Information on likely routes of exposure:**

**Inhalation:** Not an expected route of entry.  
**Ingestion:** Not an expected route of entry.  
**Skin:** Not an expected route of entry.  
**Eyes:** Not an expected route of entry.

**Symptoms related to the physical, chemical, and toxicological characteristics:**  
None expected.

**Delayed and immediate effects and chronic effects from short or long-term exposure:**  
Detailed below.

**Numerical measures of toxicity:**  
**Ingredient Information:**

Substance	Test Type (species)	Value
Potassium hydroxide	LD <sub>50</sub> Oral (Rat)	273 mg/kg
	LD <sub>50</sub> Dermal (Rabbit)	No data available
	LC <sub>50</sub> Inhalation (Rat)	No data available

**Product Acute Toxicity Estimates:**

Acute Oral Toxicity – no data available  
Acute Dermal Toxicity - no data available  
Acute Inhalation Toxicity - no data available

**Skin corrosion/irritation:** Not expected to cause skin corrosion or irritation.

**Serious eye damage/eye irritation:** Not expected to cause eye damage / irritation.

**Respiratory sensitization:** No information available on the mixture, however none of the components have been classified as a respiratory sensitizer (or are below the concentration threshold for classification).

**Skin sensitization:** No information available on the mixture, however none of the components have been classified as a skin sensitizer (or are below the concentration threshold for classification).

**Germ cell mutagenicity:** No information available on the mixture, however none of the components have been classified for

germ cell mutagenicity (or are below the concentration threshold for classification).

**Carcinogenicity:**

No information available on the mixture, however none of the components are listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

**Reproductive toxicity:**

No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification).

**Specific target organ toxicity-  
Single exposure:**

No information available on the mixture, however none of the components have been classified for STOT SE (or are below the concentration threshold for classification).

**Specific target organ toxicity-  
Repeat exposure:**

No information available on the mixture, however none of the components have been classified for STOT RE (or are below the concentration threshold for classification).

**Aspiration hazard:**

No information available on the mixture, however none of the components have been classified for aspiration hazard (or are below the concentration threshold for classification).

**Further information:**

No data available.

**SECTION 12: Ecological information**

**Ecotoxicity:**

**Product data:** No data available

**Ingredient Information:**

Substance	Test Type	Species	Value
Potassium hydroxide	LC <sub>50</sub>	Fish - Gambusia affinis (Mosquito fish)	85 mg/l (24h)

	LC <sub>50</sub>	Aquatic crustacea	No data available
	EC <sub>50</sub>	Algae	No data available

**Persistence and Degradability:** No data available

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other adverse effects:** No data available.

### SECTION 13: Disposal considerations

#### Disposal instructions:

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the SDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

### SECTION 14: Transport Information

**DOT:** This material is not classified as dangerous under DOT regulations.

**IATA:** This material is not classified as dangerous under IATA regulations.

**IMDG:** This material is not classified as dangerous under IMDG regulations.

### SECTION 15: Regulatory Information

#### Safety, health and environmental regulations specific for the product.

##### USA:

**United States Federal Regulations:** This SDS complies with the OSHA, 29 CFR 1910.1200. The product is hazardous under OSHA.

**Toxic Substances Control Act (TSCA)** – All substances in this product are listed, as required, on the TSCA inventory.

#### SARA Superfund and Reauthorization Act of 1986 Title III sections 302, 311,312 and 313:

Section 302 – No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### CERCLA Hazardous Substance List, 40 CFR 302.4:

<b>Component</b>	<b>Reportable Quantity</b>
Potassium Hydroxide	1000 lbs

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**  
None listed.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):** None listed.

**SARA Title III**

**Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):** None listed.

**Section 311/312 (40 CFR 370):**

**Acute Health Hazard:** No

**Chronic Health Hazard:** No

**Fire Hazard:** No

**Pressure Hazard:** No

**Reactivity Hazard:** No

**Section 313 Toxic Release Inventory (40 CFR 372):**

None

**STATE REGULATIONS:**

This SDS contains specific health and safety data is applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**California Proposition 65 (California Safe Drinking Water and Toxic Enforcement Act of 1986):** No components are listed on Prop 65.

**Massachusetts Right to Know:** Potassium hydroxide is listed on the Massachusetts Right to Know List.

**Minnesota Hazardous Substance List:** None of the components are listed on the Minnesota Hazardous Substance List.

**New Jersey Right to Know:** Potassium hydroxide is listed on the New Jersey Right to Know list.

**Pennsylvania Right to Know:** Potassium hydroxide is listed on the Pennsylvania Right to Know List.

**Canada WHMIS Hazard Class:** Not classified.

**SECTION 16: Other information, including date of preparation or last revision.**

Revision Date: June 07, 2015

To the best of our knowledge, the information contained herein is accurate. However IDEAL INDUSTRIES INC. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

# SAFETY DATA SHEET



Echo Power Blend Two-Cycle Engine Oil

## Section 1. Identification

**GHS product identifier** : Echo Power Blend Two-Cycle Engine Oil  
**Synonyms** : Not available.  
**Code** : 625478416

**Supplier's details** : CITGO Petroleum Corporation  
P.O. Box 4689  
Houston, TX 77210  
sdsvend@citgo.com

**Emergency telephone number** : Technical Contact: (800) 248-4684  
Medical Emergency: (832) 486-4700  
CHEMTREC Emergency: (800) 424-9300  
(United States Only)

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 4  
SKIN CORROSION/IRRITATION - Category 2

### GHS label elements

**Hazard pictograms** :



**Signal word** : Warning

**Hazard statements** : Combustible liquid.  
Causes skin irritation.

### Precautionary statements

**Prevention** : Wear protective gloves. Wear eye or face protection. Keep away from flames and hot surfaces. - No smoking. Wash hands thoroughly after handling.

**Response** : IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention.

**Storage** : Store in a well-ventilated place. Keep cool.

**Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture  
**Other means of identification** : Not available.

### CAS number/other identifiers

**CAS number** : Not applicable.

## Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Distillates (petroleum), hydrotreated light	7 - 13	64742-47-8
Polybutene	1 - 5	9003-29-6

\* = Various    \*\* = Mixture    \*\*\* = Proprietary

Any concentration shown as a range is to protect confidentiality or is due to process variation.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : Irritating to mouth, throat and stomach.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : Treat symptomatically and supportively.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

## Section 4. First aid measures

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

**Specific hazards arising from the chemical** : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

### Extinguishing media

**Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable extinguishing media** : Do not use water jet.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

**Bulk Storage Conditions:** Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Distillates (petroleum), hydrotreated light	<b>ACGIH TLV (United States, 4/2014). Absorbed through skin.</b> TWA: 200 mg/m <sup>3</sup> , (as total hydrocarbon vapor) 8 hours.

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. chemical splash goggles. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

- Physical state** : Liquid.
- Color** : Blue-green.
- Odor** : Petroleum.
- pH** : Not available.
- Boiling point** : Not available.
- Flash point** : Closed cup: 68°C (154.4°F) [Pensky-Martens (ASTM D-93)]  
Open cup: 84°C (183.2°F) [Cleveland.]
- Evaporation rate** : <1 (n-butyl acetate. = 1)
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : <0.13 kPa (<1 mm Hg) [room temperature]
- Vapor density** : >1 [Air = 1]
- Relative density** : 0.87
- Density lbs/gal** : Estimated 7.25 lbs/gal
- Gravity, °API** : Estimated 31 @ 60 F
- Solubility** : Insoluble in the following materials: cold water.
- Viscosity** : Kinematic (40°C (104°F)): 0.77 cm<sup>2</sup>/s (77 cSt)

## Section 10. Stability and reactivity

- Reactivity** : Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

## Section 10. Stability and reactivity

**Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

**Incompatible materials** : Reactive or incompatible with the following materials:  
oxidizing materials

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Distillates (petroleum), hydrotreated light	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

**Conclusion/Summary** : **Distillates (petroleum), solvent-dewaxed heavy paraffinic**: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

**Distillates (petroleum), hydrotreated light**: Mineral spirits have produced slight to moderate skin irritation particularly with evaporation from the skin is prevented. Animal studies have demonstrated that mineral spirits produced mild respiratory tract irritation at elevated concentrations. The most common effects observed in repeated dose animal studies with mineral spirits are kidney changes that are consistent with an alpha 2u-globulin- mediated process that is not regarded as relevant to humans. Certain studies have reported effects in the liver as well as hematological or urine chemistry changes. Abuse of similar materials has been associated with irregular heart rhythms and cardiac arrest. In certain repeated dose animal studies have changes were reported in behavior, neurochemistry and sensory evoked potentials which may be irreversible. Repeated exposure to elevated concentrations of hydrocarbon solvents can produce a variety of transient CNS effects (e.g., dizziness, headache, narcosis, etc).

**Distillates (petroleum), hydrotreated heavy paraffinic**: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

**Distillates (petroleum), solvent-refined heavy paraffinic**: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

#### Irritation/Corrosion

**Skin** : No additional information.

**Eyes** : No additional information.

**Respiratory** : No additional information.

#### Sensitization

**Skin** : No additional information.

## Section 11. Toxicological information

**Respiratory** : No additional information.

### Mutagenicity

**Conclusion/Summary** : No additional information.

### Carcinogenicity

**Conclusion/Summary** : **Distillates (petroleum), solvent-refined heavy paraffinic**: In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.

### Reproductive toxicity

**Conclusion/Summary** : No additional information.

### Teratogenicity

**Conclusion/Summary** : No additional information.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Distillates (petroleum), hydrotreated light	Category 3	Not applicable.	Narcotic effects

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Name	Result
Distillates (petroleum), hydrotreated light Polybutene	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

**Information on the likely routes of exposure** : Routes of entry anticipated: Dermal, Inhalation.

### Potential acute health effects

**Eye contact** : Causes serious eye irritation.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : Causes skin irritation.  
**Ingestion** : Irritating to mouth, throat and stomach.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness  
**Inhalation** : No specific data.  
**Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness  
**Ingestion** : No specific data.

### Potential chronic health effects

**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.

## Section 11. Toxicological information

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Distillates (petroleum), hydrotreated light	Acute LC50 2200 µg/l Fresh water	Fish - Lepomis macrochirus	4 days
	Acute LC50 2600 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Acute LC50 2900 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

**Conclusion/Summary** : Not available.

### Persistence and degradability

**Conclusion/Summary** : Not available.

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Polybutene	7.6 to 7.8	314 to 1882	high

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.




## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
<b>UN number</b>	UN 1268	UN 1268	Not available.	Not available.	UN 1268	UN 1268
<b>UN proper shipping name</b>	UN1268, Petroleum Distillates, n.o.s., Combustible Liquid, PG III [This product has a flash point	FLAMMABLE LIQUIDS, N.O.S. (Distillates (petroleum), hydrotreated light)	Not available.	Not available.	FLAMMABLE LIQUIDS, N.O.S. (Distillates (petroleum), hydrotreated light)	FLAMMABLE LIQUIDS, N.O.S. (Distillates (petroleum), hydrotreated light)

## Section 14. Transport information

	temperature between 60.5° to 93°C (141° and 200°F). Bulk shipments of this product are regulated.] (Distillates (petroleum), hydrotreated light)					
<b>Transport hazard class(es)</b>	Combustible liquid.	3 	Not available.	Not available.	3 	3 
<b>Packing group</b>	III	III	-	-	-	-
<b>Environmental hazards</b>	No.	No.	No.	No.	No.	No.
<b>Additional information</b>	-	-	-	-	-	-

**Special precautions for user** : **Transport within user's premises**: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.

**Clean Water Act (CWA) 307**: Naphthalene; Ethylbenzene

**Clean Water Act (CWA) 311**: Naphthalene; Ethylbenzene; Xylene

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

### SARA 302/304

#### Composition/information on ingredients

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Fire hazard  
Immediate (acute) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Distillates (petroleum), hydrotreated light	<20	Yes.	No.	No.	Yes.	No.
Polybutene	<5	No.	No.	No.	Yes.	No.

### State regulations

**Massachusetts** : None of the components are listed.

**New York** : The following components are listed: Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)

**New Jersey** : None of the components are listed.

**Pennsylvania** : The following components are listed: Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)

### California Prop. 65

**WARNING:** This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Ethylbenzene	<0.01	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
Naphthalene	<0.001	Yes.	No.	Yes.	No.

### International regulations

#### International lists

: **Australia inventory (AICS)**: Not determined.  
**China inventory (IECSC)**: Not determined.  
**Japan inventory**: Not determined.  
**Korea inventory**: Not determined.  
**Malaysia Inventory (EHS Register)**: Not determined.  
**New Zealand Inventory of Chemicals (NZIoC)**: Not determined.  
**Philippines inventory (PICCS)**: Not determined.  
**Taiwan inventory (CSNN)**: Not determined.

**EU Inventory** : Not determined.

#### Canada

**Canada inventory** : All components are listed or exempted.

**WHMIS (Canada)** : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

## Section 15. Regulatory information

**Canadian NPRI** : The following components are listed: Hydrotreated light distillate

**CEPA Toxic substances** : None of the components are listed.

## Section 16. Other information

### National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### History

**Date of issue/Date of revision** : 12/29/2014.

### Key to abbreviations

: ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 UN = United Nations

### Notice to reader

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## SAFETY DATA SHEET

Creation Date 28-Jan-2010

Revision Date 25-Apr-2019

Revision Number 5

### 1. Identification

**Product Name** Buffer Solution, pH 4.00, Color-Coded Red

**Cat No. :** SB101-4, SB101-20, SB101-500

**Synonyms** (Certified)

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet**

**Company**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

**Classification**

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Label Elements**

None required

**Hazards not otherwise classified (HNOC)**

None identified

WARNING. Cancer and Reproductive Harm - <https://www.p65warnings.ca.gov/>.

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Water	7732-18-5	98.91

1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	1.0
Formaldehyde	50-00-0	0.05
Methyl alcohol	67-56-1	0.02
Fluorescein, 2',4',5',7'-tetraiodo, disodium salt	16423-68-0	0.02

#### 4. First-aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
<b>Most important symptoms and effects</b>	None reasonably foreseeable.
<b>Notes to Physician</b>	Treat symptomatically

#### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	Not applicable
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

#### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. None reasonably foreseeable.

#### Hazardous Combustion Products

Thermal decomposition can lead to release of irritating gases and vapors.

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
1	0	0	N/A

#### 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment as required. Ensure adequate ventilation.
<b>Environmental Precautions</b>	Should not be released into the environment.

**Methods for Containment and Clean Up** Sweep up and shovel into suitable containers for disposal.

## 7. Handling and storage

**Handling** Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Formaldehyde	TWA: 0.1 ppm STEL: 0.3 ppm	(Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm	IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm	Ceiling: 0.3 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m <sup>3</sup> (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m <sup>3</sup> Skin TWA: 200 ppm TWA: 260 mg/m <sup>3</sup>	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m <sup>3</sup> STEL: 250 ppm STEL: 325 mg/m <sup>3</sup>	TWA: 200 ppm STEL: 250 ppm

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures** None under normal use conditions.

### Personal Protective Equipment

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Red
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	4.0
<b>Melting Point/Range</b>	0 °C / 32 °F
<b>Boiling Point/Range</b>	100 °C / 212 °F
<b>Flash Point</b>	Not applicable
<b>Evaporation Rate</b>	1.0 (ether = 1)
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	0.7 (Water = 1.0)

Specific Gravity	1.0
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Excess heat.
<b>Incompatible Materials</b>	None known
<b>Hazardous Decomposition Products</b>	Thermal decomposition can lead to release of irritating gases and vapors
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

<b>Product Information</b>	No acute toxicity information is available for this product
<b>Oral LD50</b>	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
<b>Dermal LD50</b>	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
<b>Vapor LC50</b>	Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
1,2-Benzenedicarboxylic acid, monopotassium salt	LD50 > 3200 mg/kg ( Rat )	Not listed	Not listed
Formaldehyde	500 mg/kg (Rat)	LD50 = 270 mg/kg (Rabbit)	0.578 mg/L (Rat) 4 h
Methyl alcohol	LD50 > 1187 – 2769 mg/kg ( Rat )	LD50 = 17100 mg/kg ( Rabbit )	LC50 = 128.2 mg/L ( Rat ) 4 h
Fluorescein, 2',4',5',7'-tetraiodo, disodium salt	LD50 = 1840 mg/kg ( Rat )	Not listed	Not listed

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Irritation</b>	No information available
<b>Sensitization</b>	No information available
<b>Carcinogenicity</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not listed	Not listed	Not listed	Not listed	Not listed
Formaldehyde	50-00-0	Group 1	Known	A1	X	A2
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed
Fluorescein, 2',4',5',7'-tetraiodo, disodium salt	16423-68-0	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Group 1 - Carcinogenic to Humans  
 Group 2A - Probably Carcinogenic to Humans  
 Group 2B - Possibly Carcinogenic to Humans  
 NTP: (National Toxicity Program)  
 Known - Known Carcinogen  
 Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen  
 A1 - Known Human Carcinogen  
 A2 - Suspected Human Carcinogen  
 A3 - Animal Carcinogen  
 ACGIH: (American Conference of Governmental Industrial Hygienists)  
 Mexico - Occupational Exposure Limits - Carcinogens  
 A1 - Confirmed Human Carcinogen  
 A2 - Suspected Human Carcinogen  
 A3 - Confirmed Animal Carcinogen  
 A4 - Not Classifiable as a Human Carcinogen  
 A5 - Not Suspected as a Human Carcinogen

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known  
**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** No information available

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

**Ecotoxicity**

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Formaldehyde	Not listed	Leuciscus idus: LC50 = 15 mg/L 96h	Not listed	EC50 = 20 mg/L 96h EC50 = 2 mg/L 48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available.

**Mobility**

Component	log Pow
Formaldehyde	-0.35
Methyl alcohol	-0.74

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Formaldehyde - 50-00-0	U122	-
Methyl alcohol - 67-56-1	U154	-

### 14. Transport information

<b>DOT</b>	Not regulated
<b>TDG</b>	Not regulated
<b>IATA</b>	Not regulated
<b>IMDG/IMO</b>	Not regulated

### 15. Regulatory information

#### United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	X	ACTIVE	-
Formaldehyde	50-00-0	X	ACTIVE	-
Methyl alcohol	67-56-1	X	ACTIVE	-
Fluorescein, 2',4',5',7'-tetraiodo, disodium salt	16423-68-0	X	ACTIVE	-

#### Legend:

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

#### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X	X	X	KE-35400
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	X	-	212-889-4	X	X	X	X	KE-02310
Formaldehyde	50-00-0	X	-	200-001-8	X	X	X	X	KE-17074
Methyl alcohol	67-56-1	X	-	200-659-6	X	X	X	X	KE-23193
Fluorescein, 2',4',5',7'-tetraiodo, disodium salt	16423-68-0	X	-	240-474-8	X	X	X	X	KE-10872

#### U.S. Federal Regulations

##### SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Formaldehyde	50-00-0	0.05	0.1
Methyl alcohol	67-56-1	0.02	1.0

**SARA 311/312 Hazard Categories** See section 2 for more information

##### CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Formaldehyde	X	100 lb	-	-

##### Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors

Formaldehyde	X		-
Methyl alcohol	X		-

**OSHA - Occupational Safety and Health Administration** Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Formaldehyde	2 ppm STEL 0.5 ppm Action Level 0.75 ppm TWA	TQ: 1000 lb

**CERCLA** This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Formaldehyde	100 lb	100 lb
Methyl alcohol	5000 lb	-

**California Proposition 65** This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Formaldehyde	50-00-0	Carc. (Gaseous only)	40 µg/day	Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Formaldehyde	X	X	X	X	X
Methyl alcohol	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product contains the following DHS chemicals:  
**Legend** - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Formaldehyde	Release STQs - 15000lb (solution)

**Other International Regulations**

**Mexico - Grade** No information available

**16. Other information**

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

**Creation Date** 28-Jan-2010  
**Revision Date** 25-Apr-2019  
**Print Date** 25-Apr-2019  
**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the

date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

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## 1. IDENTIFICATION

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### 1.1. PRODUCT IDENTIFIER USED ON LABEL:

Finished Product Item Number	Customer Item Number	LABEL DESCRIPTION ACTUAL	BRAND
BC3104EC	6459007	ECHO BAR & CHAIN OIL	ECHO
BC3112EC	99988800083	ECHO BAR & CHAIN OIL	ECHO

### 1.2. RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE;

- 1.2.1. PETROLEUM LUBRICATING OIL
- 1.2.2. NO OTHER USES RECOMMENDED

### 1.3. NAME, ADDRESS, AND TELEPHONE NUMBER OF THE CHEMICAL MANUFACTURE R, IMPORTER, OR OTHER RESPONSIBLE PARTY:

1.3.1.

#### **Spectrum Lubricants Corporation**

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500 Industrial Park Drive  
Selmer, TN 38375-3276  
United States of America

#### **Product Information**

MSDS Requests: (800) 264-6457 or +17316454972  
Technical Information: (800) 264-6457 or +17316454972  
General Information: [vswedley@spectrumcorporation.com](mailto:vswedley@spectrumcorporation.com)

### 1.4. EMERGENCY PHONE NUMBER:

1.4.1.

#### **Emergency Response**

North America: CHEMTREC (800) 424-9300 after 5:00pm CST Or +17035273887

#### **Health Emergency**

USA: (800) 264-6457 or +17316454972

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

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## 2. HAZARD(S) IDENTIFICATION

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### 2.1. CLASSIFICATION OF THE CHEMICAL IN ACCORDANCE WITH PARAGRAPH (d) of §1910.1200:

2.1.1. Acute Inhalation Category 4

### 2.2. Signal Word:

2.2.1. Warning

### 2.3. Symbol:



### 2.4. Hazard Statements:

2.4.1. Harmful if Inhaled

### 2.5. Precautionary Statements:

2.5.1. Prevention:

2.5.1.1. Avoid breathing dust/fume/gas/mist/vapors/spray.

2.5.1.2. Use only outdoors or in a well-ventilated area.

2.5.2. Response:

2.5.2.1. If inhaled: Remove person to fresh air and keep comfortable for breathing.

2.5.2.2. Call a poison center/doctor if you feel unwell.

## 3. Composition/ information on ingredients

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### 3.1. The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards in accordance with paragraph (d) of §1910.1200

3.1.1.

