SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information
Product Name: Molyflo® Flotation Oil
Material: 1117265, 1113924, 1106088, 1096191, 1104322, 1016849, 1016848

Use: Mineral Processing Aide

Company: Chevron Phillips Chemical Company LP
Mining Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14158516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department: Product Safety and Toxicology Group
E-mail address: SDS@CPChem.com
Website: www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
GHS Classification and Labelling: Follow GB 13690, GB 15258 and GB 30000.2 to GB 30000.29 (GHS 2011)

Emergency Overview

Danger
Form: Liquid
Physical state: Liquid
Color: Amber
Odor: petroleum

Hazards: May be harmful if swallowed. Harmful if inhaled. Causes skin
## Classification

<table>
<thead>
<tr>
<th>Acute toxicity, Category 5, Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity, Category 4, Inhalation</td>
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<tr>
<td>Skin corrosion/irritation, Category 2</td>
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<tr>
<td>Carcinogenicity, Category 1B</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure, Category 2, Blood, Liver, thymus gland</td>
</tr>
<tr>
<td>Aspiration hazard, Category 1</td>
</tr>
<tr>
<td>Short-term (acute) aquatic hazard, Category 1</td>
</tr>
<tr>
<td>Long-term (chronic) aquatic hazard, Category 1</td>
</tr>
</tbody>
</table>

## Labeling

### Symbol(s)

![Symbol Diagram]

### Signal Word

Danger

### Hazard Statements

- H303: May be harmful if swallowed.
- H304: May be fatal if swallowed and enters airways.
- H315: Causes skin irritation.
- H332: Harmful if inhaled.
- H350: May cause cancer.
- H373: May cause damage to organs (Blood, Liver, thymus gland) through prolonged or repeated exposure.
- H410: Very toxic to aquatic life with long lasting effects.

## Precautionary Statements

### Prevention:

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe dust/fume/gas/mist/vapor/spray.
- P264: Wash skin thoroughly after handling.
- P271: Use only outdoors or in a well-ventilated area.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

### Response:

- P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
- P302+P352: IF ON SKIN: Wash with plenty of water.
- P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
- P312: Call a POISON CENTER/doctor if you feel unwell.
- P331: Do NOT induce vomiting.
- P332 + P313: If skin irritation occurs: Get medical advice/ attention.
- P362+P364: Take off contaminated clothing and wash it before reuse.
- P391: Collect spillage.
Molyflo® Flotation Oil

SECTION 3: Composition/information on ingredients

Synonyms: Flotation Oil, Light Cycle Oil, LCO
Molecular formula: UVCB

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. / EINECS-No.</th>
<th>Concentration [wt%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Cycle Oil</td>
<td>64741-59-9</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

General advice: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Symptoms of poisoning may appear several hours later. Do not leave the victim unattended.

If inhaled: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact: If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point: 82.2°C (180.0°F)
Method: closed cup
Autoignition temperature: No data available

Unsuitable extinguishing media: High volume water jet.

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Molyflo® Flotation Oil

SAFETY DATA SHEET

Specific hazards during fire fighting: Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Fire and explosion protection: Normal measures for preventive fire protection.

Hazardous decomposition products: Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation.

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling

Advice on safe handling: Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion: Normal measures for preventive fire protection.

Storage

Requirements for storage areas and containers: Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Use: Mineral Processing Aide
SECTION 8: Exposure controls/personal protection

Personal protective equipment

Respiratory protection: Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection: The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection: Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Flame retardant antistatic protective clothing. Safety shoes.

