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

Product information
Product Name: Orfom® D8 Depressant
Material: 1119972, 1119971, 1116157, 1108014, 1106095, 1106087, 1095798, 1016855, 1016856

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 (+61.2 9186.1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (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
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification: Flammable liquids, Category 4
Corrosive to Metals, Category 1
Skin corrosion, Category 1
Serious eye damage, Category 1

Labeling

SDS Number: 100000013321
SAFETY DATA SHEET

Orfom® D8 Depressant

Version 2.9

Revision Date 2017-09-06

Symbol(s) : 

Signal Word : Danger

Hazard Statements : H227: Combustible liquid.
H290: May be corrosive to metals.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.

Precautionary Statements : Prevention:
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
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.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P390 Absorb spillage to prevent material damage.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:

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.

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.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium Carboxymethyltrithiocarbonate</td>
<td>86932-91-4</td>
<td>35 - 45</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>5</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

General advice: Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled: Move to fresh air. If symptoms persist, call a physician.

In case of skin contact: Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point: > 93 °C (> 199 °F)

Autoignition temperature: > 400 °C (> 752 °F)

Suitable extinguishing media: Carbon dioxide (CO2).

Unsuitable extinguishing media: High volume water jet.

Specific hazards during firefighting: 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...

SDS Number: 100000013321

3/12
**SAFETY DATA SHEET**

**Orfom® D8 Depressant**

Version 2.9  
Revision Date 2017-09-06

<table>
<thead>
<tr>
<th>Personal precautions</th>
<th>Use personal protective equipment. Ensure adequate ventilation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental precautions</td>
<td>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.</td>
</tr>
<tr>
<td>Methods for cleaning up</td>
<td>Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.</td>
</tr>
<tr>
<td>Additional advice</td>
<td>No conditions to be specially mentioned.</td>
</tr>
</tbody>
</table>

**SECTION 6: Accidental release measures**

**Fire and explosion protection**  
Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

**Hazardous decomposition products**  
Carbon oxides. Sulfur oxides.

**SECTION 7: Handling and storage**

**Handling**

**Advice on safe handling**  
Avoid formation of aerosol. 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. Provide sufficient air exchange and/or exhaust in work rooms. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.

**Advice on protection against fire and explosion**  
Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

**Storage**

**Requirements for storage areas and containers**  
No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Basis</th>
<th>Value</th>
<th>Control parameters</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>ACGIH</td>
<td>C</td>
<td>2 mg/m³</td>
<td>URT irrit, eye irrit, skin irrit</td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1-A</td>
<td>C</td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Immediately Dangerous to Life or Health Concentrations (IDLH)

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>Immediately Dangerous to Life or Health Concentration Value 10 mg/m³</td>
<td>1995-03-01</td>
</tr>
</tbody>
</table>

Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. 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.

Personal protective equipment

Respiratory protection: 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: 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. Air-Purifying Respirator for Dusts and Mists / P100. 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. Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Complete head face and neck protection. Flame-resistant clothing. Rubber apron. Footwear protecting against chemicals.
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: clear, orange-red
- Odor: Mild

**Safety data**
- Flash point: > 93 °C (> 199 °F)
- Lower explosion limit: No data available
- Upper explosion limit: No data available
- Autoignition temperature: > 400 °C (> 752 °F)
- Molecular formula: Mixture
- Molecular weight: Not applicable
- pH: 12.52
- Boiling point/boiling range: 106.4 °C (223.5 °F)
- Vapor pressure: 1.3106
- Relative density: 1.3106 at 16 °C (61 °F)
- Density: 1.3478 g/cm³ at 16 °C (60 °F)
- Water solubility: 260,000 MG/L
- Partition coefficient: n-octanol/water: Pow: 398 log Pow: 2.6
- Viscosity, kinematic: 5.44 cSt at 21.1 °C (70.0 °F)
- Relative vapor density: 1 (Air = 1.0)
- Evaporation rate: 1
- Percent volatile: 60 %

**Other information**
- Oxidizing potential: Note: The substance or mixture is not classified as oxidizing.
### 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**

**Conditions to avoid**: Heat, flames and sparks.

**Materials to avoid**: Corrosive to copper and copper bearing alloys. Incompatible with strong acids and oxidizing agents.