COMPONENTS	CAS Number	EU Number	Concentration (%)
Petroleum distillates, hydrotreated heavy naphthenic	64742-52-5	265-155-0	75-95
Residual Oils, hydrotreated (petroleum)	64742-57-0	265-160-8	5-25

## 4. FIRST AID MEASURES

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4.1.

<b>Skin:</b>	Wash skin with soap and warm water. Wash clothing before re-use.
<b>Eye:</b>	If splashed into eyes flush eyes with clear water for five (5) minutes.

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

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<b>Inhalation:</b>	Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell
<b>Ingestion:</b>	If ingested, do not induce vomiting. Call a physician.

## 5. FIRE FIGHTING MEASURES

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5.1. **Flash Point:** 425°F (218.3°C)

5.2. **Protective Equipment/Fire Fighting Instructions:**

5.2.1. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

5.3. **Extinguishing Media:**

5.3.1. Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

5.4. **Special Firefighting Procedures:**

5.4.1. Cool exposed containers with water spray.

5.5. **Unusual Fire and Explosion Hazards:**

5.5.1. Pressure increase in over heated closed containers. Cool containers with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

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6.1. **Spill Procedures:**

6.1.1. Remove ignition sources. Recover Liquid. Add absorbent to spill area. Ventilate confined spaces. Advise authorities if product enters sewers, etc.

6.2. **Waste Disposal:**

6.2.1. Assure conformity with applicable disposal regulations. Dispose of absorbed material at approved waste site

6.3. **Precautionary Measures:**

6.3.1. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling.

6.3.2. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

## 7. HANDLING AND STORAGE

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7.1. **HANDLING**

7.1.1. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

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should be completely drained, properly closed, and promptly returned to a drum re-conditioner or disposed of properly.

## 7.2. STORAGE

7.2.1. Keep container closed when not in use. Do not store with strong oxidizing agents. Do not store at elevated temperatures.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

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### 8.1. Component Exposure Limits:

8.1.1. Petroleum distillates, hydrotreated heavy naphthenic

8.1.1.1. ACGIH TLV: 5mg/m<sup>3</sup> (oil mist) TWA

8.1.1.2. OSHA PEL: 5mg/m<sup>3</sup> (oil mist) TWA

8.1.2. Residual oils, hydrotreated (petroleum)

8.1.2.1. ACGIH TLV: 5mg/m<sup>3</sup> (oil mist) TWA

8.1.2.2. OSHA PEL: 5mg/m<sup>3</sup> (oil mist) TWA

### 8.2. Engineering Controls:

8.2.1. Ventilate as needed to comply with exposure limit

### 8.3. Eye Protection:

8.3.1. Use goggles/face shield to avoid eye contact

### 8.4. Glove Protection:

8.4.1. Use impervious gloves to avoid repeated/prolonged skin contact.

### 8.5. Work/Hygienic Practices:

8.5.1. If clothing becomes contaminated, change to fresh clean clothing. Do not wear until thoroughly laundered.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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9.1. <b>Appearance/Odor:</b>	Amber colored liquid with mild hydrocarbon odor.	9.2. <b>Odor Threshold:</b>	No data available
9.3. <b>pH:</b>	No data available	9.4. <b>Boiling Point:</b>	Wide range
9.5. <b>Melting Point:</b>	No data available	9.6. <b>Solubility (H<sub>2</sub>O):</b>	Negligible
9.7. <b>Specific Gravity:</b>	0.9194 @ 15.6°C	9.8. <b>Density:</b>	7.622 lbs/gal
9.9. <b>Octanol/H<sub>2</sub>O Coeff.:</b>	No data available	9.10. <b>Evaporation Rate (BUAC=1):</b>	<1

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

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9.11. <b>Molecular Weight:</b>	No data available	9.12. <b>Decomposition Temp:</b>	No data available
9.13. <b>Auto Ignition:</b>	No data available	9.14. <b>Lower Flammability Limit:</b>	No data available
9.15. <b>Flash Point:</b>	425°F	9.16. <b>Upper Flammability Limit:</b>	No data available
9.17. <b>Vapor Density (Air=1):</b>	>1	9.18. <b>Vapor Pressure:</b>	<1mmHg @ 20°C
9.19. <b>VOC:</b>	Nil	9.20. <b>Flammability Class:</b>	Not classified
9.21. <b>Viscosity @ 40°C</b>	146cSt (146 mm <sup>2</sup> /s)	9.22. <b>Viscosity @ 100°C</b>	10.3cSt (10.3 mm <sup>2</sup> /s)

## 10. STABILITY AND REACTIVITY

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### 10.1. Reactivity:

10.1.1. Material does not pose a significant reactivity hazard.

### 10.2. Chemical Stability:

10.2.1. Stable

### 10.3. Incompatibility/Conditions to avoid:

10.3.1. Avoid strong oxidants

### 10.4. Possibility of Hazardous Reactions:

10.4.1. Will not undergo hazardous polymerization.

### 10.5. Hazardous Decomposition Products:

10.5.1. Partial burning produces fumes, smoke and carbon monoxide

## 11. TOXICOLOGY INFORMATION

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### 11.1. Likely Routes of Exposure:

11.1.1. Ingestion, Inhalation, Eye contact, Skin contact.

### 11.2. Acute Effects:

11.2.1. Inhalation: Harmful if inhaled. May cause respiratory irritation.

11.2.2. Eye Contact: Expected to be minimal/no eye irritation.

11.2.3. Skin Contact: Expected to be minimal/no skin irritation.

11.2.4. Ingestion: Expected to be low ingestion hazard.

### 11.3. Component Data/ Analysis

11.3.1. Petroleum distillates, hydrotreated heavy naphthenic:

11.3.1.1. Oral (LD50) (Rat): Acute: >5000 mg/kg

11.3.1.2. Inhalation (LC50) (Rat): Acute: 2.18 mg/l (4hr)

11.3.1.3. Dermal (LD50) (Rabbit): >2000 mg/kg

### 11.4. Sensitization:

11.4.1. Based on best current information, there are no known human effects.

### 11.5. Carcinogenicity:

11.5.1. There is no known information on carcinogenic components.

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

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## 11.6. Mutagenicity:

11.6.1. Not expected to be mutagenicity.

## 11.7. Reproductive Toxicity:

11.7.1. Based on best current information, there are no known human effects.

## 11.8. Teratogenicity:

11.8.1. Based on best current information, there are no known human effects.

## 12. ECOLOGICAL INFORMATION

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### 12.1. Ecotoxicity

12.1.1. An environmental fate analysis is not available for this specific product. Plants and animals may experience harmful or fatal effects when coated with petroleum products. Petroleum-based (mineral) lubricating oils normally will float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway may be sufficient to cause a fish kill or create an anaerobic environment.

### 12.2. Environmental Fate

12.2.1. Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.

## 13. DISPOSAL CONSIDERATIONS

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### 13.1. Waste Disposal:

13.1.1. Assure conformity with applicable disposal regulations. Dispose of absorbed material at approved waste site.

## 14. TRANSPORTATION INFORMATION

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**The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.**

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### 14.1. ROAD AND RAIL

14.1.1. DOT: NOT REGULATED

### 14.2. VESSEL

14.2.1. IMDG: NOT REGULATED

### 14.3. AIR

14.3.1. IATA: NOT REGULATED

## 15. REGULATORY INFORMATION

---

### 15.1. TSCA Inventory

15.1.1. This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

### 15.2. SARA 302/304 Emergency Planning and Notification

# SAFETY DATA SHEET- ECHO BAR & CHAIN OIL

---

15.2.1. No components were identified.

## 15.3. SARA 311/312 Hazard Identification

15.3.1. Acute (Immediate) Health Hazard

## 15.4. SARA 313 Toxic Chemical Notification and Release Reporting

15.4.1. : No components were identified.

## 15.5. CERCLA

15.5.1. No components were identified.

## 15.6. Clean Water Act (CWA)

15.6.1. This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

## 15.7. California Proposition 65:

15.7.1. No components identified.

## 15.8. New Jersey Right-to-Know Label

15.8.1. Petroleum Oil

## 15.9. WHMIS HAZARD SYMBOL AND CLASSIFICATION

15.9.1. NOT CLASSIFIED.

# 16. OTHER INFORMATION

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16.1.

HAZARD RANKINGS			
HMIS		NFPA	
HEALTH HAZARD	1	HEALTH HAZARD	1
FIRE HAZARD	1	FIRE HAZARD	1
PHYSICAL HAZARD	0	INSTABILITY/REACTIVITY	0
PERSONAL PROTECTION	B		

16.2. Date of preparation: 10/28/2013

## 16.3. MANUFACTURER DISCLAIMER:

16.3.1. *The data presented herein is based upon tests and information, which we believe to be reliable. However, users should make their own investigations to determine the suitability of the information for their particular purpose*



## SAFETYDATASHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

**Product name:** Buffer Solution, pH 7.00, Yellow

**Product number(s):** PH7-500ML, PH7-20L, PH7-1GAL, 5134000, 5135000, 5136000, 5137000, 5138000

#### 1.2 Details of the supplier of the safety datasheet

EQUIPCO Sales & Service  
2100 Meridian Park Blvd.  
Concord, CA 94520  
USA

Telephone: +1 925-234-5678

Fax: +1 925-305-1300

#### 1.3 Emergency telephone number

For domestic U.S.A. - Chemtec: +1 800-424-9300, contract # 23969

For international - Infotec: +1 352-323-3500, contract # 107082

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29CFR1910 (OSHAHCS)**

No labelling applicable / Not classified

#### 2.2 GHS Label elements, including precautionary statements

Pictogram(s)



Signal word **Warning**

**Hazard statement(s)**

No data available

**Precautionary statements(s)**

No data available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1

Name	CAS number	%	GHS-US classification
Potassium Phosphate, Monobasic	7778-77-0	< 1	N/A
Sodium Hydroxide	1310-73-2	< 1	Acute Tox. 4 (Dermal), H312; Skin Corr. 1A, H314; Eye Dam. 1, H318; Aquatic Acute 3, H402
Methyl Paraben	99-76-3	< 0.02	N/A
Water	7732-18-5	balance	N/A

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

**General advice**

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**If inhaled**

Assure fresh air breathing. Allow the victim to rest.

**In case of skin contact**

Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

**In case of eye contact**

Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

**If swallowed**

Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

**4.2 Most important symptoms and effects, both acute and delayed**

Not expected to present a significant hazard under anticipated conditions of normal use.

**4.3 Indication of any immediate medical attention and special treatment needed**

No additional information available

---

**5. FIREFIGHTING MEASURES****5.1 Suitable extinguishing media**

Foam. Dry powder. Carbon dioxide. Water spray. Sand. Do not use a heavy water stream.

**5.2 Special hazards arising from the substance or mixture****Hazards**

None

**5.3 Advice for firefighters****Advice**

Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

**Equipment**

Do not enter fire area without proper protective equipment, including respiratory protection.

---

**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel

Protective equipment : Safety glasses.

Emergency procedures : Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

**6.2 Environmental precautions**

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

**6.3 Methods and materials for containment and cleaning up**

Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

**6.4 Reference to other sections**

See Heading 8. Exposure controls and personal protection.

---

**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not eat, drink or smoke when using this product.

**7.2 Conditions for safe storage, including any incompatibilities**

Storage conditions : Keep container closed when not in use.

Incompatible products : Strong oxidizers.

Incompatible materials : None known.

### 7.3 Specific end user(s)

No additional information available

---

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameter

#### Components with workplace control parameters

Component	CAS-No.	Control parameters	Value
Sodium Hydroxide	(1310-73-2)	USA ACGIH ACGIH Ceiling (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
		USA OSHA OSHA PEL (TWA) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>

### 8.2 Exposure controls

#### Appropriate Engineering controls

Provide adequate general and local exhaust ventilation.

#### Personal protective equipment

##### Eye/face protection

Chemical goggles or safety glasses.

##### Skin and Hand protection

Wear protective gloves.

##### Body protection

Avoid all unnecessary exposure.

##### Respiratory protection

Wear appropriate mask.

##### Other information

Do not eat, drink or smoke during use.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Color	Yellow
Upper/lower flammability or explosive limits	No data available
Odor	None
Odor threshold	No data available
Vapor pressure	14
Vapor density	No data available
pH	7
Relative density	> 1.0
Melting point	ca. 0 C
Freezing point	No data available
Initial Boiling point and boiling range	ca. 100 C
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Water solubility	very soluble
Partition coefficient: n-octanol/water	No data available

Auto-ignition temperature  
Decomposition temperature  
Viscosity

No data available  
No data available  
No data available

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No additional information available

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

None.

### 10.4 Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5 Incompatible materials

Strong oxidizers.

### 10.6 Hazardous decomposition products

Phosphorus oxides. Sodium oxide

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Not classified

Potassium Phosphate, Monobasic (7778-77-0)

LD50 dermal rabbit 4640 mg/kg

Sodium Hydroxide (1310-73-2)

LD50 dermal rabbit 1350 mg/kg (Rabbit; Literature,Rabbit; Literature)

Water (7732-18-5)

LD50 oral rat  $\geq 90000$  mg/kg

#### Skin corrosion/irritation

Not classified

pH: 7

#### Serious eye damage/eye irritation

Not classified

pH: 7

#### Respiratory or skin sensitization

Not classified

#### Germ cell mutagenicity

Not classified

#### Carcinogenicity

Not classified

#### Reproductive toxicity

Not classified

#### Specific target organ toxicity – single exposure

Not classified

#### Specific target organ toxicity – repeated exposure

Not classified

#### Aspiration hazard

Not classified

---

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Sodium Hydroxide (1310-73-2)  
LC50 fishes 1 45.4 mg/l (96 h; *Salmo gairdneri* (*Oncorhynchus mykiss*); Solution  $\geq 50\%$ )  
EC50 Daphnia 1 40.4 mg/l (48 h; *Ceriodaphnia* sp.; Nominal concentration)  
LC50 fish 2 189 mg/l (48 h; *Leuciscus idus*)  
TLM fish 1 99 mg/l (48 h; *Lepomis macrochirus*)  
TLM fish 2 125 ppm (96 h; *Gambusia affinis*)

### 12.2 Persistence and degradability

Buffer Solution pH 7.00  
Persistence and degradability Not established.

Potassium Phosphate, Monobasic (7778-77-0)  
Persistence and degradability Not established.

Sodium Hydroxide (1310-73-2)  
Persistence and degradability Biodegradability: not applicable. No (test) data on mobility of the substance available.  
Biochemical oxygen demand (BOD) Not applicable  
Chemical oxygen demand (COD) Not applicable  
ThOD Not applicable  
BOD (% of ThOD) Not applicable

Water (7732-18-5)  
Persistence and degradability Not established.

### 12.3 Bioaccumulative potential

Buffer Solution pH 7.00  
Bioaccumulative potential Not established.

Potassium Phosphate, Monobasic (7778-77-0)  
Bioaccumulative potential Not established.

Sodium Hydroxide (1310-73-2)  
Bioaccumulative potential Bioaccumulation: not applicable.

Water (7732-18-5)  
Bioaccumulative potential Not established.

### 12.4 Mobility in soil

No additional information available

### 12.5 Results in PBT and vPvB assessment

No data available.

### 12.6 Other adverse effects

Avoid release to the environment

---

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Dispose in a safe manner in accordance with local/national regulations.

#### Contaminated Container

Avoid release to the environment.

---

## 14. TRANSPORT INFORMATION

### In accordance with DOT

DOT Proper Shipping Name

Not regulated by D.O.T.

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**15. REGULATORY INFORMATION**

**US Federal regulations**

Potassium Phosphate, Monobasic (7778-77-0)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Sodium Hydroxide (1310-73-2)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
RQ (Reportable quantity, section 304 of EPA's List of Lists) :1000 lb  
SARA Section 311/312 Hazard Classes Immediate (acute) health hazard  
Water (7732-18-5)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory

**International regulations**

**CANADA**

Buffer Solution pH 7.00  
WHMIS Classification Uncontrolled product according to WHMIS classification criteria  
Potassium Phosphate, Monobasic (7778-77-0)  
Listed on the Canadian DSL (Domestic Substances List) inventory.  
WHMIS Classification Uncontrolled product according to WHMIS classification criteria  
Sodium Hydroxide (1310-73-2)  
Listed on the Canadian DSL (Domestic Substances List) inventory.  
WHMIS Classification Class E - Corrosive Material  
Water (7732-18-5)  
Listed on the Canadian DSL (Domestic Substances List) inventory.  
Water (7732-18-5)  
WHMIS Classification Uncontrolled product according to WHMIS classification criteria

**National regulations**

Potassium Phosphate, Monobasic (7778-77-0)  
Not listed on the Canadian Ingredient Disclosure List  
Sodium Hydroxide (1310-73-2)  
Listed on the Canadian Ingredient Disclosure List  
Water (7732-18-5)  
Not listed on the Canadian Ingredient Disclosure List

**TSCA Inventory List:**

All of the ingredients (or their hydrate forms) are listed.

**CERCLA Reportable Quantity (RQ):**

CAS# 1310-73-2: 1000 lb.

**SARA Section 302 Threshold Planning Quality (TPQ):**

None of the ingredients have a TPQ.

**SARA Title Codes:**

CAS # 1310-73-2: acute, reactive.

CAS # 7778-77-0: acute.

**OSHA:**

This product is not considered to be highly hazardous by OSHA Hazard Communication Standard.

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**16. OTHER INFORMATION**

**HMIS Rating**

HEALTH: 1

FIRE: 0

REACTIVITY: 0

SPECIFIC HAZARD: N/A

**EMERGENCY CONTACT: CHEMTREC (800) 424-9300**

**Further Information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our Suppliers knowledge and is applicable to the product with regard to appropriate safety precautions. No warranty, express or implied, is made and Equipco Sales & Service assumes no liability resulting from the use of this SDS. The user must determine the suitability of this information for his/her application. Equipco Sales & Service and its Suppliers and their Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

**Preparation Information****Current Revision:** 2**RevisionDate:** June 01 2015**Print Date:** 24 November 2015

**GOJO® NATURAL\* ORANGE™ Pumice Hand Cleaner**

Version 1.0      Revision Date: 03/02/2015      MSDS Number: 68057-00001      Date of last issue: -  
Date of first issue: 03/02/2015

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**SECTION 1. IDENTIFICATION**

Product name : GOJO® NATURAL\* ORANGE™ Pumice Hand Cleaner

**Manufacturer or supplier's details**

Company name of supplier : GOJO Industries, Inc.

Address : One GOJO Plaza, Suite 500  
Akron OH 44311

Telephone : 1 (330) 255-6000

Emergency telephone : 1-800-424-9300 CHEMTREC

**Recommended use of the chemical and restrictions on use**

Recommended use : Skin-care

Restrictions on use : This is a personal care or cosmetic product that is safe for consumers and other users under normal and reasonably foreseeable use. Cosmetics and consumer products, specifically defined by regulations around the world, are exempt from the requirement of an SDS for the consumer. While this material is not considered hazardous, this SDS contains valuable information critical to the safe handling and proper use of the product for industrial workplace conditions as well as unusual and unintended exposures such as large spills. This SDS should be retained and available for employees and other users of this product. For specific intended-use guidance, please refer to the information provided on the package or instruction sheet.

---

**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Eye irritation : Category 2A

**GHS Label element**

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H319 Causes serious eye irritation.

Precautionary Statements : **Prevention:**



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P264 Wash skin thoroughly after handling.  
P280 Wear eye protection/ face protection.

**Response:**

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

**Other hazards**

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

**Hazardous ingredients**

Chemical Name	CAS-No.	Concentration (%)
1-Methyl 4-(1-Methylethenyl) Cyclohexene	5989-27-5	>= 5 - < 10
Alcohols, C12-15, ethoxylated propoxylated	68551-13-3	>= 1 - < 5

## SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : Wash with water and soap as a precaution.  
Get medical attention if symptoms occur.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
If easy to do, remove contact lens, if worn.  
Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention if symptoms occur.  
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Causes serious eye irritation.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.



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Notes to physician : Treat symptomatically and supportively.

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### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Dry chemical  
Carbon dioxide (CO<sub>2</sub>)
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.
- 

### SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items
-



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employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

## SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on safe handling : Avoid inhalation of vapor or mist.  
Do not swallow.  
Do not get in eyes.  
Avoid prolonged or repeated contact with skin.  
Handle in accordance with good industrial hygiene and safety practice.  
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.  
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:  
Strong oxidizing agents

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Hazardous components without workplace control parameters

Ingredients	CAS-No.
1-Methyl 4-(1-Methylethenyl) Cyclohexene	5989-27-5
Alcohols, C12-15, ethoxylated propoxylated	68551-13-3

- Engineering measures** : Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations. Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment. Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m<sup>3</sup> - total dust, 5 mg/m<sup>3</sup> - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m<sup>3</sup> - respirable particles, 10 mg/m<sup>3</sup> - inhalable particles.



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### Personal protective equipment

- Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Hand protection  
Material : Impervious gloves
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
- Eye protection : Wear the following personal protective equipment:  
Safety goggles
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.  
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.  
When using do not eat, drink or smoke.  
Wash contaminated clothing before re-use.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Color : gray, opaque
- Odor : citrus
- Odor Threshold : No data available

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pH	: 5.0 - 8.0
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: 95 °C
Flash point	: > 100 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapor pressure	: No data available
Relative vapor density	: No data available
Density	: 1.0390 g/cm <sup>3</sup>
Solubility(ies) Water solubility	: soluble
Partition coefficient: n-octanol/water	: Not applicable
Autoignition temperature	: No data available
Decomposition temperature	: The substance or mixture is not classified self-reactive.
Viscosity Viscosity, kinematic	: 10,000 - 50,000 mm <sup>2</sup> /s (20 °C)
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Can react with strong oxidizing agents.
Conditions to avoid	: None known.

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Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Ingredients:****1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Based on data from similar materials

**Alcohols, C12-15, ethoxylated propoxylated:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 1.6 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on data from similar materials

**Skin corrosion/irritation**

Not classified based on available information.