Hygiene measures: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form: Liquid
Physical state: Liquid
Color: Amber
Odor: petroleum

Safety data

Flash point: 82.2°C (180.0°F) Method: closed cup
Lower explosion limit: 1 %(V)
Upper explosion limit: 6 %(V)
Oxidizing properties: no
## Molyflo® Flotation Oil

### Version 1.2

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
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<td>Autoignition temperature</td>
<td>No data available</td>
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<tr>
<td>Molecular formula</td>
<td>UVCB</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Pour point</td>
<td>-38°C (-36°F) Method: ASTM D5972</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>148.89°C (300.00°F)</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.13 kPa</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.93</td>
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<tr>
<td>Water solubility</td>
<td>Negligible</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Viscosity, kinematic</td>
<td>2.5 cSt at 40°C (104°F)</td>
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<tr>
<td>Relative vapor density</td>
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</tr>
<tr>
<td>Evaporation rate</td>
<td>1</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>1 %</td>
</tr>
</tbody>
</table>

### SECTION 10: Stability and reactivity

#### Chemical stability
- This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

#### Possibility of hazardous reactions

**Hazardous reactions**
- Hazardous reactions: Hazardous polymerization does not occur.
  - Further information: No decomposition if stored and applied as directed.

**Conditions to avoid**
- No data available.

**Materials to avoid**
- May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Hazardous decomposition products**
- Hydrocarbons
- Carbon oxides
Other data: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity
Light Cycle Oil: LD$_{50}$: 3,200 - 4,660 mg/kg
Species: Rat
Sex: male and female

Acute inhalation toxicity
Light Cycle Oil: LC$_{50}$: 4.65 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity
Light Cycle Oil: LD$_{50}$: > 2,000 mg/kg
Species: Rabbit
Sex: male and female

Skin irritation
Light Cycle Oil: Skin irritation

Eye irritation
Light Cycle Oil: No eye irritation

Sensitization
Light Cycle Oil: Did not cause sensitization on laboratory animals.

Repeated dose toxicity
Light Cycle Oil: Species: Rat, males
Sex: males
Application Route: Dermal
Dose: 0, 8, 25, 125, 500, 1250 mg/kg
Exposure time: 90 day
Number of exposures: 5 days/wk
NOEL: 25 mg/kg
Target Organs: Blood, Liver, Thymus
<table>
<thead>
<tr>
<th><strong>Molyflo® Flotation Oil</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong> Rat, females</td>
</tr>
<tr>
<td><strong>Sex:</strong> females</td>
</tr>
<tr>
<td><strong>Application Route:</strong> Dermal</td>
</tr>
<tr>
<td><strong>Dose:</strong> 0, 8, 25, 125, 500, 1250 mg/kg</td>
</tr>
<tr>
<td><strong>Exposure time:</strong> 90 day</td>
</tr>
<tr>
<td><strong>Number of exposures:</strong> 5 days/wk</td>
</tr>
<tr>
<td><strong>NOEL:</strong> 125 mg/kg</td>
</tr>
<tr>
<td><strong>Target Organs:</strong> Blood, Liver, Thymus</td>
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</tbody>
</table>

### Genotoxicity in vitro

**Light Cycle Oil**
- **Test Type:** Modified Ames test
  - **Result:** positive
- **Test Type:** Mouse lymphoma assay
  - **Result:** positive
- **Test Type:** Sister Chromatid Exchange Assay
  - **Result:** negative

### Genotoxicity in vivo

**Light Cycle Oil**
- **Test Type:** Cytogenetic assay
  - **Result:** negative

### Developmental Toxicity

**Light Cycle Oil**
- **Species:** Rat
- **Application Route:** Dermal
- **Dose:** 1, 50, 250 mg/kg/d
- **Number of exposures:** once daily
- **Test period:** GD 0-19
- **Method:** OECD Guideline 414
- **NOAEL Teratogenicity:** 1 mg/kg
- **NOAEL Maternal:** 1 mg/kg

**Molyflo® Flotation Oil**
- **Aspiration toxicity:** May be fatal if swallowed and enters airways.

**CMR effects**
- **Carcinogenicity:** Possible human carcinogen

**Molyflo® Flotation Oil**
- **Further information:** Solvents may degrease the skin.

### SECTION 12: Ecological information

**Toxicity to fish**
- **Light Cycle Oil**
  - **LL50:** > 0.3 mg/l
  - **Exposure time:** 96 h
  - **Species:** Oncorhynchus mykiss (rainbow trout)
  - **semi-static test Method:** OECD Test Guideline 203