**Product:**

Result: No skin irritation

**Ingredients:****1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Species: Rabbit  
Result: Skin irritation

**Alcohols, C12-15, ethoxylated propoxylated:**

Species: Rabbit  
Method: OECD Test Guideline 404



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Result: No skin irritation  
Remarks: Based on data from similar materials

### Serious eye damage/eye irritation

Causes serious eye irritation.

#### Ingredients:

#### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Species: Rabbit  
Result: No eye irritation

#### **Alcohols, C12-15, ethoxylated propoxylated:**

Result: Irreversible effects on the eye  
Remarks: Based on data from similar materials

### Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.  
Respiratory sensitization: Not classified based on available information.

#### Product:

Assessment: Does not cause skin sensitization.

#### Ingredients:

#### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Test Type: Local lymph node assay (LLNA)  
Routes of exposure: Skin contact  
Species: Mouse  
Result: positive

Assessment: Probability or evidence of skin sensitization in humans

#### **Alcohols, C12-15, ethoxylated propoxylated:**

Test Type: Maximization Test (GPMT)  
Routes of exposure: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative  
Remarks: Based on data from similar materials

### Germ cell mutagenicity

Not classified based on available information.

#### Ingredients:

#### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Genotoxicity in vivo : Test Type: Transgenic rodent somatic cell gene mutation assay  
Species: Rat  
Application Route: Ingestion



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Result: negative

### Alcohols, C12-15, ethoxylated propoxylated:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

### Carcinogenicity

Not classified based on available information.

### Ingredients:

#### 1-Methyl 4-(1-Methylethenyl) Cyclohexene:

Species: Mouse  
Application Route: Ingestion  
Exposure time: 103 weeks  
Result: negative

### IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

### OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### Reproductive toxicity

Not classified based on available information.

### Ingredients:

#### Alcohols, C12-15, ethoxylated propoxylated:

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Skin contact  
Result: negative  
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Skin contact  
Result: negative  
Remarks: Based on data from similar materials



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### STOT-single exposure

Not classified based on available information.

### STOT-repeated exposure

Not classified based on available information.

### Repeated dose toxicity

#### Ingredients:

#### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Species: Rat  
NOAEL: 600 mg/kg  
Application Route: Ingestion  
Exposure time: 13 w

#### **Alcohols, C12-15, ethoxylated propoxylated:**

Species: Rat  
NOAEL: 500 mg/kg  
Application Route: Ingestion  
Exposure time: 90 d  
Remarks: Based on data from similar materials

### Aspiration toxicity

Not classified based on available information.

#### Ingredients:

#### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Ingredients:

#### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0.72 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.36 mg/l Exposure time: 48 h
Toxicity to algae	:	ErC50 (Desmodesmus subspicatus (green algae)): 150 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

#### **Alcohols, C12-15, ethoxylated propoxylated:**

Toxicity to fish : LC50 (Scophthalmus maximus (turbot)): 3.1 mg/l



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Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.14 mg/l  
Exposure time: 48 h  
Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.75 mg/l  
Exposure time: 72 h  
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Toxicity to bacteria : EC50 (Pseudomonas putida): > 10,000 mg/l  
Exposure time: 16.9 h  
Remarks: Based on data from similar materials

### Persistence and degradability

#### Ingredients:

##### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 80 %  
Exposure time: 28 d  
Remarks: Based on data from similar materials

##### **Alcohols, C12-15, ethoxylated propoxylated:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 80 - 88 %  
Exposure time: 28 d  
Remarks: Based on data from similar materials

### Bioaccumulative potential

#### Ingredients:

##### **1-Methyl 4-(1-Methylethenyl) Cyclohexene:**

Partition coefficient: n-octanol/water : log Pow: 4.38

### Mobility in soil

No data available

### Other adverse effects

No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of in accordance with local regulations.



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Contaminated packaging : Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.

## SECTION 14. TRANSPORT INFORMATION

### International Regulation

#### UNRTDG

UN number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
 (1-Methyl 4-(1-Methylethenyl) Cyclohexene)  
 Class : 9  
 Packing group : III  
 Labels : 9

#### IATA-DGR

UN/ID No. : UN 3082  
 Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
 (1-Methyl 4-(1-Methylethenyl) Cyclohexene)  
 Class : 9  
 Packing group : III  
 Labels : Miscellaneous  
 Packing instruction (cargo aircraft) : 964  
 Packing instruction (passenger aircraft) : 964

#### IMDG-Code

UN number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
 (1-Methyl 4-(1-Methylethenyl) Cyclohexene)  
 Class : 9  
 Packing group : III  
 Labels : 9  
 EmS Code : F-A, S-F  
 Marine pollutant : yes

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### Domestic regulation

#### 49 CFR

UN/ID/NA number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
 (1-Methyl 4-(1-Methylethenyl) Cyclohexene)  
 Class : 9


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Packing group	: III
Labels	: CLASS 9
ERG Code	: 171
Marine pollutant	: yes (1-Methyl 4-(1-Methylethenyl) Cyclohexene)
Remarks	: Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

**SECTION 15. REGULATORY INFORMATION**
**EPCRA - Emergency Planning and Community Right-to-Know**
**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Acute Health Hazard

**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**US State Regulations**
**Pennsylvania Right To Know**

Water	7732-18-5	70 - 90 %
Pumice	1332-09-8	5 - 10 %
1-Methyl 4-(1-Methylethenyl) Cyclohexene	5989-27-5	5 - 10 %

**New Jersey Right To Know**

Water	7732-18-5	70 - 90 %
Pumice	1332-09-8	5 - 10 %
1-Methyl 4-(1-Methylethenyl) Cyclohexene	5989-27-5	5 - 10 %
Alcohols, C12-15, ethoxylated propoxylated	68551-13-3	1 - 5 %

**California Prop 65** This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**The ingredients of this product are reported in the following inventories:**

REACH : All ingredients (pre-)registered or exempt.

TSCA : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory

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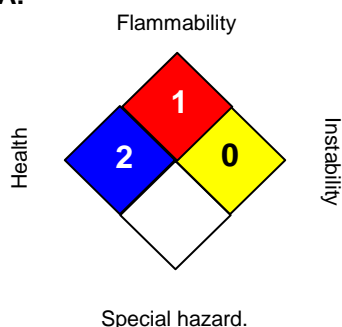
exemption.

DSL : All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the Canadian Domestic Substances List (DSL).

AICS : All ingredients listed or exempt.

**Inventories**

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

**SECTION 16. OTHER INFORMATION**
**Further information**
**NFPA:**

**HMIS III:**

<b>HEALTH</b>	<b>2</b>
<b>FLAMMABILITY</b>	<b>1</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 03/02/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8

# Safety Data Sheet



**SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

## GST Oil 32, 46, 68, 100

**Product Use:** Turbine Oil

**Product Number(s):** 253026, 253027, 253028, 253029, 254606, 254607, 254608, 278069, 853026, 853027, 853028, 853029

**Synonyms:** GST Oil 100 ISOCLEAN Certified; GST Oil 32 ISOCLEAN Certified; GST Oil 46 ISOCLEAN Certified; GST Oil 68 ISOCLEAN Certified

**Company Identification**

Chevron Products Company  
a division of Chevron U.S.A. Inc.  
6001 Bollinger Canyon Rd.  
San Ramon, CA 94583  
United States of America  
[www.chevronlubricants.com](http://www.chevronlubricants.com)

**Transportation Emergency Response**

CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**

email : [lubemsds@chevron.com](mailto:lubemsds@chevron.com)  
Product Information: 1 (800) 582-3835, [LUBETEK@chevron.com](mailto:LUBETEK@chevron.com)

**SECTION 2 HAZARDS IDENTIFICATION**

**CLASSIFICATION:** Not classified as hazardous according to 29 CFR 1910.1200 (2012).

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

**Most important symptoms and effects, both acute and delayed**

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

**Ingestion:** Not expected to be harmful if swallowed.

**Inhalation:** Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

**DELAYED OR OTHER HEALTH EFFECTS:** Not classified

**Indication of any immediate medical attention and special treatment needed**

**Note to Physicians:** In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However,

because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

## SECTION 5 FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Unusual Fire Hazards:** Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

### PROTECTION OF FIRE FIGHTERS:

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

## SECTION 7 HANDLING AND STORAGE

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty

container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

**SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

**GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**ENGINEERING CONTROLS:**

Use in a well-ventilated area.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eye/Face Protection:** No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

**Skin Protection:** No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

**Respiratory Protection:** No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

**Occupational Exposure Limits:**

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

**Color:** Colorless to yellow

**Physical State:** Liquid

**Odor:** Petroleum odor

**Odor Threshold:** No data available

**pH:** Not Applicable

**Vapor Pressure:** <0.01 mmHg @ 37.8 °C (100 °F)

**Vapor Density (Air = 1):** >1

**Initial Boiling Point:** 315°C (599°F)

**Solubility:** Soluble in hydrocarbons; insoluble in water

**Freezing Point:** Not Applicable

**Melting Point:** No data available

**Specific Gravity:** 0.86 - 0.87 @ 15.6°C (60.1°F)

**Density:** 0.86 kg/l @ 15.6°C (60.1°F) Minimum

**Viscosity:** 28.80 mm<sup>2</sup>/s - 100 mm<sup>2</sup>/s @ 40°C (104°F)

**Coefficient of Therm. Expansion / °F:** No data available

**Evaporation Rate:** No data available

**Decomposition temperature:** No data available

**Octanol/Water Partition Coefficient:** No data available

### FLAMMABLE PROPERTIES:

**Flammability (solid, gas):** No Data Available

**Flashpoint:** (Cleveland Open Cup) 190 °C (374 °F) Minimum

**Autoignition:** No data available

**Flammability (Explosive) Limits (% by volume in air):** Lower: Not Applicable Upper: Not Applicable

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** None known (None expected)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

**Serious Eye Damage/Irritation:** The eye irritation hazard is based on evaluation of data for product

components.

**Skin Corrosion/Irritation:** The skin irritation hazard is based on evaluation of data for product components.

**Skin Sensitization:** The skin sensitization hazard is based on evaluation of data for product components.

**Acute Dermal Toxicity:** The acute dermal toxicity hazard is based on evaluation of data for product components.

**Acute Oral Toxicity:** The acute oral toxicity hazard is based on evaluation of data for product components.

**Acute Inhalation Toxicity:** The acute inhalation toxicity hazard is based on evaluation of data for product components.

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The hazard evaluation is based on data for components or a similar material.

**Carcinogenicity:** The hazard evaluation is based on data for components or a similar material.

**Reproductive Toxicity:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Single Exposure:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Repeated Exposure:** The hazard evaluation is based on data for components or a similar material.

**ADDITIONAL TOXICOLOGY INFORMATION:**

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

**SECTION 12 ECOLOGICAL INFORMATION**

**ECOTOXICITY**

This material is not expected to be harmful to aquatic organisms.

The product has not been tested. The statement has been derived from the properties of the individual components.



**MOBILITY**

No data available.

**PERSISTENCE AND DEGRADABILITY**

This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

The product has not been tested. The statement has been derived from the properties of the individual components.

**POTENTIAL TO BIOACCUMULATE**

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

**SECTION 13 DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

**SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** NOT REGULATED AS A HAZARDOUS MATERIAL UNDER 49 CFR

**IMO/IMDG Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

**ICAO/IATA Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**  
Not applicable

**SECTION 15 REGULATORY INFORMATION**

<b>EPCRA 311/312 CATEGORIES:</b>	1. Immediate (Acute) Health Effects:	NO
	2. Delayed (Chronic) Health Effects:	NO
	3. Fire Hazard:	NO

4. Sudden Release of Pressure Hazard: NO  
5. Reactivity Hazard: NO

**REGULATORY LISTS SEARCHED:**

01-1=IARC Group 1                      03=EPCRA 313  
01-2A=IARC Group 2A                  04=CA Proposition 65  
01-2B=IARC Group 2B                  05=MA RTK  
02=NTP Carcinogen                    06=NJ RTK  
   07=PA RTK

No components of this material were found on the regulatory lists above.

**CHEMICAL INVENTORIES:**

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), IECSC (China), KECI (Korea), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

**NEW JERSEY RTK CLASSIFICATION:**

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Lubricating oil)

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:**      Health: 0      Flammability: 1      Reactivity: 0

**HMIS RATINGS:**      Health: 0      Flammability: 1      Reactivity: 0  
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:**

SECTION 08 - Occupational Exposure Limit Table information was modified.

**Revision Date:** February 13, 2017



**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**

## Cooper Industries/Cooper Power Systems: Kearney Rust Cutter

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>COMMON NAME:</b>	Kearney Rust Cutter		
<b>CHEMICAL NAME:</b>	Not Applicable -- Mixture		
<b>PRODUCT DESCRIPTION:</b>	Flammable Aerosol Rust Remover		
<b>FORMULA:</b>	Not Applicable -- Mixture		
<b>PRODUCT CAS NO.:</b>	Not Applicable -- Mixture		
<b>SUPPLIER:</b>	Cooper Industries/Cooper Power Systems		
<b>ADDRESS:</b>	3660 South School Avenue		
<b>CITY, STATE, ZIP:</b>	Fayetteville, AR 72701		
<b>PHONE:</b>	(479) 521-3700	<b>EMERGENCY PHONE: CHEMTREC (800) 924-9300</b>	

### 2. HAZARDOUS INGREDIENTS: COMPOSITION/INFORMATION

INGREDIENT	% WEIGHT	PEL-OSHA	TLV-ACGIH	LD50/LC50 ROUTE/SPECIES
Hydrotreated Paraffinic distillates CAS No.: 64742-54-7 FORMULA: Not Available	55-75	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> * 10 mg/m <sup>3</sup> (STEL)	Not Available
Heptane CAS No.: 142-82-5 FORMULA: C <sub>7</sub> H <sub>16</sub>	10-20	500 ppm	400 ppm 500 ppm	Not Available
Butane and Isobutane (as n-butane) CAS No.: 106-97-8 FORMULA: C <sub>4</sub> H <sub>10</sub>	10-20	None Established	800 ppm	LC <sub>50</sub> : 280,000 ppm inhalation/rat (4 H)
Propane CAS No.: 74-98-6 FORMULA: C <sub>3</sub> H <sub>8</sub>	5-10	1000 ppm	2500 ppm	Not Available
Oleic Acid CAS No.: 112-80-1 FORMULA: C <sub>18</sub> H <sub>34</sub> O <sub>2</sub>	< 5	None Established	None Established	Not Available

\* As sampled by a method that does not collect vapor.

OSHA Regulatory Status: This product is considered hazardous under criteria of this rule.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Flammable aerosol rust remover. May cause eye, skin, and respiratory irritation. Release in confined space or poorly ventilated area may create high aerosol and vapor concentrations. Inhalation of high vapor concentrations may have a narcotic or anesthetic effect. Dangerous fire and explosion hazard. Avoid heat, sparks, and flame. Contents under pressure. Use and store below 125 °F.

## Cooper Industries/Cooper Power Systems: Kearney Rust Cutter

### POTENTIAL HEALTH EFFECTS

EYE: May cause irritation.

SKIN: May cause irritation.

INGESTION: Not expected.

INHALATION: May cause irritation. Systemic effects are not expected under normal working conditions due to the small size of the container. Vapors may build up if several containers are released or if aerosol is used in a confined or poorly ventilated area. High concentrations may depress the central nervous system (CNS) and act as an anesthetic or narcotic. Deliberate concentration and inhalation of fumes can be harmful or fatal.

SIGNS AND SYMPTOMS: Inhalation of high concentrations may cause irritation, nausea, incoordination, and drowsiness.

CHRONIC: None known. Repeated overexposure to unrefined oils has caused long-term health effects in experimental animals. The oils used in this product are severely refined. Available data indicates that severely refined petroleum oils are not expected to adversely affect health with repeated exposure.

CARCINOGENICITY: IARC: No NTP: No OSHA: No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

TARGET ORGANS: Eyes, skin, respiratory system, CNS.

### 4. FIRST AID MEASURES

EYE: Flush eyes with large amounts of lukewarm water for 15 minutes. If irritation persists, seek medical attention.

SKIN: Remove contaminated clothing and wash skin thoroughly with soap and water. If irritation persists, seek medical attention.

INGESTION: None required.

INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Seek immediate medical attention.

### 5. FIRE FIGHTING MEASURES

#### FLAMMABLE PROPERTIES

FLASH POINT: No Data

FLAMMABLE LIMITS: LEL: No Data\* UEL: No Data

#### NFPA HAZARD CLASSIFICATION:

HEALTH: 1 FLAMMABILITY: 4 REACTIVITY: 0  
(as butane and propane)

\* Data was unavailable for aerosol. The LEL for heptane is 1.05% and the LEL for butane is 1.9%.

EXTINGUISHING MEDIA: Stop the leak or isolate area and let fire burn. If fire is in areas where this product is stored, be cautious, as containers may rupture violently from pressure. Cool surrounding containers with water spray. Evacuate surrounding area in all directions.

FIRE AND EXPLOSION HAZARDS: Flammable aerosol. Container may vent rapidly or rupture violently from pressure when involved in a fire situation.

FIRE FIGHTING EQUIPMENT: Firefighters should wear a NIOSH-approved, full-facepiece self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout or bunker gear.

## Cooper Industries/Cooper Power Systems: Kearney Rust Cutter

### 6. ACCIDENTAL RELEASE MEASURES

Not expected as product is in an aerosol container. For leaks, isolate contaminated area and extinguish all ignition sources. Remove spray can to outside if it can be done without risk and allow container to empty. Ventilate enclosed areas. Clean residue with soap and water. Residue may be slippery.

### 7. HANDLING AND STORAGE

Store in cool area away from heat sources. Use only in well ventilated areas. Do not use or store where heat, sparks, open flames, or other ignition sources are present. Do not smoke in work and storage areas. Wash thoroughly after handling and before meals and breaks. Protect containers from physical damage. Do not allow the temperatures where aerosols are stored to exceed 125° (52° C). Store upright and prevent containers being knocked over. DO NOT crush, puncture, heat, or incinerate. Do not weld on or near full or empty containers. Empty containers may contain flammable product residue, handle and dispose of accordingly.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**RESPIRATORY PROTECTION:** Under normal working conditions below acceptable exposure guidelines, none required. Use a positive pressure NIOSH approved air-supplying respirator system (SCBA or airline/escape bottle) with a minimum Grade D air for if high or unknown concentrations are released.

**SKIN PROTECTION:** Protective gloves as necessary to prevent irritation.

**EYE PROTECTION:** Safety goggles or glasses as appropriate for the job.

**ENGINEERING CONTROLS:** General ventilation. Use local exhaust ventilation in confined areas or when large quantities of product may be released.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE:</b>	Brown aerosol spray
<b>ODOR:</b>	Gasoline type odor
<b>BOILING POINT:</b>	No Data
<b>VAPOR PRESSURE:</b>	No Data
<b>VAPOR DENSITY (Air = 1):</b>	No Data
<b>SOLUBILITY IN WATER:</b>	Slight
<b>SPECIFIC GRAVITY:</b>	No Data
<b>MELTING POINT:</b>	No Data
<b>pH:</b>	Not Applicable
<b>% VOLATILE:</b>	> 36

### 10. STABILITY AND REACTIVITY

**STABILITY:** Stable

**INCOMPATIBLE MATERIALS/CONDITIONS:** Incompatible with oxidizers. Avoid heat, sparks, and flame.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Oxides of carbon, hydrocarbons and other oxidation products.

**HAZARDOUS POLYMERIZATION:** Will not occur.

## Cooper Industries/Cooper Power Systems: Kearney Rust Cutter

### 11. TOXICOLOGICAL INFORMATION

**INHALATION:** Concentrations of 10,000-15,000 ppm heptane produced CNS depression in mice within 30-60 minutes and 15-20,000 ppm for 30-60 minutes caused convulsions and death. A 10 minute exposure to 10,000 ppm butane caused drowsiness but no other evidence of systemic effects in humans. Humans that inhaled 10,000 ppm propane for 10 minutes experienced either no effect or only slight drowsiness.

**SKIN AND EYE:** Available data for ingredients indicates contact may cause minor skin and eye irritation.

**OTHER:** Mineral oils derived from highly refined oils appear to have low acute and subacute toxicity in animals. No tumors were seen in male mice exposed to twice-weekly skin application of 50 mg of undiluted paraffinic solvent refined oil for up to 80 weeks.

### 12. ECOLOGICAL INFORMATION

Oils in general have a high potential to bioconcentrate in aquatic organisms. Limited experimental data on alkanes suggest that bioconcentration may not be that important due to metabolism.

### 13. DISPOSAL CONSIDERATIONS

Recycle, reclaim and dispose of in accordance with applicable state, local and federal regulations.

### 14. TRANSPORT INFORMATION

<b>PROPER SHIPPING NAM:</b>	Aerosols, flammable, n.o.s. (heptane, butane)
<b>HAZARD CLASS:</b>	2.1
<b>IDENTIFICATION NUMBER:</b>	1950
<b>SHIPPING LABEL:</b>	FLAMMABLE GAS

### 15. REGULATORY INFORMATION

WHMIS CLASSIFICATION: B3, D2B

SARA TITLE III – SECTION 313 SUPPLIER NOTIFICATION: This product does not contain ingredients subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372.



CALIFORNIA PROPOSITION 65: This product does not contain ingredients known to the State of California to cause cancer or reproductive toxicity.

### 16. OTHER INFORMATION

KEY:	
ACGIH:	American Conference of Governmental Industrial Hygienists
CAS:	Chemical Abstracts Service
DOT:	Department of Transportation
IARC:	International Agency for Research on Cancer
MSHA:	Mine Safety and Health Administration
NFPA:	National Fire Protection Association
NIOSH:	National Institute for Occupational Safety and Health
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendment and Reauthorization Act
TDG:	Transportation of Dangerous Goods
TLV:	Threshold Limit Value
WHMIS:	Workplace Hazardous Materials Information System

**DISCLAIMER**

The information in this MATERIAL SAFETY DATA SHEET should be provided to all who will use, handle, store, transport, or otherwise be exposed to this material. This information has been prepared for the guidance of plant engineering, operations and management, and for persons working with or handling this material. Cooper Industries/Cooper Power Systems believes this information to be reliable and up-to-date as of the date of publication, but makes no warranty that it is.

<b>MSDS</b> <i>Material Safety Data Sheet</i>	24 Hour Emergency Telephone: 908-859-2151 CHEMTREC: 1-800-424-9300
	National Response in Canada CANUTEC: 613-996-6666
From: Mallinckrodt Baker, Inc. 222 Red School Lane Phillipsburg, NJ 08865	Outside U.S. and Canada Chemtrec: 703-527-3887
 	<b>NOTE:</b> CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.
All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.	

## Buffer Solution (Biphthalate), pH 4

### 1. Product Identification

**Synonyms:** None  
**CAS No.:** 877-24-7  
**Molecular Weight:** Not applicable to mixtures.  
**Chemical Formula:** HOOC-C<sub>6</sub>H<sub>4</sub>COOK  
**Product Codes:**  
J.T. Baker: 5606  
Mallinckrodt: 0029

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Potassium Acid Phthalate	877-24-7	1 - 2%	Yes
Water	7732-18-5	98 - 99%	No

### 3. Hazards Identification

#### Emergency Overview

**CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 1 - Slight  
Flammability Rating: 0 - None  
Reactivity Rating: 0 - None  
Contact Rating: 2 - Moderate  
Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES  
Storage Color Code: Green (General Storage)

#### Potential Health Effects

-----  
Information on the human health effects from exposure to this substance is limited.

**Inhalation:**

Not expected to be an inhalation hazard. May cause irritation to respiratory tract because of slight acidity. Symptoms may include coughing and sore throat.

**Ingestion:**

Large doses may produce nausea, vomiting, and abnormal sensations in hands and feet. Because of slight acidity, causes irritation to the mucous membranes.

**Skin Contact:**

Contact may cause irritation, with redness and pain.

**Eye Contact:**

May cause eye irritation.

**Chronic Exposure:**

No information found.

**Aggravation of Pre-existing Conditions:**

No information found.

---

## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**

If large amounts were swallowed, give water to drink and get medical advice.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

---

## 5. Fire Fighting Measures

**Fire:**

Not expected to be a fire hazard.

**Explosion:**

No information found.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust.

---

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

### **Personal Respirators (NIOSH Approved):**

Not expected to require personal respirator usage.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

---

## 9. Physical and Chemical Properties

### **Appearance:**

Clear, colorless liquid.

### **Odor:**

Odorless.

### **Solubility:**

Complete (100%)

### **Specific Gravity:**

No information found.

### **pH:**

4

### **% Volatiles by volume @ 21C (70F):**

ca. 99

### **Boiling Point:**

No information found.

### **Melting Point:**

No information found.

### **Vapor Density (Air=1):**

Not applicable.

### **Vapor Pressure (mm Hg):**

Not applicable.

### **Evaporation Rate (BuAc=1):**

No information found.

---

## 10. Stability and Reactivity

### **Stability:**

Stable under ordinary conditions of use and storage.

### **Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

### **Hazardous Polymerization:**

Will not occur.

### **Incompatibilities:**

Nitric Acid. Strong oxidizing agents.  
**Conditions to Avoid:**  
 Heat, ignition sources and incompatibilites.

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Potassium Acid Phthalate (877-24-7)	No	No	None
Water (7732-18-5)	No	No	None

## 12. Ecological Information

**Environmental Fate:**  
 No information found.  
**Environmental Toxicity:**  
 No information found.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

Not regulated.

## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Potassium Acid Phthalate (877-24-7)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	--Canada--		Phil.
		DSL	NDSL	
Potassium Acid Phthalate (877-24-7)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.

Potassium Acid Phthalate (877-24-7)	No	No	No	No
Water (7732-18-5)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
		-RCRA-	-TSCA-
Ingredient	CERCLA	261.33	8(d)
-----			
Potassium Acid Phthalate (877-24-7)	No	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: No      Fire: No      Pressure: No  
Reactivity: No      (Mixture / Liquid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 1 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.

**Label Precautions:**

- Avoid contact with eyes, skin and clothing.
- Keep container closed.
- Wash thoroughly after handling.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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\*\*\*\*\*

**Prepared by:** Environmental Health & Safety

Phone Number: (314) 654-1600 (U.S.A.)

**MSDS** Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

## Buffer Solution (Phosphate), pH 7

### 1. Product Identification

**Synonyms:** None

**CAS No.:** Not applicable to mixtures.

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** Not applicable to mixtures.

**Product Codes:**

J.T. Baker: 5608

Mallinckrodt: 0031

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Potassium Phosphate Monobasic	7778-77-0	< 1%	No
Sodium Phosphate, Dibasic	7558-79-4	< 1%	No
Water	7732-18-5	> 99%	No

### 3. Hazards Identification

#### Emergency Overview

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

SAF-T-DATA<sup>(tm)</sup> Ratings (Provided here for your convenience)

Health Rating: 0 - None

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 0 - None

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Green (General Storage)

## Potential Health Effects

---

### **Inhalation:**

No adverse health effects via inhalation.

### **Ingestion:**

Not expected to be a health hazard via ingestion. Large oral doses may cause irritation to the gastrointestinal tract.

### **Skin Contact:**

Not expected to be a health hazard from skin exposure.

### **Eye Contact:**

No adverse effects expected.

### **Chronic Exposure:**

No information found.

### **Aggravation of Pre-existing Conditions:**

No information found.

---

## 4. First Aid Measures

Not expected to require first aid measures.

### **Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

### **Ingestion:**

If large amounts were swallowed, give water to drink and get medical advice.

### **Skin Contact:**

Wash exposed area with soap and water. Get medical advice if irritation develops.

### **Eye Contact:**

Wash thoroughly with running water. Get medical advice if irritation develops.

---

## 5. Fire Fighting Measures

### **Fire:**

Not considered to be a fire hazard.

### **Explosion:**

Not considered to be an explosion hazard.

### **Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

### **Special Information:**

Use protective clothing and breathing equipment appropriate for the surrounding fire.

---

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust.

---

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

### **Personal Respirators (NIOSH Approved):**

Not expected to require personal respirator usage.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

---

## 9. Physical and Chemical Properties

### **Appearance:**

Clear, colorless liquid.

### **Odor:**

Odorless.

### **Solubility:**

Complete (100%)

### **Specific Gravity:**

No information found.

### **pH:**

7

### **% Volatiles by volume @ 21C (70F):**

ca. 99

### **Boiling Point:**

No information found.

### **Melting Point:**

No information found.

### **Vapor Density (Air=1):**

Not applicable.

### **Vapor Pressure (mm Hg):**

Not applicable.

### **Evaporation Rate (BuAc=1):**

No information found.

---

## 10. Stability and Reactivity

### **Stability:**

Stable under ordinary conditions of use and storage.

### **Hazardous Decomposition Products:**

No information found.

### **Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

No information found.

**Conditions to Avoid:**

Heat.

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Potassium Phosphate Monobasic (7778-77-0)	No	No	None
Sodium Phosphate, Dibasic (7558-79-4)	No	No	None
Water (7732-18-5)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.

## 13. Disposal Considerations

Dilute with water and flush to sewer if local ordinances allow, otherwise, whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

Not regulated.

## 15. Regulatory Information

Ingredient	-----\Chemical Inventory Status - Part 1\-----			
	TSCA	EC	Japan	Australia
Potassium Phosphate Monobasic (7778-77-0)	Yes	Yes	Yes	Yes
Sodium Phosphate, Dibasic (7558-79-4)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

Ingredient	-----\Chemical Inventory Status - Part 2\-----			
	Korea	--Canada-- DSL NDSL		Phil.
Potassium Phosphate Monobasic (7778-77-0)	Yes	Yes	No	Yes

Sodium Phosphate, Dibasic (7558-79-4)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
Potassium Phosphate Monobasic (7778-77-0)	No	No	No	No
Sodium Phosphate, Dibasic (7558-79-4)	No	No	No	No
Water (7732-18-5)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-		-TSCA-
		261.33	8(d)	
Potassium Phosphate Monobasic (7778-77-0)	No	No	No	
Sodium Phosphate, Dibasic (7558-79-4)	5000	No	No	
Water (7732-18-5)	No	No	No	

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: No      Chronic: No      Fire: No      Pressure: No  
Reactivity: No      (Mixture / Liquid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 0 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

**Label Precautions:**

None.

**Label First Aid:**

Not applicable.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 9.

**Disclaimer:**

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**Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO**

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**Prepared by:** Environmental Health & Safety

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National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

## Buffer Solution (Borate), pH 10

### 1. Product Identification

**Synonyms:** None

**CAS No.:** Not applicable to mixtures.

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** Not applicable to mixtures.

**Product Codes:**

J.T. Baker: 5609

Mallinckrodt: 0032

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Boric Acid	10043-35-3	< 1%	No
Potassium Hydroxide	1310-58-3	< 1%	Yes
Water	7732-18-5	> 99%	No

### 3. Hazards Identification

#### Emergency Overview

**DANGER! CORROSIVE. HARMFUL IF SWALLOWED OR INHALED. CAUSES BURNS TO ANY AREA OF CONTACT.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 3 - Severe

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: White (Corrosive)

## Potential Health Effects

---

The health effects from exposure to diluted forms of this chemical are not well documented. They are expected to be less severe than those for concentrated forms which are referenced in the descriptions below.

### **Inhalation:**

Respiratory tract irritant, may cause serious burns on acute contact. Severe injury is usually avoided by the self-limiting coughing and sneezing symptoms.

### **Ingestion:**

Toxic! Corrosive to mucous membranes and may cause perforation of the esophagus and stomach. Abdominal pain, nausea, vomiting, general gastro-intestinal upset can be expected.

### **Skin Contact:**

Irritant, possibly corrosive if contact is prolonged. Soreness, redness, destruction of skin may result.

### **Eye Contact:**

Irritant, possibly corrosive to eye tissues. Tearing, redness, pain, impaired vision are symptoms.

### **Chronic Exposure:**

Development of a defatting dermatitis on prolonged contact with potassium hydroxide has been reported. Continued irritation may lead to increased susceptibility to respiratory illness.

### **Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired kidney or respiratory function may be more susceptible to the effects of the substance.

---

## 4. First Aid Measures

First aid procedures given apply to concentrated solutions. Exposures to dilute solutions may not require these extensive first aid procedures.

### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

### **Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

### **Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

### **Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

## 5. Fire Fighting Measures

### **Fire:**

Not considered to be a fire hazard.

### **Explosion:**

Sealed containers may rupture when heated.

### **Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

### **Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

---

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

---

## 7. Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and alkalis. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

For Potassium Hydroxide [1310-58-3]:

- ACGIH Threshold Limit value (TLV):

2 mg/m<sup>3</sup> Ceiling

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

---

## 9. Physical and Chemical Properties

### **Appearance:**

Clear, colorless liquid.

### **Odor:**

Odorless.

### **Solubility:**

Complete (100%)

### **Specific Gravity:**

No information found.

**pH:**

10

**% Volatiles by volume @ 21C (70F):**

ca. 99 (as water)

**Boiling Point:**

ca. 100C (ca. 212F)

**Melting Point:**

ca. 0C (ca. 32F)

**Vapor Density (Air=1):**

Essentially the same as water.

**Vapor Pressure (mm Hg):**

Essentially the same as water.

**Evaporation Rate (BuAc=1):**

Essentially the same as water.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Potassium oxide at very high temperatures.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Acids.

**Conditions to Avoid:**

Incompatibles.

## 11. Toxicological Information

For potassium hydroxide: Oral rat LD50: 273 mg/kg; Investigated as a mutagen. Skin Irritation Data (std Draize, 50 mg/24 H): Human, Severe; Rabbit, Severe. Eye Irritation Data(Rabbit, non-std test,1 mg/24 H, rinse): Moderate.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Boric Acid (10043-35-3)	No	No	None
Potassium Hydroxide (1310-58-3)	No	No	None
Water (7732-18-5)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

Potassium Hydroxide: TLM: 80 ppm/Mosquito fish/ 24 hr./ Fresh water

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

---

## 14. Transport Information

### Domestic (Land, D.O.T.)

-----

**Proper Shipping Name:** CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (POTASSIUM HYDROXIDE, BORIC ACID)

**Hazard Class:** 8

**UN/NA:** UN3266

**Packing Group:** III

**Information reported for product/size:** 20L

### International (Water, I.M.O.)

-----

**Proper Shipping Name:** CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (POTASSIUM HYDROXIDE, BORIC ACID)

**Hazard Class:** 8

**UN/NA:** UN3266

**Packing Group:** III

**Information reported for product/size:** 20L

### International (Air, I.C.A.O.)

-----

**Proper Shipping Name:** CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (POTASSIUM HYDROXIDE, BORIC ACID)

**Hazard Class:** 8

**UN/NA:** UN3266

**Packing Group:** III

**Information reported for product/size:** 20L

---

## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Boric Acid (10043-35-3)	Yes	Yes	Yes	Yes
Potassium Hydroxide (1310-58-3)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	Canada DSL	NDSL	Phil.
Boric Acid (10043-35-3)	Yes	Yes	No	Yes
Potassium Hydroxide (1310-58-3)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
Boric Acid (10043-35-3)	No	No	No	No
Potassium Hydroxide (1310-58-3)	No	No	No	No
Water (7732-18-5)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8(d)
Boric Acid (10043-35-3)	No	No	No
Potassium Hydroxide (1310-58-3)	1000	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: Yes      Fire: No      Pressure: No  
Reactivity: No      (Mixture / Liquid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: **3** Flammability: **0** Reactivity: **0**

**Label Hazard Warning:**

DANGER! CORROSIVE. HARMFUL IF SWALLOWED OR INHALED. CAUSES BURNS TO ANY AREA OF CONTACT.

**Label Precautions:**

- Do not breathe mist.
- Do not get in eyes, on skin, or on clothing.
- Keep container closed.
- Use only with adequate ventilation.
- Wash thoroughly after handling.

**Label First Aid:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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\*\*\*\*\*

**Prepared by:** Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)

**MSDS** Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

## Buffer Solution (Biphthalate), pH 4 (Color Coded Red)

### 1. Product Identification

**Synonyms:** None.

**CAS No.:** Not applicable to mixtures.

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** Not applicable to mixtures.

**Product Codes:**

J.T. Baker: 5657

Mallinckrodt: 0097

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Water	7732-18-5	98 - 99%	No
Potassium Acid Phthalate	877-24-7	1 - 2%	Yes
Thymol	89-83-8	< 1%	Yes
FD & C Red No. 40	25956-17-6	< 1%	No

### 3. Hazards Identification

#### Emergency Overview

**CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

## Potential Health Effects

---

Information on the human health effects from exposure to this substance is limited.

### **Inhalation:**

Not expected to be an inhalation hazard. May cause irritation to respiratory tract because of slight acidity. Symptoms may include coughing and sore throat.

### **Ingestion:**

Large doses may produce nausea, vomiting, and abnormal sensations in hands and feet. Because of slight acidity, causes irritation to the mucous membranes.

### **Skin Contact:**

Contact may cause irritation, with redness and pain.

### **Eye Contact:**

May cause eye irritation.

### **Chronic Exposure:**

No information found.

### **Aggravation of Pre-existing Conditions:**

No information found.

---

## 4. First Aid Measures

### **Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

### **Ingestion:**

If large amounts were swallowed, give water to drink and get medical advice.

### **Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

### **Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

---

## 5. Fire Fighting Measures

### **Fire:**

Not expected to be a fire hazard.

### **Explosion:**

No information found.

### **Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

### **Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

---

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust.

---

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

### **Personal Respirators (NIOSH Approved):**

Not expected to require personal respirator usage.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

---

## 9. Physical and Chemical Properties

### **Appearance:**

Clear, reddish liquid.

### **Odor:**

Odorless.

### **Solubility:**

Completely soluble in water.

### **Specific Gravity:**

No information found.

### **pH:**

4.0

### **% Volatiles by volume @ 21C (70F):**

ca. 98

### **Boiling Point:**

No information found.

### **Melting Point:**

No information found.

### **Vapor Density (Air=1):**

No information found.

### **Vapor Pressure (mm Hg):**

No information found.

### **Evaporation Rate (BuAc=1):**

No information found.

---

## 10. Stability and Reactivity

### **Stability:**

Stable under ordinary conditions of use and storage.

### **Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

### **Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

No information found.

**Conditions to Avoid:**

Heat, incompatibles.

---

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Water (7732-18-5)	No	No	None
Potassium Acid Phthalate (877-24-7)	No	No	None
Thymol (89-83-8)	No	No	None
FD & C Red No. 40 (25956-17-6)	No	No	None

---

## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.

---

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

---

## 14. Transport Information

Not regulated.

---

## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Water (7732-18-5)	Yes	Yes	Yes	Yes
Potassium Acid Phthalate (877-24-7)	Yes	Yes	Yes	Yes
Thymol (89-83-8)	Yes	Yes	Yes	Yes
FD & C Red No. 40 (25956-17-6)	Yes	Yes	No	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	--Canada--		Phil.
		DSL	NDSL	
Water (7732-18-5)	Yes	Yes	No	Yes

Potassium Acid Phthalate (877-24-7)	Yes	Yes	No	Yes
Thymol (89-83-8)	Yes	Yes	No	Yes
FD & C Red No. 40 (25956-17-6)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
Water (7732-18-5)	No	No	No	No
Potassium Acid Phthalate (877-24-7)	No	No	No	No
Thymol (89-83-8)	No	No	No	No
FD & C Red No. 40 (25956-17-6)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8(d)
Water (7732-18-5)	No	No	No
Potassium Acid Phthalate (877-24-7)	No	No	No
Thymol (89-83-8)	No	No	No
FD & C Red No. 40 (25956-17-6)	No	No	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: No      Fire: No      Pressure: No  
Reactivity: No      (Mixture / Liquid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 1 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.

**Label Precautions:**

Avoid contact with eyes, skin and clothing.

Keep container closed.

Wash thoroughly after handling.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 1, 2, 9, 15.

**Disclaimer:**

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**Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no**

representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

\*\*\*\*\*

**Prepared by:** Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)

## -----MATERIAL SAFETY DATA SHEET-----

Equipco Sales & Service 1-888-234-5678

Prepared: November 20, 1994. Revised: July 1, 2008.

This information is believed to be accurate and represents the best information currently available to us. however, we make no warranty of merchantability, or fitness for any particular use, or any other warranty, express or implied, with respect to this information, and we assume no liability resulting from the use of this information. Users should make their own investigations to determine the suitability of the information for their particular needs and purposes.

### -----SUBSTANCE IDENTIFICATION-----

**SUBSTANCE:** ---pH 7.00 Calibrating Buffer---

Trade names/synonyms: This material is also known by various catalog numbers.

Cercla ratings (scale 0-3): health=0 fire=0 reactivity=0 persistence=0

Nfpa ratings (scale 0-4): health=0 fire=0 reactivity=0

SARA Title III (§ 313) Not Available.

### -----COMPONENTS AND CONTAMINANTS---

Component: potassium phosphate, monobasic CAS# 7778-77-0 percent: <1.0

Component: sodium phosphate, dibasic CAS# 7558-79-4 percent: <0.2

Component: water CAS# 7732-18-5 percent: >98.

Other contaminants: none

### Exposure limits:

No occupational exposure limits established by osha, acgih or niosh.

### -----PHYSICAL DATA-----

Description: clear, colorless liquid which may be color coded for user convenience according to pH.

Approx. boiling point: 212°F (100°C). Approx. melting point: 32°F (0°C)

Vapor pressure: 14 torr @20°C Evap. Rate: (ether=1) >1

pH: 7.0 Solubility in water: complete Vapor density: 0.7 (H<sub>2</sub>O)

### -----FIRE AND EXPLOSION DATA-----

Fire and explosion hazard: negligible fire hazard when exposed to heat or flame.

Flash point: not applicable

A media: dry chemical, carbon dioxide, water spray or regular foam. (1990 emergency response guidebook, dot p-5800.5) For larger fires, use water spray, fog or regular foam. (1990 emergency response guidebook, dot p-5800.5)

A: Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike fire-control water for later disposal. (1990 emergency response guidebook, dot p-5800.5 Pg. 31) Use agents suitable for the type of surrounding fire. Avoid breathing hazardous vapors, stay upwind of the fire.

### -----TOXICITY-----

potassium phosphate, monobasic; sodium phosphate, dibasic:

Carcinogen status: none.

Local effects: irritant - inhalation, skin, eye.

Acute toxicity level: no data available.

Target effects: no data available.

medical conditions agravated by exposure: no data available.

**-----HEALTH EFFECTS AND FIRST AID-----**

**INHALATION:**

SODIUM & POTASSIUM PHOSPHATE:IRRITANT.

**ACUTE EXPOSURE - MAY CAUSE IRRITATION.**

**CHRONIC EXPOSURE - REPEATED OR PROLONGED EXPOSURE MAY CAUSE IRRITATION.**

**FIRST AID - REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.**

**SKIN CONTACT:**

SODIUM & POTASSIUM PHOSPHATE:IRRITANT.

**ACUTE EXPOSURE - MAY CAUSE IRRITATION.**

**CHRONIC EXPOSURE - REPEATED OR PROLONGED EXPOSURE MAY CAUSE DERMATITIS.**

**FIRST AID - REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY, WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.**

**EYE CONTACT:**

SODIUM & POTASSIUM PHOSPHATE:IRRITANT.

**ACUTE EXPOSURE-DIRECT CONTACT MAY CAUSE IRRITATION, REDNESS AND PAIN.**

**CRONIC EXPOSURE-REPEATED OR PROLONGED EXPOSURE MAY CAUSE CONJUNCTIVITIS**

**FIRST AID - WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.**

**INGESTION**

SODIUM & POTASSIUM PHOSPHATE:IRRITANT.