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Toxicity to daphnia and other aquatic invertebrates

Light Cycle Oil
EL50: 0.32 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Immobilization Method: OECD Test Guideline 202

Toxicity to algae

Light Cycle Oil
EL50: 0.51 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition Method: OECD Test Guideline 201

M-Factor
Distillates (petroleum), light catalytic cracked
M-Factor (Acute Aquat. Tox.) 1
M-Factor (Chron. Aquat. Tox.) 1

Biodegradability

Light Cycle Oil
aerobic
56.32 %
Testing period: 28 d
Method: OECD Test Guideline 301F
Expected to be inherently biodegradable.

Results of PBT assessment
Light Cycle Oil
Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information
Ecotoxicology Assessment

Short-term (acute) aquatic hazard
Light Cycle Oil
Very toxic to aquatic life.

Long-term (chronic) aquatic hazard
Light Cycle Oil
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

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 US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.
**Molyflo® Flotation Oil**

**Version 1.2**  
**Revision Date 2019-12-18**

<table>
<thead>
<tr>
<th>Product</th>
<th>: Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contaminated packaging</td>
<td>: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.</td>
</tr>
</tbody>
</table>

**SECTION 14: Transport information**

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

UN1268, PETROLEUM DISTILLATES, N.O.S., COMBUSTIBLE LIQUID, III

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL), 9, III, (82.2°C), MARINE POLLUTANT, (LIGHT CYCLE OIL)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN3334, AVIATION REGULATED LIQUID, N.O.S., (LIGHT CYCLE OIL), 9, III

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL), 9, III

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL), 9, III

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL), 9, III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
SECTION 15: Regulatory information

Notification status
- **Europe** REACH: This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
- **Switzerland** CH INV: On the inventory, or in compliance with the inventory
- **United States of America (USA)** TSCA: On or in compliance with the active portion of the TSCA inventory
- **Canada** DSL: All components of this product are on the Canadian DSL
- **Australia** AICS: On the inventory, or in compliance with the inventory
- **New Zealand** NZIoC: Not in compliance with the inventory
- **Japan** ENCS: On the inventory, or in compliance with the inventory
- **Korea** KECI: A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.
- **Philippines** PICCS: On the inventory, or in compliance with the inventory
- **China** IECSC: On the inventory, or in compliance with the inventory
- **Taiwan** TCSI: On the inventory, or in compliance with the inventory


SECTION 16: Other information

Further information
- Legacy SDS Number: 59560

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

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.

<table>
<thead>
<tr>
<th>Key or legend to abbreviations and acronyms used in the safety data sheet</th>
<th>ACGIH</th>
<th>American Conference of Government Industrial Hygienists</th>
<th>LD50</th>
<th>Lethal Dose 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC50</td>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
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<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
<td></td>
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<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic</td>
<td>NIOSH</td>
<td>National Institute for Occupational</td>
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</table>

SDS Number:100000013412 11/12
<table>
<thead>
<tr>
<th>Substances List</th>
<th>Safety &amp; Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
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<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
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<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
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<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
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<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
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<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
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</table>

<table>
<thead>
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<th>Substances List</th>
<th>Safety &amp; Health</th>
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</thead>
<tbody>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
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<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
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<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
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<td>NOEC</td>
<td>No Observed Effect Concentration</td>
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<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
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<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<tr>
<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
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<td>PRNT</td>
<td>Presumed Not Toxic</td>
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<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
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<td>STEL</td>
<td>Short-term Exposure Limit</td>
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<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act.</td>
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<tr>
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<td>Threshold Limit Value</td>
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<td>Time Weighted Average</td>
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<td>Toxic Substance Control Act</td>
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<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
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<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
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Revision Date 2019-12-18