**ACUTE EXPOSURE - MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.**

**CRONIC EXPOSURE - NOT REPORTED TO OCCUR IN HUMANS**

**FIRST AID - IF VICTIM IS CONSCIOUS, IMMEDIATELY GIVE 2-4 GLASSES OF WATER, AND INDUCE VOMITING BY TOUCHING FINGER TO BACK OF THROAT, GET MEDICAL ATTENTION IMMEDIATELY.**

**-----REACTIVITY-----**

**Reactivity: stable under normal temperatures and pressures.**

**Incompatibilities: none known.**

**Decomposition: none known.**

**Polymerization: none known.**

**-----STORAGE AND DISPOSAL-----**

**Observe all federal, state and local regulations when storing or disposing of this substance. For assistance, contact the district director of the environmental protection agency.**

**Storage conditions to avoid: store away from incompatible substances.**

**Water spills: The California safe drinking water and toxic enforcement act of 1986 (prop 65) prohibits contaminating any known source of drinking water with substances known to cause cancer and/or reproductive toxicity.**

**Occupational spill: Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent materials and place into clean, dry containers for later disposal.**

**-----PROTECTIVE EQUIPMENT-----**

**When using, wear eye protection to prevent contact.**



# Safety Data Sheet

**NEVER SEEZ REGULAR GRADE**  
Revision Number 3

Revision Date 09-May-2018  
Supersedes Date: 24-Oct-2017

## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product Identifier

**Product Name** NEVER SEEZ REGULAR GRADE

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Recommended use** lubricant.  
**Uses advised against** No information available

### 1.3. Details of the supplier of the safety data sheet

#### **Responsible Party**

Bostik Inc.  
11320 W. Watertown Plank Road  
Wauwatosa, Wisconsin 53226 USA  
Phone: +1 (800) 843-0844 (Domestic Toll Free)  
Phone: +1 (414) 774-2250 (International)  
Fax: +1 (414) 774-8075

E-mail msds@bostik-us.com

### 1.4. Emergency telephone number

Telephone: 1-800-227-0332  
(Outside U.S.) 1-703-527-3887

## Section 2: HAZARD IDENTIFICATION

### 2.1. Classification of the substance or mixture

Not a dangerous substance or mixture according to OSHA 29 CFR 1910.1200.

### 2.2. Label Elements

#### EMERGENCY OVERVIEW

The product contains no substances which at their given concentration, are considered to be hazardous to health

**Appearance** Paste                      **Physical State** Liquid                      **Odor** Petroleum distillates

#### **Precautionary Statements - Prevention**

Not applicable

#### **Precautionary Statements - Response**

Not applicable

#### **Precautionary Statements - Storage**

Not applicable

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**Precautionary Statements - Disposal**  
Not applicable

**Hazards Not Otherwise Classified (HNOC)**  
Not applicable

## 2.3. Other Information

No information available.

## **Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

### 3.1 Substances

Mixture

### 3.2 Mixtures

Chemical Name	CAS No	Weight-%
Graphite	7782-42-5	10 - 30
Copper	7440-50-8	5 - 10
Zinc oxide	1314-13-2	1 - 5
Aluminum	7429-90-5	1 - 5

*The exact percentage (concentration) of composition has been withheld as a trade secret.*

## **Section 4: FIRST AID MEASURES**

### 4.1. Description of first aid measures

<b>General Advice</b>	If medical advice is needed, have product container or label at hand.
<b>Eye contact</b>	In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/ attention.
<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to physicians** Treat symptomatically.

### 4.4. Reference to Other Sections

**Reference to other sections** Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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## Section 11: TOXICOLOGY INFORMATION

### Section 5: FIRE-FIGHTING MEASURES

#### 5.1. Extinguishing media

##### **Suitable Extinguishing Media**

Dry chemical, CO<sub>2</sub>, water spray or regular foam. Dike fire-control water for later disposal.

##### **Unsuitable Extinguishing Media**

Do not scatter spilled material with high pressure water streams.

#### 5.2. Special hazards arising from the substance or mixture

##### **Specific Hazards Arising from the Chemical**

Some may burn but none ignite readily.

##### **Explosion Data**

**Sensitivity to Mechanical Impact**

None.

**Sensitivity to Static Discharge**

None.

#### 5.3. Advice for firefighters

##### **Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### Section 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### **Personal Precautions**

Use personal protective equipment as required. Do not touch or walk through spilled material. Stop leak if you can do it without risk.

#### 6.2. Environmental precautions

##### **Environmental Precautions**

Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

#### 6.3. Methods and material for containment and cleaning up

##### **Methods for Containment**

Cover with plastic sheet to prevent spreading.

##### **Methods for cleaning up**

Use personal protective equipment as required. Take up with sand or other non-combustible absorbent material and place into containers for later disposal. With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. Clean contaminated surface thoroughly.

#### 6.4. Reference to other sections

##### **Reference to other sections**

Section 7: HANDLING AND STORAGE  
Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION  
Section 13: DISPOSAL CONSIDERATIONS

### Section 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

##### **Advice on safe handling**

Use personal protective equipment as required. Handle in accordance with good industrial

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hygiene and safety practice. Do not eat, drink or smoke when using this product. Ensure adequate ventilation, especially in confined areas. Wash hands thoroughly after handling.

## 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place.

**Incompatible Materials** None known based on information supplied.

## 7.3. Specific end use(s)

**Other Information** No information available.

## 7.4. References to Other Sections

**Reference to other sections** Section 13: DISPOSAL CONSIDERATIONS  
Section 10: STABILITY AND REACTIVITY

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

**Exposure Guidelines** . This product contains substances which in their raw state are powder form, however in this product they are in a non-respirable form. Inhalation of powder/dust particles is unlikely to occur from exposure to this product.

Chemical Name	ACGIH TLV	NIOSH IDLH	OSHA PEL	Mexico
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> natural respirable dust	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	TWA: 2 mg/m <sup>3</sup>
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> Cu dust and mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist IDLH: 100 mg/m <sup>3</sup> Cu dust and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> Cu dust and mist	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup> STEL: 2 mg/m <sup>3</sup>
Zinc oxide 1314-13-2	STEL: 10 mg/m <sup>3</sup> respirable particulate matter TWA: 2 mg/m <sup>3</sup> respirable particulate matter	IDLH: 500 mg/m <sup>3</sup> Ceiling: 15 mg/m <sup>3</sup> dust TWA: 5 mg/m <sup>3</sup> dust and fume STEL: 10 mg/m <sup>3</sup> fume	TWA: 5 mg/m <sup>3</sup> fume TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction	TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>
Aluminum 7429-90-5	TWA: 1 mg/m <sup>3</sup> respirable particulate matter	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust TWA: 5 mg/m <sup>3</sup> Al	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>

Chemical Name	Argentina	Brazil	Chile	Venezuela
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup>	-	TWA: 1.75 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	-	TWA: 0.18 mg/m <sup>3</sup> TWA: 0.88 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>
Zinc oxide 1314-13-2	TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	-	TWA: 4.4 mg/m <sup>3</sup>	STEL: 10 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>
Aluminum 7429-90-5	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	-	TWA: 8.75 mg/m <sup>3</sup> TWA: 4.5 mg/m <sup>3</sup> TWA: 4.4 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>

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## 8.2. Exposure controls

**Engineering Controls** Showers  
Eyewash stations  
Ventilation systems.

### Personal protective equipment [PPE]

**Eye/Face Protection** Wear safety glasses with side shields (or goggles).

**Skin and Body Protection** Wear suitable chemical resistant gloves. The selection of suitable gloves does not only depend on the material, but also on further marks of quality and various manufacturers.

**Respiratory Protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**General Hygiene Considerations** Use personal protective equipment as required. Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Wash hands thoroughly after handling. Take off all contaminated clothing and wash it before reuse. Regular cleaning of equipment, work area and clothing is recommended.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

**Physical State** Liquid  
**Appearance** Paste  
**Color** Gray  
**Odor** Petroleum distillates  
**Odor Threshold** No information available

<u>Property</u>	<u>Values</u>
pH	No information available
Melting point / freezing point	No information available
Boiling point / boiling range	No information available
Flash Point	246 °C / 475 °F
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available

### Remarks • Method

<b>Water Solubility</b>	No information available
<b>Solubility in Other Solvents</b>	
<b>Partition Coefficient</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	No information available

**Kinematic Viscosity** No information available

**Dynamic Viscosity** No information available

**Explosive Properties** No information available  
**Oxidizing Properties** No information available

### 9.2. Other information

**Softening Point** No information available  
**Molecular Weight** No information available

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Solvent content (%) No information available  
Solid content (%) No information available  
Density 1.190 g/cm<sup>3</sup>  
VOC No information available

## Section 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

None under normal use conditions.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

None under normal processing.

### 10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

### 10.5. Incompatible materials

None known based on information supplied.

### 10.6. Hazardous decomposition products

None known based on information supplied.

## Section 11: TOXICOLOGY INFORMATION

### 11.1. Information on toxicological effects

**Product Information** No data available  
**Inhalation** Based on available data, the classification criteria are not met.  
**Eye contact** Based on available data, the classification criteria are not met.  
**Skin Contact** Based on available data, the classification criteria are not met.  
**Ingestion** Based on available data, the classification criteria are not met.

### Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Zinc oxide 1314-13-2	> 5000 mg/kg ( Rat )	LD50 >2000 mg/Kg (Rat) (OECD 402)	LC50 (4h) >5.7 mg/l
Aluminum 7429-90-5	LD50 >10,000 mg/Kg (Rat)(OECD Guideline 401)	-	-

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Symptoms** No information available.  
**Skin Corrosion/Irritation** No information available.  
**Serious Eye Damage/Eye Irritation** No information available.  
**Irritation** No information available.  
**Corrosivity** No information available.  
**Sensitization** No information available.  
**Germ Cell Mutagenicity** No information available.  
**Reproductive Toxicity** No information available.

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<b>Developmental Toxicity</b>	No information available.
<b>Teratogenicity</b>	No information available.
<b>STOT - Single Exposure</b>	No information available.
<b>STOT - Repeated Exposure</b>	No information available.
<b>Chronic Toxicity</b>	No information available.
<b>Target Organ Effects</b>	No information available.
<b>Aspiration hazard</b>	No information available.
<b>Carcinogenicity</b>	This product does not contain any carcinogens or potential carcinogens as listed by ACGIH, OSHA, IARC or NTP at or above 0.1 wt%.

## Section 12: ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT.

### 12.1. Toxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Copper 7440-50-8	EC50 96 h 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) EC50 72 h 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	LC50 96 h = 0.8 mg/L (Cyprinus carpio static)		EC50 48 h = 0.03 mg/L (Daphnia magna Static)
Zinc oxide 1314-13-2	LC 50 (72Hr) 0.136 mg/L	LC50 (96h) =0.7 mg/L Fish (Danio rerio)		LC 50 (48Hr) =0.5 mg/l (Ceriodaphnia dubia)

### 12.2. Persistence and degradability

No information available.

### 12.3. Bioaccumulative potential

No information available.

### 12.4. Mobility in soil

No information available.

### Other adverse effects

No information available

## Section 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### Disposal of Wastes

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations

#### Contaminated Packaging

Dispose of in accordance with federal, state and local regulations

## Section 14: TRANSPORTATION INFORMATION

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**Note:** The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments made in non-bulk packages (see regulatory definition) The information shown here, may not always agree with the bill of lading shipping description for the material 49 CFR 171.4(c) "Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft."

## DOT

**UN/ID No** UN3082  
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s. (Copper, Zinc oxide), Marine Pollutant  
**Hazard Class** 9  
**Packing Group** III  
**Special Provisions** 8, 146, 173, 335, IB3, T4, TP1, TP29  
**Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to DOT.  
**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Copper, Zinc oxide), 9, III, Marine Pollutant  
**Emergency Response Guide Number** 171

## IATA

**UN/ID No** UN3082  
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s. (Copper, Zinc oxide)  
**Transport hazard class(es)** 9  
**Packing Group** III  
**ERG Code** 9L  
**Special Provisions** A97, A158, A197  
**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Copper, Zinc oxide), 9, III

## IMDG

**UN Number** UN3082  
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s. (Copper,Zinc oxide), Marine Pollutant  
**Transport hazard class(es)** 9  
**Packing Group** III  
**EmS-No** F-A, S-F  
**Special Provisions** 274, 335, 969  
**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Copper,Zinc oxide), 9, III, Marine Pollutant

## **Section 15: REGULATORY INFORMATION**

### Global Inventories

<b>TSCA</b>	Listed
<b>DSL</b>	Listed

#### **Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL** - Canadian Domestic Substances List

**Listed** - The components of this product are either listed or exempt from listing on inventory.

**Not Listed** - One or more components of this product are not listed on inventory.

### Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

### United States of America

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## SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No
Copper	7440-50-8
Zinc oxide	1314-13-2
Aluminum	7429-90-5

## SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

## Europe

### Restrictions of Use of Hazardous Substances (RoHS) Directive 2011/65/EU

This product does not contain Lead (7439-92-1), Cadmium (7440-43-9), Mercury (7439-97-6), Hexavalent chromium (7440-47-3), Polybrominated biphenyls (PBB), and Polybrominated diphenyl ethers (PBDE) above the regulated limit mentioned in this regulation.

### EU-REACH (1907/2006) - Candidate List of Substances of Very High Concern (SVHC) for Authorization in accordance with Article 59

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## Section 16: OTHER INFORMATION

### Key or legend to abbreviations and acronyms used in the safety data sheet

No information available

### Key Literature References and Sources for Data

No information available

Prepared By	Product Safety & Regulatory Affairs
Revision Date	09-May-2018
Revision Note	SDS sections updated, 1, 5, 6, 8, 9, 12, 14, 16.
Training Advice	No information available
Further information	No information available

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

# SAFETY DATA SHEET

S3496

## Section 1. Identification

**Product name** : PALGARD® Epoxy - Part B  
Satin Activator

**Product code** : S3496

**Other means of identification** : Not available.

**CAS #** : Not applicable.

**Product type** : Liquid.

**Relevant identified uses of the substance or mixture and uses advised against**  
Not applicable.

**Manufacturer** : PRATT & LAMBERT PAINTS  
101 W. Prospect Avenue  
Cleveland, OH 44115

**Emergency telephone number of the company** : (216) 566-2917

**Product Information Telephone Number** : Not available.

**Regulatory Information Telephone Number** : (216) 566-2902

**Transportation Emergency Telephone Number** : (800) 424-9300

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 3  
SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
SKIN SENSITIZATION - Category 1  
CARCINOGENICITY - Category 1A  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
Percentage of the mixture consisting of ingredient(s) of unknown acute toxicity: 20.6%

### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

## Section 2. Hazards identification

**Hazard statements** : Flammable liquid and vapor.  
Causes serious eye irritation.  
Causes skin irritation.  
May cause an allergic skin reaction.  
May cause cancer.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.  
May cause damage to organs through prolonged or repeated exposure.

### Precautionary statements

**Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

**Response** : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

**Storage** : Store locked up. Store in a well-ventilated place. Keep cool.

**Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Supplemental label elements** DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY. This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Please refer to the SDS for additional information. Keep out of reach of children. Do not transfer contents to other containers for storage.

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

**Other means of identification** : Not available.

### CAS number/other identifiers

Ingredient name	% by weight	CAS number
2-Butoxyethanol	22.15	111-76-2
Epoxy Polymer	20.62	25068-38-6
Methyl Isobutyl Ketone	8.76	108-10-1
Xylene	1.77	1330-20-7
Ethylbenzene	0.31	100-41-4
Crystalline Silica, respirable powder	0.25	14808-60-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

## Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Can cause central nervous system (CNS) depression.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness

## Section 4. First aid measures

- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
halogenated compounds  
metal oxide/oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

## Section 6. Accidental release measures

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits (OSHA United States)

## Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
2-Butoxyethanol	<p><b>ACGIH TLV (United States, 3/2016).</b> TWA: 20 ppm 8 hours.</p> <p><b>NIOSH REL (United States, 10/2013).</b> <b>Absorbed through skin.</b> TWA: 5 ppm 10 hours. TWA: 24 mg/m<sup>3</sup> 10 hours.</p> <p><b>OSHA PEL (United States, 6/2016).</b> <b>Absorbed through skin.</b> TWA: 50 ppm 8 hours. TWA: 240 mg/m<sup>3</sup> 8 hours.</p>
Epoxy Polymer Methyl Isobutyl Ketone	<p>None.</p> <p><b>ACGIH TLV (United States, 3/2016).</b> TWA: 20 ppm 8 hours. STEL: 75 ppm 15 minutes.</p> <p><b>NIOSH REL (United States, 10/2013).</b> TWA: 50 ppm 10 hours. TWA: 205 mg/m<sup>3</sup> 10 hours. STEL: 75 ppm 15 minutes. STEL: 300 mg/m<sup>3</sup> 15 minutes.</p> <p><b>OSHA PEL (United States, 6/2016).</b> TWA: 100 ppm 8 hours. TWA: 410 mg/m<sup>3</sup> 8 hours.</p>
Xylene	<p><b>ACGIH TLV (United States, 3/2016).</b> TWA: 100 ppm 8 hours. TWA: 434 mg/m<sup>3</sup> 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m<sup>3</sup> 15 minutes.</p> <p><b>OSHA PEL (United States, 6/2016).</b> TWA: 100 ppm 8 hours. TWA: 435 mg/m<sup>3</sup> 8 hours.</p>
Ethylbenzene	<p><b>ACGIH TLV (United States, 3/2016).</b> TWA: 20 ppm 8 hours.</p> <p><b>NIOSH REL (United States, 10/2013).</b> TWA: 100 ppm 10 hours. TWA: 435 mg/m<sup>3</sup> 10 hours. STEL: 125 ppm 15 minutes. STEL: 545 mg/m<sup>3</sup> 15 minutes.</p> <p><b>OSHA PEL (United States, 6/2016).</b> TWA: 100 ppm 8 hours. TWA: 435 mg/m<sup>3</sup> 8 hours.</p>
Crystalline Silica, respirable powder	<p><b>OSHA PEL Z3 (United States, 6/2016).</b> TWA: 250 mppcf / (%SiO<sub>2</sub>+5) 8 hours. Form: Respirable TWA: 10 mg/m<sup>3</sup> / (%SiO<sub>2</sub>+2) 8 hours. Form: Respirable</p> <p><b>OSHA PEL (United States, 6/2016).</b> TWA: 50 µg/m<sup>3</sup> 8 hours. Form: Respirable dust</p> <p><b>ACGIH TLV (United States, 3/2016).</b> TWA: 0.025 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction</p> <p><b>NIOSH REL (United States, 10/2013).</b> TWA: 0.05 mg/m<sup>3</sup> 10 hours. Form: respirable dust</p>

### [Occupational exposure limits \(Canada\)](#)

## Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
2-Butoxyethanol	<p><b>CA Alberta Provincial (Canada, 4/2009).</b> 8 hrs OEL: 97 mg/m<sup>3</sup> 8 hours. 8 hrs OEL: 20 ppm 8 hours.</p> <p><b>CA British Columbia Provincial (Canada, 5/2015).</b> TWA: 20 ppm 8 hours.</p> <p><b>CA Ontario Provincial (Canada, 7/2015).</b> TWA: 20 ppm 8 hours.</p> <p><b>CA Quebec Provincial (Canada, 1/2014).</b> TWA-EV: 20 ppm 8 hours. TWA-EV: 97 mg/m<sup>3</sup> 8 hours.</p> <p><b>CA Saskatchewan Provincial (Canada, 7/2013).</b> STEL: 30 ppm 15 minutes. TWA: 20 ppm 8 hours.</p>

### Occupational exposure limits (Mexico)

Ingredient name	Exposure limits
2-Butoxyethanol	<p><b>NOM-010-STPS (Mexico, 4/2016). Absorbed through skin.</b> LMPE-PPT: 20 ppm 8 hours.</p> <p><b>NOM-010-STPS (Mexico, 4/2016).</b> LMPE-PPT: 50 ppm 8 hours. LMPE-CT: 75 ppm 15 minutes.</p> <p><b>NOM-010-STPS (Mexico, 4/2016).</b> LMPE-CT: 150 ppm 15 minutes. LMPE-PPT: 100 ppm 8 hours.</p>
Methyl Isobutyl Ketone	
Xylene	

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

### Skin protection

## Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.
- Color** : Not available.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : 113°C (235.4°F)
- Flash point** : Closed cup: 35°C (95°F) [Pensky-Martens Closed Cup]
- Evaporation rate** : 1.62 (butyl acetate = 1)
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Lower: 1%  
Upper: 10.6%
- Vapor pressure** : 2.1 kPa (16 mm Hg) [at 20°C]
- Vapor density** : 3.45 [Air = 1]
- Relative density** : 1.21
- Solubility** : Not available.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Kinematic (40°C (104°F)): >0.205 cm<sup>2</sup>/s (>20.5 cSt)
- Molecular weight** : Not applicable.
- Aerosol product**
- Heat of combustion** : 10.22 kJ/g

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Incompatible materials** : Reactive or incompatible with the following materials:  
oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2-Butoxyethanol	LCLo Inhalation Vapor	Guinea pig	>3.1 mg/l	1 hours
	LD50 Dermal	Guinea pig	>2000 mg/kg	-
	LD50 Oral	Rat	1300 mg/kg	-
Methyl Isobutyl Ketone	LD50 Oral	Rat	2080 mg/kg	-
	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
Xylene	LD50 Oral	Rat	4300 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
2-Butoxyethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
Epoxy Polymer	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 microliters	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
Methyl Isobutyl Ketone	Eyes - Moderate irritant	Rabbit	-	24 hours 100 microliters	-
	Eyes - Severe irritant	Rabbit	-	40 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Xylene	Eyes - Mild irritant	Rabbit	-	87 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500	-

## Section 11. Toxicological information

Ethylbenzene	Skin - Moderate irritant	Rabbit	-	milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 Percent	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
				24 hours 15 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Classification

Product/ingredient name	OSHA	IARC	NTP
2-Butoxyethanol	-	3	-
Methyl Isobutyl Ketone	-	2B	-
Xylene	-	3	-
Ethylbenzene	-	2B	-
Crystalline Silica, respirable powder	-	1	Known to be a human carcinogen.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
2-Butoxyethanol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Methyl Isobutyl Ketone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Xylene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
2-Butoxyethanol	Category 2	Not determined	Not determined
Methyl Isobutyl Ketone	Category 2	Not determined	Not determined
Xylene	Category 2	Not determined	Not determined
Ethylbenzene	Category 2	Not determined	Not determined
Crystalline Silica, respirable powder	Category 1	Inhalation	Not determined

### Aspiration hazard

## Section 11. Toxicological information

Name	Result
Xylene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Can cause central nervous system (CNS) depression.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

Not available.

- General** : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

## Numerical measures of toxicity

### Acute toxicity estimates

Route	ATE value
Oral	3664.6 mg/kg
Inhalation (gases)	223894.2 ppm

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
2-Butoxyethanol	Acute EC50 >1000 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 800000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 1250000 µg/l Marine water	Fish - Menidia beryllina	96 hours
Methyl Isobutyl Ketone	Acute LC50 505000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 78 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 168 mg/l Fresh water	Fish - Pimephales promelas - Embryo	33 days
Xylene	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
Ethylbenzene	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 6530 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 2930 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

### Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2-Butoxyethanol	-	-	Readily
Methyl Isobutyl Ketone	-	-	Readily
Xylene	-	-	Readily
Ethylbenzene	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Epoxy Polymer	-	31	low
Xylene	-	8.1 to 25.9	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.






**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1263	UN1263	UN1263	UN1263	UN1263
UN proper shipping name	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL
Transport hazard class(es)	3 	3 	3 	3 	3 
Packing group	III	III	III	III	III
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-  <u>ERG No.</u> 128	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).  <u>ERG No.</u> 128	-  <u>ERG No.</u> 128	-	<u>Emergency schedules (EmS)</u> F-E, S-E

**Special precautions for user** : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

**Transport in bulk according to Annex II of MARPOL and the IBC Code** : Not available.

**Proper shipping name** : Not available.

## Section 14. Transport information

**Ship type** : Not available.

**Pollution category** : Not available.

## Section 15. Regulatory information

### SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

### California Prop. 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		3
Physical hazards		0

The customer is responsible for determining the PPE code for this material.

**Caution:** HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

### Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
CARCINOGENICITY - Category 1A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

### History

**Date of printing** : 4/6/2017

**Date of issue/Date of revision** : 4/6/2017

**Date of previous issue** : 6/28/2016

**Version** : 3

**Key to abbreviations** : ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
UN = United Nations

## Section 16. Other information

### [Notice to reader](#)

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by Sherwin-Williams, including but not limited to the incorporation of non Sherwin-Williams products or the use or addition of products in proportions not specified by Sherwin-Williams. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Propane

**Other means of identification**

**SDS number** WC002

**Product code** UN1075

**Recommended use** Portable fuel.

**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer/Supplier** Worthington Cylinder Corporation

**Address** 300 E. Breed St., Chilton, WI 5301  
United States

**Contact person** Ann Stiefvater

**E-mail address** Ann.Stiefvater@worthingtonindustries.com

**Telephone number** 1-920-849-1740

**Emergency telephone number** 1-703-527-3887 International / CHEMTREC 1-800-424-9300 Domestic


## 2. Hazard(s) identification

**Physical hazards** Flammable gases Category 1  
Gases under pressure Liquefied gas

**Health hazards** Not classified.

**OSHA defined hazards** Simple asphyxiant

**Label elements**



**Signal word** Danger

**Hazard statement** Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

**Precautionary statement**

**Prevention** Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Wear respiratory protection.

**Response** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

**Storage** Protect from sunlight. Store in a well-ventilated place.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Hazard(s) not otherwise classified (HNOC)** None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
Propane	74-98-6	87.5-100
Propylene	115-07-1	0-10

Ethane	74-84-0	0-7
Butane	106-97-8	0-2.5

#### Additives

Chemical name	CAS number	%
Ethyl Mercaptan	75-08-1	<0.005

**Composition comments** Gas concentrations are in percent by volume.

## 4. First-aid measures

### Inhalation

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

### Skin contact

Not likely, due to the form of the product. If frostbite occurs, immerse affected area in warm water (not exceeding 105°F/41°C). Keep immersed for 20 to 40 minutes. Get medical attention immediately.

### Eye contact

Not likely, due to the form of the product. If frostbite occurs, immediately flush eyes with plenty of warm water (not exceeding 105°F/41°C) for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

### Ingestion

This material is a gas under normal atmospheric conditions and ingestion is unlikely.

### Most important symptoms/effects, acute and delayed

Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

### Indication of immediate medical attention and special treatment needed

Exposure may aggravate pre-existing respiratory disorders. Provide general supportive measures and treat symptomatically.

### General information

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire-fighting measures

### Suitable extinguishing media

Dry chemical powder. Carbon dioxide (CO<sub>2</sub>). Water fog. Foam.

### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

### Specific hazards arising from the chemical

Extremely flammable gas. Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

### Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### Fire fighting equipment/instructions

Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

### Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers exposed to flames with water until well after the fire is out.

### General fire hazards

Extremely flammable gas. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment (See Section 8).

**Methods and materials for containment and cleaning up**

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

**7. Handling and storage****Precautions for safe handling**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Do not breathe gas. Avoid prolonged exposure. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO<sub>2</sub> = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store at temperatures not exceeding 49°C/120°F. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Protect cylinders from damage. Stored containers should be periodically checked for general condition and leakage. Store in original tightly closed container. Keep container tightly closed. Store in a well-ventilated place. Use care in handling/storage. Store away from incompatible materials (see Section 10 of the SDS).

**8. Exposure controls/personal protection****Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m <sup>3</sup> 1000 ppm
Additives	Type	Value
Ethyl Mercaptan (CAS 75-08-1)	Ceiling	25 mg/m <sup>3</sup> 10 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Propylene (CAS 115-07-1)	TWA	500 ppm
Additives	Type	Value
Ethyl Mercaptan (CAS 75-08-1)	TWA	0.5 ppm

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m <sup>3</sup> 800 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m <sup>3</sup> 1000 ppm
Additives	Type	Value
Ethyl Mercaptan (CAS 75-08-1)	Ceiling	1.3 mg/m <sup>3</sup> 0.5 ppm

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Provide adequate ventilation and minimize the risk of inhalation of gas. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Wear approved safety glasses or goggles.

<b>Skin protection</b>	
<b>Hand protection</b>	Wear appropriate chemical resistant gloves. Neoprene or nitrile gloves are recommended.
<b>Skin protection</b>	
<b>Other</b>	Wear protective clothing appropriate for the risk of exposure.
<b>Respiratory protection</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
<b>Thermal hazards</b>	Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

## 9. Physical and chemical properties

<b>Appearance</b>	Colorless gas.
<b>Physical state</b>	Gas (Liquefied).
<b>Form</b>	Compressed liquefied gas.
<b>Color</b>	Colorless.
<b>Odor</b>	Rotten egg.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	-306.4 °F (-188 °C)
<b>Initial boiling point and boiling range</b>	-43.6 °F (-42 °C) 14.7 psia
<b>Flash point</b>	-155.2 °F (-104.0 °C)
<b>Evaporation rate</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Extremely flammable gas.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	2.15 %
<b>Explosive limit - upper (%)</b>	9.6 %
<b>Vapor pressure</b>	127 psig (21°C / 70°F)
<b>Vapor density</b>	Not available.
<b>Relative density</b>	0.504 (liquid) 1.5 (vapor) (air=1) @ 15°C / 60°F
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Slightly soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	1.77
<b>Auto-ignition temperature</b>	809.6 °F (432 °C)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not applicable.
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Molecular weight</b>	45 g/mol
<b>Oxidizing properties</b>	Not oxidizing.
<b>Percent volatile</b>	100 %

## 10. Stability and reactivity

<b>Reactivity</b>	Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.
<b>Chemical stability</b>	Stable under normal temperature conditions and recommended use.
<b>Possibility of hazardous reactions</b>	Polymerization will not occur. May form explosive mixture with air.

<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong acids. Halogens. Nitrates.
<b>Hazardous decomposition products</b>	Thermal decomposition of this product can generate carbon monoxide and carbon dioxide. Hydrocarbons.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness.
<b>Skin contact</b>	Contact with liquefied gas may cause frostbite.
<b>Eye contact</b>	Contact with liquefied gas may cause frostbite.
<b>Ingestion</b>	This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Symptoms related to the physical, chemical and toxicological characteristics** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

### Information on toxicological effects

**Acute toxicity** Not expected to be acutely toxic.

Components	Species	Test Results
Propane (CAS 74-98-6)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	1355 mg/l
Propylene (CAS 115-07-1)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours

**Skin corrosion/irritation** Not classified.

**Serious eye damage/eye irritation** Not classified.

### Respiratory or skin sensitization

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Propylene (CAS 115-07-1) 3 Not classifiable as to carcinogenicity to humans.

#### NTP Report on Carcinogens

Not listed.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not likely, due to the form of the product.

**Further information** Exposure over a long period of time may cause central nervous system effects.

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not expected to be hazardous to the environment.
<b>Persistence and degradability</b>	The product is readily biodegradable.
<b>Bioaccumulative potential</b>	The product is not expected to bioaccumulate.
<b>Partition coefficient n-octanol / water (log Kow)</b>	
Propane	1.77
Propylene (CAS 115-07-1)	1.77
<b>Mobility in soil</b>	Not relevant, due to the form of the product.
<b>Other adverse effects</b>	The product contains volatile organic compounds which have a photochemical ozone creation potential.

## 13. Disposal considerations

<b>Disposal instructions</b>	Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.
<b>Local disposal regulations</b>	Dispose of in accordance with local regulations.
<b>Hazardous waste code</b>	D001: Waste Flammable material with a flash point <140 °F The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose in accordance with all applicable regulations.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### DOT

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum Gases, Liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	2.1
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	19, T50
<b>Packaging exceptions</b>	306
<b>Packaging non bulk</b>	304
<b>Packaging bulk</b>	314, 315

### IATA

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum Gases, Liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	No
<b>ERG Code</b>	10L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### IMDG

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum Gases, Liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No

**EmS**

F-D, S-U

**Special precautions for user  
Transport in bulk according to  
Annex II of MARPOL 73/78 and  
the IBC Code**Read safety instructions, SDS and emergency procedures before handling.  
Not applicable.**General information**

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

**15. Regulatory information****US federal regulations**This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Butane (CAS 106-97-8)	LISTED
Ethyl Mercaptan (CAS 75-08-1)	LISTED
Propane (CAS 74-98-6)	LISTED
Propylene (CAS 115-07-1)	LISTED

**Superfund Amendments and Reauthorization Act of 1986 (SARA)****Hazard categories**Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - Yes  
Pressure Hazard - Yes  
Reactivity Hazard - No**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous  
chemical**

Yes

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Propylene	115-07-1	0-10

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**Butane (CAS 106-97-8)  
Ethyl Mercaptan (CAS 75-08-1)  
Propane (CAS 74-98-6)  
Propylene (CAS 115-07-1)**Safe Drinking Water Act  
(SDWA)**

Not regulated.

**US state regulations****US. Massachusetts RTK - Substance List**Butane (CAS 106-97-8)  
Ethyl Mercaptan (CAS 75-08-1)  
Propane (CAS 74-98-6)  
Propylene (CAS 115-07-1)**US. New Jersey Worker and Community Right-to-Know Act**Butane (CAS 106-97-8)  
Ethyl Mercaptan (CAS 75-08-1)

Propane (CAS 74-98-6)  
Propylene (CAS 115-07-1)

#### US. Pennsylvania Worker and Community Right-to-Know Law

Butane (CAS 106-97-8)  
Ethyl Mercaptan (CAS 75-08-1)  
Propane (CAS 74-98-6)  
Propylene (CAS 115-07-1)

#### US. Rhode Island RTK

Butane (CAS 106-97-8)  
Ethyl Mercaptan (CAS 75-08-1)  
Propane (CAS 74-98-6)  
Propylene (CAS 115-07-1)

#### US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

#### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

#### 16. Other information, including date of preparation or last revision

Issue date	05-May-2014
Revision date	09-August-2016
Version #	02
Further information	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
HMIS® ratings	Health: 1 Flammability: 4 Physical hazard: 1

#### NFPA ratings



#### List of abbreviations

STEL: Short term exposure limit.  
TWA: Time weighted average.  
PEL: Permissible Exposure Limit.  
LC50: Lethal Concentration, 50%.

#### References

EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

**Disclaimer**

All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.

**This SDS contains revisions in the following section(s):**

1 - 16

# MATERIAL SAFETY DATA SHEET

S6531  
28 00

DATE OF PREPARATION  
Mar 27, 2020

## SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NUMBER**

S6531

**PRODUCT NAME**

TECH-GARD® HS Acrylic Urethane - Part A, White / Tint Base

**MANUFACTURER'S NAME**

PRATT & LAMBERT PAINTS  
101 W. Prospect Avenue  
Cleveland, OH 44115

**Telephone Numbers and Websites**

<b>Product Information</b>	1-800-289-7728
<b>Regulatory Information</b>	(216) 566-2902 www.paintdocs.com
<b>Medical Emergency</b>	(800) 424-9300
<b>Transportation Emergency*</b>	(800) 424-9300
<small>*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)</small>	

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.5	100-41-4	<b>Ethylbenzene</b>		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
3	1330-20-7	<b>Xylene</b>		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
2	64742-94-5	<b>Heavy Aromatic Naphtha</b>		
		ACGIH TLV	Not Available	0.12 mm
		OSHA PEL	Not Available	
0.2	91-20-3	<b>Naphthalene</b>		
		ACGIH TLV	10 PPM	1 mm
		ACGIH TLV	15 PPM STEL	
		OSHA PEL	10 PPM	
		OSHA PEL	15 PPM STEL	
5	78-93-3	<b>Methyl Ethyl Ketone</b>		
		ACGIH TLV	200 PPM	90.6 mm
		ACGIH TLV	300 PPM STEL	
		OSHA PEL	200 PPM	
		OSHA PEL	300 PPM STEL	
8	123-86-4	<b>n-Butyl Acetate</b>		
		ACGIH TLV	150 PPM	10 mm
		ACGIH TLV	200 PPM STEL	
		OSHA PEL	150 PPM	
		OSHA PEL	200 PPM STEL	
15	14808-60-7	<b>Crystalline Silica, respirable powder</b>		
		ACGIH TLV	0.025 MG/M3	
		OSHA PEL	0.1 MG/M3	
20	13463-67-7	<b>Titanium Dioxide</b>		
		ACGIH TLV	10 MG/M3	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

## SECTION 3 — HAZARDS IDENTIFICATION

**ROUTES OF EXPOSURE**

INHALATION of vapor or spray mist.  
EYE or SKIN contact with the product, vapor or spray mist.

**EFFECTS OF OVEREXPOSURE**

**EYES:** Irritation.

**SKIN:** Prolonged or repeated exposure may cause irritation.

**INHALATION:** Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the hematopoietic (blood-forming) system
- the reproductive system

**SIGNS AND SYMPTOMS OF OVEREXPOSURE**

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect may be delayed several hours after exposure.

Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.

**CANCER INFORMATION**

For complete discussion of toxicology data refer to Section 11.

**HMIS Codes**

<b>Health</b>	3*
<b>Flammability</b>	3
<b>Reactivity</b>	0

**SECTION 4 — FIRST AID MEASURES**

**EYES:** Flush eyes with large amounts of water for 15 minutes. Get medical attention.

**SKIN:** Wash affected area thoroughly with soap and water.

Remove contaminated clothing and laundry before re-use.

**INHALATION:** If any breathing problems occur during use, **LEAVE THE AREA** and get fresh air. If problems remain or occur later, **IMMEDIATELY** get medical attention.

**INGESTION:** Do not induce vomiting. Get medical attention immediately.

**SECTION 5 — FIRE FIGHTING MEASURES****FLASH POINT**

70 °F PMCC

**LEL**

0.8

**UEL**

13.1

**FLAMMABILITY CLASSIFICATION**

RED LABEL -- Flammable, Flash below 100 °F (38 °C)

**EXTINGUISHING MEDIA**

Carbon Dioxide, Dry Chemical, Foam

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

**SPECIAL FIRE FIGHTING PROCEDURES**

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

**SECTION 6 — ACCIDENTAL RELEASE MEASURES****STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

**SECTION 7 — HANDLING AND STORAGE****STORAGE CATEGORY**

DOL Storage Class IB

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

Contents are **FLAMMABLE**. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.

Keep out of the reach of children.

## SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

### PRECAUTIONS TO BE TAKEN IN USE

**NO PERSON SHOULD USE THIS PRODUCT, OR BE IN THE AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.**

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable fraction), OSHA PEL 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction).

### VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

### RESPIRATORY PROTECTION

Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturers directions for use. Wear the respirator for the whole time of spraying and until all vapors and mists are gone. **NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.**

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

### PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

### EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

### OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

### OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<b>PRODUCT WEIGHT</b>	11.33 lb/gal	1358 g/l
<b>SPECIFIC GRAVITY</b>	1.36	
<b>BOILING POINT</b>	174 - 415 °F	78 - 212 °C
<b>MELTING POINT</b>	Not Available	
<b>VOLATILE VOLUME</b>	39%	
<b>EVAPORATION RATE</b>	Slower than ether	
<b>VAPOR DENSITY</b>	Heavier than air	
<b>SOLUBILITY IN WATER</b>	Not Available	
<b>VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)</b>		
2.87 lb/gal	344 g/l	Less Water and Federally Exempt Solvents
2.87 lb/gal	344 g/l	Emitted VOC

## SECTION 10 — STABILITY AND REACTIVITY

**STABILITY** — Stable

### CONDITIONS TO AVOID

None known.

### INCOMPATIBILITY

None known.

### HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

### HAZARDOUS POLYMERIZATION

Will not occur

## SECTION 11 — TOXICOLOGICAL INFORMATION

### CHRONIC HEALTH HAZARDS

Methyl Ethyl Ketone may increase the nervous system effects of other solvents.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Naphthalene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust, which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

**TOXICOLOGY DATA**

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene	LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene	LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
64742-94-5	Heavy Aromatic Naphtha	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
91-20-3	Naphthalene	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
78-93-3	Methyl Ethyl Ketone	LC50 RAT	4HR	Not Available
		LD50 RAT		2740 mg/kg
123-86-4	n-Butyl Acetate	LC50 RAT	4HR	2000 ppm
		LD50 RAT		13100 mg/kg
14808-60-7	Crystalline Silica, respirable powder	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
13463-67-7	Titanium Dioxide	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

**SECTION 12 — ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL INFORMATION**

No data available.

**SECTION 13 — DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD**

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers. Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

**SECTION 14 — TRANSPORT INFORMATION**

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

**US Ground (DOT)**

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

**DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities**

Naphthalene 100 lb RQ

Xylenes (mixed isomers) 100 lb RQ

**Bulk Containers may be Shipped as (check reportable quantities):**

UN1263, PAINT, 3, PG II, (ERG#128)

**Canada (TDG)**

UN1263, PAINT, 3, PG II, LIMITED QUANTITY, (ERG#128)

**IMO**

Information is not Available

**IMO**

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT, 3, PG II (21 C c.c.), EmS F-E, S-E

**IATA/CAO**

UN1263, PAINT, 3, PG II

## SECTION 15 — REGULATORY INFORMATION

**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.5	
1330-20-7	Xylene	3	
91-20-3	Naphthalene	0.2	

**CALIFORNIA PROPOSITION 65**

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

**TSCA CERTIFICATION**

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

## SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

# Safety Data Sheet



www.rustoleum.com

## 1. Identification

<b>Product Name:</b>	KRDKUT HP THE MUST FOR RUST	<b>Revision Date:</b>	4/16/2018
<b>Product Identifier:</b>	MR086	<b>Supercedes Date:</b>	4/5/2018
<b>Product Use/Class:</b>	Rust Dissolver/ Phosphoric Acid		
<b>Supplier:</b>	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA	<b>Manufacturer:</b>	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA
<b>Preparer:</b>	Regulatory Department		
<b>Emergency Telephone:</b>	24 Hour Hotline: 847-367-7700		

## 2. Hazard Identification

### Classification

### Symbol(s) of Product



### Signal Word

Danger

### GHS HAZARD STATEMENTS

Germ Cell Mutagenicity, category 1B	H340	May cause genetic defects.
Carcinogenicity, category 1A	H350	May cause cancer.
Reproductive Toxicity, category 2	H361	Suspected of damaging fertility or the unborn child.
Skin Irritation, category 2	H315	Causes skin irritation.
Eye Irritation, category 2	H319	Causes serious eye irritation.
Skin Sensitizer, category 1	H317	May cause an allergic skin reaction.
Respiratory Sensitizer, category 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

### GHS LABEL PRECAUTIONARY STATEMENTS

P201	Obtain special instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local, regional and national regulations.
P264	Wash hands thoroughly after handling.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P321	For specific treatment see label
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P285	In case of inadequate ventilation wear respiratory protection.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

**GHS SDS PRECAUTIONARY STATEMENTS**

P363 Wash contaminated clothing before reuse.

### 3. Composition / Information On Ingredients

**HAZARDOUS SUBSTANCES**

<b><u>Chemical Name</u></b>	<b><u>CAS-No.</u></b>	<b><u>Wt.% Range</u></b>	<b><u>GHS Symbols</u></b>	<b><u>GHS Statements</u></b>
Phosphoric Acid	7664-38-2	10-25	GHS05-GHS06	H312-314-331

Ethylene Glycol Monobutyl Ether	111-76-2	0.1-1.0	GHS07	H302-312-315-319-332
Chromium Trioxide	1333-82-0	0.1-1.0	GHS03-GHS05- GHS06-GHS08	H271-301-310-314-317-330-334 -335-340-350-361-372

#### 4. First-Aid Measures

**FIRST AID - EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

**FIRST AID - SKIN CONTACT:** Remove contaminated clothing. Wash skin with soap and water. Get medical attention. Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

**FIRST AID - INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation. If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately.

**FIRST AID - INGESTION:** Swallowing less than an ounce will not cause significant harm. For larger amounts, do not induce vomiting, but give one or two glasses of water to drink and get medical attention. If swallowed, rinse mouth with water. If feeling unwell, get medical attention.

#### 5. Fire-Fighting Measures

**EXTINGUISHING MEDIA:** Alcohol Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** No unusual fire or explosion hazards noted. Keep containers tightly closed. FLASH POINT IS TESTED TO BE GREATER THAN 200 DEGREES F.

**SPECIAL FIREFIGHTING PROCEDURES:** Water may be used to cool closed containers to prevent buildup of steam. If water is used, fog nozzles are preferred.

**Special Fire and Explosion Hazard (Combustible Dust):** No Information

#### 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:** If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container, and unused contents in accordance with local, state, and federal regulations. Do not incinerate closed containers

#### 7. Handling and Storage

**HANDLING:** Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and launder before reuse. Use only with adequate ventilation. Follow all SDS and label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Avoid contact with eyes, skin and clothing.

**STORAGE:** Store in a dry, well ventilated place. Keep container tightly closed when not in use.

**Advice on Safe Handling of Combustible Dust:** No Information

#### 8. Exposure Controls / Personal Protection

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLV- TWA	ACGIH TLV- STEL	OSHA PEL-TWA	OSHA PEL- CEILING
Phosphoric Acid	7664-38-2	20.0	1 mg/m3	3 mg/m3	1 mg/m3	N.E.
Ethylene Glycol Monobutyl Ether	111-76-2	1.0	20 ppm	N.E.	50 ppm	N.E.
Chromium Trioxide	1333-82-0	1.0	N.E.	N.E.	N.E.	N.E.

#### PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

**RESPIRATORY PROTECTION:** A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

**SKIN PROTECTION:** Where contact is likely, wear chemical resistant gloves, a chemical suit, rubber boots and chemical safety goggles plus a face shield. Use gloves to prevent prolonged skin contact. Nitrile or Neoprene gloves may afford adequate skin protection.

**EYE PROTECTION:** Use safety eyewear designed to protect against splash of liquids.

**OTHER PROTECTIVE EQUIPMENT:** Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications.

**HYGIENIC PRACTICES:** Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

**Engineering Measures for Combustible Dust:** No Information

## 9. Physical and Chemical Properties

<b>Appearance:</b>	Liquid	<b>Physical State:</b>	Liquid
<b>Odor:</b>	Mild	<b>Odor Threshold:</b>	N.E.
<b>Relative Density:</b>	1.103	<b>pH:</b>	1.0 - 3.0
<b>Freeze Point, °C:</b>	30	<b>Viscosity:</b>	N.D.
<b>Solubility in Water:</b>	Soluble	<b>Partition Coefficient, n-octanol/water:</b>	N.D.
<b>Decomposition Temp., °C:</b>	N.D.	<b>Explosive Limits, vol%:</b>	N.A. - N.A.
<b>Boiling Range, °C:</b>	100 - 158	<b>Flash Point, °C:</b>	94
<b>Flammability:</b>	Does not Support Combustion	<b>Auto-ignition Temp., °C:</b>	N.D.
<b>Evaporation Rate:</b>	Slower than Ether	<b>Vapor Pressure:</b>	N.D.
<b>Vapor Density:</b>	Heavier than Air		

(See "Other information" Section for abbreviation legend)

## 10. Stability and Reactivity

**CONDITIONS TO AVOID:** No Information

**INCOMPATIBILITY:** Incompatible with strong oxidizing agents, strong acids and strong alkalis.

**HAZARDOUS DECOMPOSITION:** When heated to decomposition, it emits acrid smoke and irritating fumes.

**HAZARDOUS POLYMERIZATION:** Will not occur under normal conditions.

**STABILITY:** This product is stable under normal storage conditions.

## 11. Toxicological Information

**EFFECTS OF OVEREXPOSURE - EYE CONTACT:** Irritating, and may injure eye tissue if not removed promptly.

**EFFECTS OF OVEREXPOSURE - SKIN CONTACT:** Substance is corrosive. Causes severe skin burns. Corrosive; causes skin burning. Low hazard for usual industrial handling or commercial handling by trained personnel.

**EFFECTS OF OVEREXPOSURE - INHALATION:** High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist.

**EFFECTS OF OVEREXPOSURE - INGESTION:** Substance may be harmful if swallowed.

**EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS:** No Information

**PRIMARY ROUTE(S) OF ENTRY:** Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

### ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Vapor LC50</u>
7664-38-2	Phosphoric Acid	2600 mg/kg Rat	1260 mg/kg Rabbit	5.337 mg/L Rabbit
111-76-2	Ethylene Glycol Monobutyl Ether	470 mg/kg Rat	1,060 mg/kg Rabbit	11 mg/L
1333-82-0	Chromium Trioxide	80 mg/kg Rat	57 mg/kg Rabbit	N.E.

N.E. - Not Established

## 12. Ecological Information

**ECOLOGICAL INFORMATION:** Product is a mixture of listed components.

### 13. Disposal Information

**DISPOSAL INFORMATION:** Dispose of material in accordance to local, state, and federal regulations and ordinances. Do not allow to enter waterways, wastewater, soil, storm drains or sewer systems.

### 14. Transport Information

	<u>Domestic (USDOT)</u>	<u>International (IMDG)</u>	<u>Air (IATA)</u>	<u>TDG (Canada)</u>
<b>UN Number:</b>	N.A.	1805	1805	N.A.
<b>Proper Shipping Name:</b>	Cleaning Compounds in Limited Quantities	Phosphoric acid, solution	Phosphoric acid solution	Paint Products in Limited Quantities
<b>Hazard Class:</b>	N.A.	8	8	N.A.
<b>Packing Group:</b>	N.A.	III	III	N.A.
<b>Limited Quantity:</b>	Yes	Yes	Yes	Yes

### 15. Regulatory Information

#### U.S. Federal Regulations:

##### CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

No Information

##### Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

<u>Chemical Name</u>	<u>CAS-No.</u>
Phosphoric Acid	7664-38-2
Ethylene Glycol Monobutyl Ether	111-76-2
Chromium Trioxide	1333-82-0

##### Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

<u>Chemical Name</u>	<u>CAS-No.</u>
Chromium Trioxide	1333-82-0

No TSCA 12(b) components exist in this product.

**16. Other Information****HMIS RATINGS**

Health: 3\*      Flammability: 0      Physical Hazard: 0      Personal Protection: X

**NFPA RATINGS**

Health: 3      Flammability: 0      Instability: 0

**VOLATILE ORGANIC COMPOUNDS, g/L:** 45

**SDS REVISION DATE:** 4/16/2018

**REASON FOR REVISION:** Substance and/or Product Properties Changed in Section(s):  
14 - Transport Information

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

The manufacturer believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. The manufacturer makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

# Safety Data Sheet



www.rustoleum.com

## 1. Identification

<b>Product Name:</b>	KK 32OZ 6PK MUST FOR RUST GEL	<b>Revision Date:</b>	7/13/2017
<b>Product Identifier:</b>	305982	<b>Supercedes Date:</b>	6/7/2017
<b>Product Use/Class:</b>	Rust Inhibitor/Waterborne		
<b>Supplier:</b>	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA	<b>Manufacturer:</b>	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA
<b>Preparer:</b>	Regulatory Department		
<b>Emergency Telephone:</b>	24 Hour Hotline: 847-367-7700		

## 2. Hazard Identification

### Classification

### Symbol(s) of Product



### Signal Word

Danger

### Possible Hazards

3% of the mixture consists of ingredient(s) of unknown acute toxicity.

### GHS HAZARD STATEMENTS

Acute Toxicity, Inhalation, category 4	H332	Harmful if inhaled.
Skin Corrosion, category 1	H314	Causes severe skin burns and eye damage.

### GHS LABEL PRECAUTIONARY STATEMENTS

P271	Use only outdoors or in a well-ventilated area.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	If exposed immediately call a POISON CENTER or doctor/physician.
P321	For specific treatment see label
P405	Store locked up.
P501	Dispose of contents/container in accordance with local, regional and national regulations.

### 3. Composition/Information On Ingredients

#### HAZARDOUS SUBSTANCES

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>Wt.% Range</u>	<u>GHS Symbols</u>	<u>GHS Statements</u>
Phosphoric Acid	7664-38-2	25-50	GHS05-GHS06	H312-314-331
D-Gluconic Acid	526-95-4	2.5-10	Not Available	Not Available

### 4. First-aid Measures

**FIRST AID - EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

**FIRST AID - SKIN CONTACT:** Remove contaminated clothing. Wash skin with soap and water. Get medical attention. Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists. Immediately flush skin with plenty of water for at least 15 minutes while removing clothing. Get medical attention immediately. Wash clothing separately before reuse. Destroy contaminated shoes.

**FIRST AID - INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation. If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately.

**FIRST AID - INGESTION:** If swallowed, do not induce vomiting. If victim is conscious and alert, give 2 to 4 cupfuls of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. Treat symptomatically and supportively. Do not induce vomiting unless advised by a physician. Call nearest Poison Control Center or Physician immediately.

### 5. Fire-fighting Measures

**EXTINGUISHING MEDIA:** Carbon Dioxide, Dry Chemical, Dry Sand

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** No unusual fire or explosion hazards noted. Keep containers tightly closed.

**SPECIAL FIREFIGHTING PROCEDURES:** Containers can rupture and release highly toxic material if exposed to heat. Substance is non-combustible but reacts with many metals to form explosive hydrogen gas. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

### 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:** Avoid runoff into sewers and waterways. Provide ventilation and approach spill from upwind using proper personal protective equipment as indicated in Section 8. Carefully neutralize spill with sodium bicarbonate (NaHCO<sub>3</sub>). Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust.

### 7. Handling and Storage

**HANDLING:** Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and launder before reuse. Use only with adequate ventilation. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Avoid contact with eyes, skin and clothing.

**STORAGE:** Store in a dry, well ventilated place. Keep container tightly closed when not in use.

### 8. Exposure Controls/Personal Protection

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>Weight % Less Than</u>	<u>ACGIH TLV-TWA</u>	<u>ACGIH TLV-STEL</u>	<u>OSHA PEL-TWA</u>	<u>OSHA PEL-CEILING</u>
Phosphoric Acid	7664-38-2	30.0	1 mg/m <sup>3</sup>	3 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	N.E.
D-Gluconic Acid	526-95-4	5.0	N.E.	N.E.	N.E.	N.E.

#### PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Provide general dilution of local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

**RESPIRATORY PROTECTION:** A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

**SKIN PROTECTION:** Where contact is likely, wear chemical resistant gloves, a chemical suit, rubber boots and chemical safety goggles plus a face shield. Use gloves to prevent prolonged skin contact. Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection.

**EYE PROTECTION:** Use safety eyewear designed to protect against splash of liquids.

**OTHER PROTECTIVE EQUIPMENT:** Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications.

**HYGIENIC PRACTICES:** Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

## 9. Physical and Chemical Properties

<b>Appearance:</b>	Gel/Paste	<b>Physical State:</b>	Liquid
<b>Odor:</b>	Mild	<b>Odor Threshold:</b>	N.E.
<b>Relative Density:</b>	1.193	<b>pH:</b>	<1
<b>Freeze Point, °C:</b>	N.D.	<b>Viscosity:</b>	N.D.
<b>Solubility in Water:</b>	Water Reactive	<b>Partition Coefficient, n-octanol/ water:</b>	N.D.
<b>Decomposition Temp., °C:</b>	N.D.	<b>Explosive Limits, vol%:</b>	N.A. - N.A.
<b>Boiling Range, °C:</b>	100 - 158	<b>Flash Point, °C:</b>	94
<b>Flammability:</b>	Does not Support Combustion	<b>Auto-ignition Temp., °C:</b>	N.D.
<b>Evaporation Rate:</b>	Slower than Ether	<b>Vapor Pressure:</b>	N.D.
<b>Vapor Density:</b>	Heavier than air		

(See "Other information" Section for abbreviation legend)

## 10. Stability and Reactivity

**CONDITIONS TO AVOID:** Avoid contact with strong acid and strong bases. Avoid contact with metals.

**INCOMPATIBILITY:** Product slowly corrodes copper, aluminum, zinc, and galvanized surfaces. Incompatible with strong oxidizing agents, strong acids and strong alkalis.

**HAZARDOUS DECOMPOSITION:** Decomposition produces hydrogen chloride, chlorine and hydrogen gases.

**HAZARDOUS POLYMERIZATION:** Will not occur under normal conditions.

**STABILITY:** This product is stable under normal storage conditions.

## 11. Toxicological information

**EFFECTS OF OVEREXPOSURE - EYE CONTACT:** Substance causes severe eye irritation. Injury may be permanent.

**EFFECTS OF OVEREXPOSURE - SKIN CONTACT:** Substance is corrosive. Causes severe skin burns. Corrosive; causes skin burning. Severely irritating; may cause permanent skin damage.

**EFFECTS OF OVEREXPOSURE - INHALATION:** Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs.

**EFFECTS OF OVEREXPOSURE - INGESTION:** Corrosive and may cause severe and permanent damage to mouth, throat and stomach. Substance may be harmful if swallowed.

**EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS:** Repeated exposure to low concentrations of HCl vapor or mist may cause bleeding of nose and gums.

**PRIMARY ROUTE(S) OF ENTRY:** Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

### ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Vapor LC50</u>
7664-38-2	Phosphoric Acid	2600 mg/kg Rat	1260 mg/kg Rabbit	5.337 mg/L Rabbit
526-95-4	D-Gluconic Acid	7630 mg/kg Rat	N.I.	N.I.

N.I. - No Information

## 12. Ecological Information

**ECOLOGICAL INFORMATION:** Product is a mixture of listed components.

## 13. Disposal Information

**DISPOSAL INFORMATION:** Dispose of material in accordance to local, state, and federal regulations and ordinances. Do not allow to enter waterways, wastewater, soil, storm drains or sewer systems.

## 14. Transport Information

	<u>Domestic (USDOT)</u>	<u>International (IMDG)</u>	<u>Air (IATA)</u>	<u>TDG (Canada)</u>
<b>UN Number:</b>	N.A.	1805	1805	N.A.
<b>Proper Shipping Name:</b>	Cleaning Compounds in Limited Quantities	Phosphoric Acid, Solution	Phosphoric Acid, Solution	Cleaning Compounds in Limited Quantities
<b>Hazard Class:</b>	N.A.	8	8	N.A.
<b>Packing Group:</b>	N.A.	III	III	N.A.
<b>Limited Quantity:</b>	Yes	Yes	Cargo Aircraft Only	Yes

## 15. Regulatory Information

### U.S. Federal Regulations:

#### CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

No Information

#### Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

<u>Chemical Name</u>	<u>CAS-No.</u>
Phosphoric Acid	7664-38-2

#### Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

No TSCA 12(b) components exist in this product.

**16. Other Information****HMIS RATINGS**

Health: 2      Flammability: 1      Physical Hazard: 0      Personal Protection: X

**NFPA RATINGS**

Health: 2      Flammability: 1      Instability: 0

**VOLATILE ORGANIC COMPOUNDS, g/L:** 141

**SDS REVISION DATE:** 7/13/2017

**REASON FOR REVISION:** Substance and/or Product Properties Changed in Section(s):  
05 - Fire-fighting Measures  
09 - Physical & Chemical Properties  
14 - Transport Information  
15 - Regulatory Information  
Statement(s) Changed

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

The manufacturer believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. The manufacturer makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

# Safety Data Sheet

## WASP FREEZE

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### 1. Product and Company Identification

Company  
BASF CORPORATION  
100 Campus Drive  
Florham Park, NJ 07932

24 Hour Emergency Response Information  
CHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP

Registrant:  
Whitmire Micro-Gen Research Laboratories, Inc.  
3568 Tree Court Industrial Blvd.  
St. Louis, MO 63122

Substance number: 000000413973  
Synonyms: d-trans Allethrin + phenothrin

### 2. Hazards Identification

#### Emergency overview

CAUTION:  
KEEP OUT OF REACH OF CHILDREN.  
KEEP OUT OF REACH OF DOMESTIC ANIMALS.  
HARMFUL IF SWALLOWED.  
HARMFUL IF INHALED.  
HARMFUL IF ABSORBED THROUGH SKIN.  
Avoid inhalation of mists/vapours.  
Avoid contact with the skin, eyes and clothing.  
Wash thoroughly after handling.  
Flammable Liquid  
Aerosol container contains flammable gas under pressure.

See Product Label for additional precautionary statements.

State of matter: liquid  
Colour: pale yellow, clear  
Odour: solvent-like

#### Potential health effects

##### **Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

##### **Acute toxicity:**

Relatively nontoxic after single ingestion. Slightly toxic after short-term skin contact.

##### **Irritation / corrosion:**

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Contact may result in eye irritation. May cause moderate irritation to the skin.

**Sensitization:**

Skin sensitizing effects were not observed in animal studies.

**Signs and symptoms of overexposure:**

Vomiting may cause aspiration pneumonia due to the ingredients.

---

### 3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
28057-48-9	0.129 %	d-trans Allethrin
26002-80-2	0.12 %	Phenothrin
64742-47-8	> 10.0 %	Distillates (petroleum), hydrotreated light
	>= 85.0 %	Proprietary ingredients

---

### 4. First-Aid Measures

**General advice:**

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

**If inhaled:**

Remove the affected individual into fresh air and keep the person calm.

**If on skin:**

Rinse skin immediately with plenty of water for 15 - 20 minutes.

**If in eyes:**

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

**If swallowed:**

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water if able to swallow.

**Note to physician**

Treatment:

Aspiration of this product during induced emesis can result in lung injury. If evacuation of stomach contents is considered necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation.

---

### 5. Fire-Fighting Measures

Flash point: approx. 62 °C (Tag closed cup)

NFPA 30B flammability: Level 3 Aerosol

**Suitable extinguishing media:**

foam, dry extinguishing media, carbon dioxide

**Hazards during fire-fighting:**

carbon monoxide, carbon dioxide,

The substances/groups of substances mentioned can be released in case of fire. Aerosol container contains flammable gas under pressure. Risk of explosion at excessive temperatures.

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### **Protective equipment for fire-fighting:**

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

### **Further information:**

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

---

## 6. Accidental release measures

### **Personal precautions:**

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

### **Environmental precautions:**

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water. A spill of or in excess of the reportable quantity requires notification to state, local and national emergency authorities. This product is not regulated by CERCLA ('Superfund').

### **Cleanup:**

Dike spillage. Pick up with suitable absorbent material. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

---

## 7. Handling and Storage

### **Handling**

#### **General advice:**

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect against heat. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Provide means for controlling leaks and spills. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

#### **Protection against fire and explosion:**

Aerosol container contains flammable gas under pressure. The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme heat. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

### **Storage**

#### **General advice:**

Protect containers from physical damage. Store in a cool, dry, well-ventilated area. Avoid all sources of ignition: heat, sparks, open flame.

#### **Storage incompatibility:**

General advice: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

#### **Storage stability:**

May be kept indefinitely if stored properly. If an expiry date is mentioned on the packaging/label this takes priority over the statements on storage duration in this safety data sheet.

#### **Temperature tolerance**

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Protect from temperatures above: 130 °F  
Explosive at or above indicated temperature.

### 8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

#### Components with workplace control parameters

Distillates (petroleum), hydrotreated light	ACGIH	TWA value 200 mg/m <sup>3</sup> Non-aerosol (total hydrocarbon vapor); Application restricted to conditions in which there are negligible aerosol exposures. Skin Designation Non-aerosol (total hydrocarbon vapor); The substance can be absorbed through the skin.
--	-------	---

#### **Advice on system design:**

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

#### Personal protective equipment

#### **RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:**

##### **Respiratory protection:**

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

##### **Hand protection:**

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

##### **Eye protection:**

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

##### **Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

##### **General safety and hygiene measures:**

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS  
Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

### 9. Physical and Chemical Properties

Form:	liquid	
Odour:	solvent-like	
Colour:	pale yellow, clear	
pH value:		of low solubility, not applicable

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Vapour pressure:	approx. 6895 hPa	(approx. 19 °C)
Density:	0.80 g/cm <sup>3</sup>	(approx. 20 °C)
Solubility in water:		sparingly soluble

### 10. Stability and Reactivity

**Conditions to avoid:**

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge.

**Substances to avoid:**

No substances known that should be avoided.

**Hazardous reactions:**

The product is chemically stable.

**Decomposition products:**

No hazardous decomposition products if stored and handled as prescribed/indicated., Prolonged thermal loading can result in products of degradation being given off.

**Thermal decomposition:**

Possible thermal decomposition products:

carbon monoxide, carbon dioxide

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. To avoid thermal decomposition, do not overheat.

**Corrosion to metals:**

Corrosive effects to metal are not anticipated.

### 11. Toxicological information

**Acute toxicity**

**Oral:**

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg

**Dermal:**

Type of value: LD50

Species: rabbit

Value: > 2,000 mg/kg

**Sensitization:**

Species: guinea pig

Result: Non-sensitizing.

**Genetic toxicity**

*Information on: bioallethrin*

*No mutagenic effects reported.*

*Information on: d-phenothrin*

*No mutagenic effects reported.*

*Information on: Distillates (petroleum), hydrotreated light*

*In the majority of tests performed (bacteria/microorganisms/cell cultures) a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo assays. Literature data.*

-----

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### Carcinogenicity

*Information on: bioallethrin*

*Indication of possible carcinogenic effect in animal tests. A clear indication of an increased risk of cancer in humans has so far not been shown.*

*Information on: d-phenothrin*

*Not likely to be carcinogenic to humans (US EPA 2005 Guidelines).*

-----

### Reproductive toxicity

*Information on: bioallethrin*

*No reproductive toxic effects reported.*

*Information on: d-phenothrin*

*No reproductive toxic effects reported.*

-----

### Development:

*Information on: d-phenothrin*

*No teratogenic effects reported.*

*Information on: Distillates (petroleum), hydrotreated light*

*No indications of a developmental toxic / teratogenic effect were seen in animal studies. Literature data.*

-----

---

## 12. Ecological Information

### Fish

*Information on: bioallethrin*

*Acute:*

*Flow through.*

*Salvelinus namaycush/LC50: = 9,9 µg/l*

*The ecological data given are those of the active ingredient.*

*Information on: d-phenothrin*

*Acute:*

*Oncorhynchus mykiss/LC50 (96 h): 0.0027 mg/l*

*Information on: Distillates (petroleum), hydrotreated light*

*Acute:*

*Brachydanio rerio/LC50 (96 h): 7.3 mg/l*

*The product has not been tested. The statement has been derived from products of a similar structure and composition. Literature data.*

-----

### Aquatic invertebrates

*Information on: bioallethrin*

*Acute:*

*Flow through.*

*Daphnia magna/LC50 (96 h): 0.0356 mg/l*

*Information on: d-phenothrin*

*Acute:*

*Daphnia magna (96 h): > 300 mg/l*

*Information on: Distillates (petroleum), hydrotreated light*

*Acute:*

*Daphnia magna/EL50 (48 h): 1.4 - 21 mg/l*

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*The product has not been tested. The statement has been derived from products of a similar structure and composition. Literature data.*

### Aquatic plants

*Information on: Distillates (petroleum), hydrotreated light*

*Toxicity to aquatic plants:*

*algae/EC50 (72 h): 3.7 - 8.3 mg/l*

*Literature data.*

---

## 13. Disposal considerations

### Waste disposal of substance:

Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### Container disposal:

Do not cut, puncture, crush, or incinerate empty aerosol containers. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Empty aerosol cans may meet the definition of RCRA D003. Consult local and/or regional EPA for further guidance.

---

## 14. Transport Information

Reference Bill of Lading

---

## 15. Regulatory Information

### Federal Regulations

#### Registration status:

Chemical TSCA, US blocked / not listed

Crop Protection TSCA, US released / exempt

EPCRA 311/312 (Hazard categories): Acute; Fire; Sudden release of pressure

---

## 16. Other Information

### Refer to product label for EPA registration number.

Recommended use: insecticide

BASF supports worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our

# Safety Data Sheet

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products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

---

### Local Contact Information

Product Stewardship  
919 547-2000

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY BASF HEREUNDER ARE GIVEN GRATIS AND BASF ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

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END OF DATA SHEET

# Safety Data Sheet

## MasterSeal 590 INDUST also WATERPLUG

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### 1. Identification

**Product identifier used on the label**

**MasterSeal 590 INDUST also WATERPLUG**

**Recommended use of the chemical and restriction on use**

Recommended use\*: for industrial and professional users

\* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

**Details of the supplier of the safety data sheet**

Company:

BASF CORPORATION  
100 Park Avenue  
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

**Emergency telephone number**

CHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP (4357)

**Other means of identification**

Chemical family: No data available.

---

### 2. Hazards Identification

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200**

**Classification of the product**

Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
STOT RE	1 (by inhalation)	Specific target organ toxicity — repeated exposure

**Label elements**

# Safety Data Sheet

## MasterSeal 590 INDUST also WATERPLUG

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Pictogram:



Signal Word:  
Danger

Hazard Statement:

H318 Causes serious eye damage.  
H315 Causes skin irritation.  
H335 May cause respiratory irritation.  
H372 Causes damage to organs (Lung) through prolonged or repeated exposure (inhalation).

Precautionary Statements (Prevention):

P280 Wear protective gloves and eye/face protection.  
P260 Do not breathe dust.  
P270 Do not eat, drink or smoke when using this product.  
P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/physician.  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.  
P332 + P313 If skin irritation occurs: Get medical advice/attention.  
P362 + P364 Take off contaminated clothing and wash before reuse.

Precautionary Statements (Storage):

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

Precautionary Statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

### Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Labeling of special preparations (GHS):

In combination with water, repeated or prolonged dermal exposure can cause moderate to severe alkali burns.

---

### 3. Composition / Information on Ingredients

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200**

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
14808-60-7	>= 25.0 - < 50.0%	crystalline silica
65997-15-1	>= 20.0 - < 50.0%	Cement, portland, chemicals
1305-62-0	>= 1.0 - < 7.0%	Calcium dihydroxide

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1317-65-3	>= 0.3 - < 5.0%	Limestone
13397-24-5	>= 0.3 - < 3.0%	Gypsum (Ca(SO <sub>4</sub> ).2H <sub>2</sub> O)

---

### 4. First-Aid Measures

#### Description of first aid measures

##### General advice:

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

##### If inhaled:

After inhalation of dust. Keep patient calm, remove to fresh air. If difficulties occur: Obtain medical attention.

##### If on skin:

After contact with skin, wash immediately with plenty of water and soap. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

##### If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

##### If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

#### Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Hazards: No applicable information available.

#### Indication of any immediate medical attention and special treatment needed

##### Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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### 5. Fire-Fighting Measures

#### Extinguishing media

Suitable extinguishing media:  
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:  
water jet

##### Additional information:

Product itself is non-combustible. Only the packaging materials can catch fire. The extinguishing agents normally used are sufficient.

#### Special hazards arising from the substance or mixture

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Hazards during fire-fighting:

carbon monoxide, carbon dioxide, harmful vapours

Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire. Product is not combustible or explosive.

### Advice for fire-fighters

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

### Further information:

Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered. The degree of risk is governed by the burning substance and the fire conditions. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

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## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid contact with skin and eyes. Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

### Environmental precautions

Do not discharge into drains/surface waters/groundwater.

### Methods and material for containment and cleaning up

For small amounts: Pick up with suitable appliance and dispose of.

For large amounts: Pick up with suitable appliance and dispose of. Pack in tightly closed containers for disposal.

For residues: Rinse with plenty of water.

Avoid raising dust.

---

## 7. Handling and Storage

### Precautions for safe handling

Avoid dust formation. The Cement contained in this product reacts alkaline when in contact with water or humidity. This may cause severe irritation of skin or mucous membranes. The humidity of the skin or mucous membranes is enough for this reaction. Prolonged direct contact to the dry product should be avoided therefore. Avoid inhalation of dusts. Avoid skin contact. Pour downwind and allow as little free fall as possible while emptying bags into equipment. Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Protection against fire and explosion:

No special precautions necessary.

### Conditions for safe storage, including any incompatibilities

Segregate from metals. Segregate from acids. Segregate from lyes. Segregate from oxidants.

Segregate from foods and animal feeds.

Suitable materials for containers: tinned carbon steel (Tinplate)

Further information on storage conditions: Containers should be stored tightly sealed in a dry place.

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### 8. Exposure Controls/Personal Protection

#### Components with occupational exposure limits

Calcium dihydroxide	OSHA PEL	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 5 mg/m3 ;
	ACGIH TLV	TWA value 5 mg/m3 ;
Limestone	OSHA PEL	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 15 mg/m3 Total dust ; TWA value 5 mg/m3 Respirable fraction ;
Gypsum (Ca(SO4).2H2O)	OSHA PEL	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 15 mg/m3 Total dust ; TWA value 5 mg/m3 Respirable fraction ;
	ACGIH TLV	TWA value 10 mg/m3 Inhalable fraction ;
crystalline silica	OSHA PEL	TWA value 2.4 millions of particles per cubic foot of air Respirable ; The exposure limit is calculated from the equation, $250/(\%SiO_2+5)$ , using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.1 mg/m3 Respirable ; The exposure limit is calculated from the equation, $10/(\%SiO_2+2)$ , using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.3 mg/m3 Total dust ; The exposure limit is calculated from the equation, $30/(\%SiO_2+2)$ , using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits.
	ACGIH TLV	TWA value 0.025 mg/m3 Respirable fraction ;
Cement, portland, chemicals	OSHA PEL	PEL 15 mg/m3 Total dust ; PEL 5 mg/m3 Respirable fraction ;
	ACGIH TLV	TWA value 1 mg/m3 Respirable fraction ; The value is for particulate matter containing no asbestos and <1% crystalline silica.

#### **Advice on system design:**

Provide local exhaust ventilation to maintain recommended P.E.L.

#### **Personal protective equipment**

##### **Respiratory protection:**

Breathing protection if dusts are formed.

##### **Hand protection:**

Chemical resistant protective gloves, Manufacturer's directions for use should be observed because of great diversity of types.

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### Eye protection:

Tightly fitting safety goggles (chemical goggles).

### Body protection:

Body protection must be chosen based on level of activity and exposure.

### General safety and hygiene measures:

Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Contaminated equipment or clothing should be cleaned after each use or disposed of.

## 9. Physical and Chemical Properties

Form:	powder
Odour:	odourless
Odour threshold:	No applicable information available.
Colour:	grey
pH value:	approx. 12 - 13 (approx. 20 °C) (as aqueous suspension)
Melting point:	The product has not been tested.
Sublimation point:	No applicable information available.
Flash point:	The product has not been tested.
Flammability:	not flammable
Vapour pressure:	The product has not been tested.
Bulk density:	approx. 1,800 - 2,400 kg/m <sup>3</sup>
Vapour density:	The product is a non-volatile solid.
Partitioning coefficient n-octanol/water (log Pow):	not applicable
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	not applicable, the product is a solid
Viscosity, kinematic:	No applicable information available.
Solubility in water:	( 20 °C) dispersible
Miscibility with water:	miscible
Solubility (quantitative):	No applicable information available.
Solubility (qualitative):	No applicable information available.
Evaporation rate:	The product is a non-volatile solid.

## 10. Stability and Reactivity

### Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

### Chemical stability

The product is stable if stored and handled as prescribed/indicated.

### Possibility of hazardous reactions

The product is stable if stored and handled as prescribed/indicated.  
Strong bases are formed on the addition of water.

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### Conditions to avoid

Avoid dust formation. Avoid humidity.

### Incompatible materials

strong bases, strong acids

### Hazardous decomposition products

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

---

## 11. Toxicological information

### Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

### Acute Toxicity/Effects

#### Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. The product has not been tested. The statement has been derived from the properties of the individual components.

#### Oral

No applicable information available.

#### Inhalation

No applicable information available.

#### Dermal

No applicable information available.

#### Assessment other acute effects

Assessment of STOT single:

Causes temporary irritation of the respiratory tract.

The product has not been tested. The statement has been derived from the properties of the individual components.

#### Irritation / corrosion

Assessment of irritating effects: Skin contact causes irritation. May cause severe damage to the eyes. The product has not been tested. The statement has been derived from the properties of the individual components.

#### Sensitization

Assessment of sensitization: There is no evidence of a skin-sensitizing potential. The product has not been tested. The statement has been derived from the properties of the individual components. Chromate in this product has been reduced. Sensitization due to chromate within stated shelf-life is unlikely.

### Chronic Toxicity/Effects

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### Repeated dose toxicity

Assessment of repeated dose toxicity: Inhalation of dust may cause respiratory tract irritation, coughing and breathing difficulties. This product contains crystalline silica (quartz). Prolonged or repeated inhalation of respirable crystalline silica may result in silicosis.

### Genetic toxicity

Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

### Carcinogenicity

Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

### Information on: crystalline silica

*Assessment of carcinogenicity: In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. In long-term animal studies in which the substance was given by inhalation in high doses, a carcinogenic effect was observed. The substance and its compounds in the form of respirable dusts/aerosols classified by the German MAK commission as a category 1 carcinogen (substances that cause cancer to humans). A carcinogenic effect cannot safely be ruled out. The inhalation uptake of the alveolar fraction of the fine dust may cause damage to the lungs. The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen.*

*NTP listed carcinogen*

### Reproductive toxicity

Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

### Teratogenicity

Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

### Other Information

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

### **Symptoms of Exposure**

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

---

## 12. Ecological Information

### **Toxicity**

#### Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms.

The product gives rise to pH shifts. Based on available Data, the classification criteria are not met.

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### Persistence and degradability

#### Assessment biodegradation and elimination (H<sub>2</sub>O)

Inorganic product which cannot be eliminated from water by biological purification processes. The product is slightly soluble in water. It can be largely eliminated from the water by abiotic processes, e.g. mechanical separation.

Experience shows this product to be inert and non-degradable.

#### Elimination information

not applicable

### Bioaccumulative potential

#### Assessment bioaccumulation potential

The product will not be readily bioavailable due to its consistency and insolubility in water.

### Mobility in soil

#### Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface. Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

### Additional information

Other ecotoxicological advice:

Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

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## 13. Disposal considerations

### **Waste disposal of substance:**

Dispose of in accordance with local authority regulations. Do not discharge into drains/surface waters/groundwater.

### **Container disposal:**

Completely emptied packagings can be given for recycling.

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## 14. Transport Information

### **Land transport**

USDOT

Not classified as a dangerous good under transport regulations

### **Sea transport**

IMDG

Not classified as a dangerous good under transport regulations

### **Air transport**

IATA/ICAO

Not classified as a dangerous good under transport regulations

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### 15. Regulatory Information

#### Federal Regulations

##### Registration status:

Chemical TSCA, US released / listed

##### EPCRA 311/312 (Hazard categories):

Acute; Chronic

#### State regulations

##### State RTK

<u>State RTK</u>	<u>CAS Number</u>	<u>Chemical name</u>
NJ	1305-62-0	Calcium dihydroxide
	1317-65-3	Limestone
	13397-24-5	Gypsum (Ca(SO4).2H2O)
	14808-60-7	crystalline silica
	65997-15-1	Cement, portland, chemicals
PA	1305-62-0	Calcium dihydroxide
	1317-65-3	Limestone
	13397-24-5	Gypsum (Ca(SO4).2H2O)
	14808-60-7	crystalline silica
	65997-15-1	Cement, portland, chemicals

##### CA Prop. 65:

WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

##### NFPA Hazard codes:

Health : 3 Fire: 0 Reactivity: 0 Special:

### 16. Other Information

##### SDS Prepared by:

BASF NA Product Regulations  
SDS Prepared on: 2015/10/20

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING

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END OF DATA SHEET



## Safety Data Sheet California CARB Compliant

### 1 - Identification

<p><b>Product Name:</b> WD-40 Multi-Use Product Aerosol</p> <p><b>Product Use:</b> Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion</p> <p><b>Restrictions on Use:</b> None identified</p> <p><b>SDS Date Of Preparation:</b> March 5, 2019</p>	<p><b>Manufacturer:</b> WD-40 Company</p> <p><b>Address:</b> 9715 Businesspark Avenue San Diego, California, USA 92131</p> <p><b>Telephone:</b></p> <p><b>Emergency:</b> 1-888-324-7596</p> <p><b>Information:</b> 1-888-324-7596</p> <p><b>Chemical Spills:</b> 1-800-424-9300 (Chemtrec) 1-703-527-3887 (International Calls)</p>
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### 2 – Hazards Identification

**Hazcom 2012/GHS Classification:**

Flammable Aerosol Category 1

Gas Under Pressure: Compressed Gas

Aspiration Toxicity Category 1

Specific Target Organ Toxicity Single Exposure Category 3 (nervous system effects)

Note: This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission regulations which take precedence over OSHA Hazard Communication labeling. The actual container label will not include the label elements below. The labeling below applies to industrial/professional products.

**Label Elements:**



**DANGER!**

Extremely Flammable Aerosol.

Contains gas under pressure; may explode if heated.

May be fatal if swallowed and enters airways.

May cause drowsiness or dizziness.

**Prevention**

Keep away from heat, sparks, open flames, hot surfaces. – No smoking.

Do not spray on an open flame or other ignition source.

Pressurized container: Do not pierce or burn, even after use.

Avoid breathing vapors or mists.

Use only outdoors or in a well-ventilated area.

**Response**

IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

**Storage**

Store locked up.

Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place.

**Disposal**

Dispose of contents and container in accordance with local and national regulations.

### 3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	US Hazcom 2012/ GHS Classification
LVP Aliphatic Hydrocarbon	64742-47-8	45-50%	Aspiration Toxicity Category 1
Petroleum Base Oil	64742-56-9 64742-65-0 64742-53-6 64742-54-7 64742-71-8	<35%	Not Hazardous
Aliphatic Hydrocarbon	64742-47-8	<25%	Flammable Liquid Category 3 Aspiration Toxicity Category 1 Specific Target Organ Toxicity Single Exposure Category 3 (nervous system effects)
Carbon Dioxide	124-38-9	2-3%	Simple Asphyxiant Gas Under Pressure, Compressed Gas

Note: The specific chemical identity and exact percentages are a trade secret.

### 4 – First Aid Measures

**Ingestion (Swallowed):** Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.

**Eye Contact:** Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.

**Skin Contact:** Wash with soap and water. If irritation develops and persists, get medical attention.

**Inhalation (Breathing):** If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

**Signs and Symptoms of Exposure:** Harmful or fatal if swallowed. Aspiration of liquid into the lungs during swallowing or vomiting may cause lung damage. May cause eye and respiratory irritation. Inhalation of mists or vapors may cause drowsiness, dizziness and other nervous system effects. Skin contact may cause drying of the skin.

**Indication of Immediate Medical Attention/Special Treatment Needed:** Immediate medical attention is needed for ingestion.

### 5 – Fire Fighting Measures

**Suitable (and unsuitable) Extinguishing Media:** Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.

**Specific Hazards Arising from the Chemical:** Extremely flammable aerosol. Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Combustion will produce oxides of carbon and hydrocarbons.

**Special Protective Equipment and Precautions for Fire-Fighters:** Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

### 6 – Accidental Release Measures

**Personal Precautions, Protective Equipment and Emergency Procedures:** Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.

**Methods and Materials for Containment/Cleanup:** Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

## 7 – Handling and Storage

**Precautions for Safe Handling:** Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

**Conditions for Safe Storage:** Store in a cool, well-ventilated area, away from incompatible materials. Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol. Store away from oxidizers.

## 8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
LVP Aliphatic Hydrocarbon	1200 mg/m <sup>3</sup> TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m <sup>3</sup> TWA (Inhalable) ACGIH TLV (as Mineral oil) 5 mg/m <sup>3</sup> TWA OSHA PEL (as Oil mist, mineral)
Aliphatic Hydrocarbon	1200 mg/m <sup>3</sup> TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA, 30,000 ppm STEL ACGIH TLV 5000 ppm TWA OSHA PEL

### The Following Controls are Recommended for Normal Consumer Use of this Product

**Appropriate Engineering Controls:** Use in a well-ventilated area.

**Personal Protection:**

**Eye Protection:** Avoid eye contact. Always spray away from your face.

**Skin Protection:** Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

**Respiratory Protection:** None needed for normal use with adequate ventilation.

### For Bulk Processing or Workplace Use the Following Controls are Recommended

**Appropriate Engineering Controls:** Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

**Personal Protection:**

**Eye Protection:** Safety goggles recommended where eye contact is possible.

**Skin Protection:** Wear chemical resistant gloves.

**Respiratory Protection:** None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.

**Work/Hygiene Practices:** Wash with soap and water after handling.

## 9 – Physical and Chemical Properties

Appearance:	Light amber liquid	Flammable Limits: (Solvent Portion)	LEL: 0.6% UEL: 8%
Odor:	Mild petroleum odor	Vapor Pressure:	95-115 PSI @ 70°F
Odor Threshold:	Not established	Vapor Density:	Greater than 1 (air=1)
pH:	Not Applicable	Relative Density:	0.8 – 0.82 @ 60°F
Melting/Freezing Point:	Not established	Solubilities:	Insoluble in water
Boiling Point/Range:	361 - 369°F (183 - 187°C)	Partition Coefficient; n-octanol/water:	Not established
Flash Point:	138°F (59°C) Tag Closed Cup (liquid)	Autoignition Temperature:	Not established

Evaporation Rate:	Not established	Decomposition Temperature:	Not established
Flammability (solid, gas):	Flammable Aerosol	Viscosity:	2.79-2.96 cSt @ 100°F
VOC:	24.1% MIR=0.43gO3/gVOC	Pour Point:	-63°C (-81.4°F ) ASTM D-97

### 10 – Stability and Reactivity

**Reactivity:** Not reactive under normal conditions

**Chemical Stability:** Stable

**Possibility of Hazardous Reactions:** May react with strong oxidizers generating heat.

**Conditions to Avoid:** Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.

**Incompatible Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Carbon monoxide and carbon dioxide.

### 11 – Toxicological Information

**Symptoms of Overexposure:**

**Inhalation:** High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

**Skin Contact:** Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.

**Eye Contact:** Contact may be irritating to eyes. May cause redness and tearing.

**Ingestion:** This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.

**Chronic Effects:** None expected.

**Carcinogen Status:** None of the components are listed as a carcinogen or suspect carcinogen by IARC, NTP, ACGIH or OSHA.

**Reproductive Toxicity:** None of the components is considered a reproductive hazard.

**Numerical Measures of Toxicity:**

Acute Toxicity Estimates: Oral > 5,000 mg/kg; Dermal >2,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

### 12 – Ecological Information

**Ecotoxicity:** No specific aquatic toxicity data is currently available; however components of this product are not expected to be harmful to aquatic organisms

**Persistence and Degradability:** Components are readily biodegradable.

**Bioaccumulative Potential:** Bioaccumulation is not expected based on an assessment of the ingredients.

**Mobility in Soil:** No data available

**Other Adverse Effects:** None known

### 13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Do not puncture or incinerate containers, even empty. Dispose in accordance with federal, state, and local regulations.

#### 14 – Transportation Information

DOT Surface Shipping Description: UN1950, Aerosols, 2.1 Ltd. Qty  
(Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)  
IMDG Shipping Description: UN1950, Aerosols, 2.1, LTD QTY  
ICAO Shipping Description: UN1950, Aerosols, flammable, 2.1

NOTE: WD-40 Company does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

#### 15 – Regulatory Information

##### U.S. Federal Regulations:

**CERCLA 103 Reportable Quantity:** This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

##### SARA TITLE III:

**Hazard Category For Section 311/312:** Acute Health, Fire Hazard, Sudden Release of Pressure

**Section 313 Toxic Chemicals:** This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

**Section 302 Extremely Hazardous Substances (TPQ):** None

**EPA Toxic Substances Control Act (TSCA) Status:** All of the components of this product are listed on the TSCA inventory.

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):** This product does not require a California Proposition 65 warning.

**VOC Regulations:** This product complies with the consumer product VOC limits of CARB, the US EPA and states adopting the OTC VOC rules.

**Canadian Environmental Protection Act:** All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification

#### 16 – Other Information

##### HMIS Hazard Rating:

**Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Physical Hazard – 0 (minimal hazard)**

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