**Hazardous decomposition products**: Carbon oxides, Sulfur oxides

**Other data**: No decomposition if stored and applied as directed.

### SECTION 11: Toxicological information

**Orfom® D8 Depressant Acute oral toxicity**: No data available

**Orfom® D8 Depressant Acute inhalation toxicity**: No data available

**Orfom® D8 Depressant Acute dermal toxicity**: No data available

**Orfom® D8 Depressant Skin irritation**: Extremely corrosive and destructive to tissue.

**Orfom® D8 Depressant Eye irritation**: May cause irreversible eye damage.

**Orfom® D8 Depressant Sensitization**: No data available.

**Orfom® D8 Depressant Repeated dose toxicity**: This information is not available.

**Orfom® D8 Depressant Reproductive toxicity**: This information is not available.

**Orfom® D8 Depressant Developmental Toxicity**: This information is not available.

**Orfom® D8 Depressant Aspiration toxicity**: May be harmful if swallowed and enters airways.
### SECTION 12: Ecological information

**Ecotoxicity effects**

**Toxicity to fish**  
- **LC50:** 64.69 mg/l  
- **Exposure time:** 96 h  
- **Species:** Danio rerio (Zebra Fish)  
- **Method:** semi-static test  
- **OECD Test Guideline:** 203

**Toxicity to daphnia and other aquatic invertebrates**  
- **EC50:** 35.46 mg/l  
- **Exposure time:** 48 h  
- **Species:** Daphnia magna (Water flea)  
- **Method:** semi-static test  
- **OECD Test Guideline:** 202

**Elimination information (persistence and degradability)**

- **Mobility:** No data available

- **Biodegradability:** No data available

**Ecotoxicology Assessment**

- **Additional ecological information:** No data available

### 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.

**Product**

- 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.

**Contaminated packaging**

- Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

### 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)
UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (DISODIUM CARBOXYMETHYLTRITHIOCARBONATE, SODIUM HYDROXIDE), 8, II, RQ (SODIUM HYDROXIDE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (DISODIUM CARBOXYMETHYLTRITHIOCARBONATE, SODIUM HYDROXIDE), 8, II, (> 93 °C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (DISODIUM CARBOXYMETHYLTRITHIOCARBONATE, SODIUM HYDROXIDE), 8, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (DISODIUM CARBOXYMETHYLTRITHIOCARBONATE, SODIUM HYDROXIDE), 8, II, (E)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (DISODIUM CARBOXYMETHYLTRITHIOCARBONATE, SODIUM HYDROXIDE), 8, II

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (DISODIUM CARBOXYMETHYLTRITHIOCARBONATE, SODIUM HYDROXIDE), 8, II

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

CERCLA Reportable Quantity : Calculated RQ exceeds reasonably attainable upper limit.
Sodium Hydroxide

SARA 302 Reportable : This material does not contain any components with a SARA
### Quantity

| Orfom® D8 Depressant | 302 RQ. |

### SARA 302 Threshold Planning Quantity

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.</td>
<td></td>
</tr>
</tbody>
</table>

### SARA 304 Reportable Quantity

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>This material does not contain any components with a section 304 EHS RQ.</td>
<td></td>
</tr>
</tbody>
</table>

### SARA 313 Ingredients

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

### Clean Air Act

#### Ozone-Depletion Potential

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).</td>
<td></td>
</tr>
</tbody>
</table>

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC’s (40 CFR 60.489).

### US State Regulations

#### Pennsylvania Right To Know

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide - 1310-73-2</td>
<td></td>
</tr>
</tbody>
</table>

#### New Jersey Right To Know

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide - 1310-73-2</td>
<td></td>
</tr>
</tbody>
</table>

#### California Prop. 65 Ingredients

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.</td>
<td></td>
</tr>
</tbody>
</table>

#### Notification status

<table>
<thead>
<tr>
<th>Europe REACH</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the inventory, or in compliance with the inventory</td>
<td></td>
</tr>
</tbody>
</table>
Orfom® D8 Depressant

SECTION 16: Other information

| NFPA Classification | : | Health Hazard: 3  
| | | Fire Hazard: 2  
| | | Reactivity Hazard: 0  

**Further information**

**Legacy SDS Number**

59700

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.

<p>| Key or legend to abbreviations and acronyms used in the safety data sheet |
|---|---|---|
| ACGIH | American Conference of Government Industrial Hygienists | LD50 | Lethal Dose 50% |
| AICS | Australia, Inventory of Chemical Substances | LOAEL | Lowest Observed Adverse Effect Level |
| DSL | Canada, Domestic Substances List | NFPA | National Fire Protection Agency |
| NDSL | Canada, Non-Domestic Substances List | NIOSH | National Institute for Occupational Safety &amp; Health |
| CNS | Central Nervous System | NTP | National Toxicology Program |
| CAS | Chemical Abstract Service | NZIoC | New Zealand Inventory of Chemicals |
| EC50 | Effective Concentration | NOAEL | No Observable Adverse Effect Level |
| EC50 | Effective Concentration 50% | NOEC | No Observed Effect Concentration |
| EGEST | EOSCA Generic Exposure Scenario Tool | OSHA | Occupational Safety &amp; Health Administration |
| EOSCA | European Oilfield Specialty Chemicals Association | PEL | Permissible Exposure Limit |
| EINECS | European Inventory of Existing Chemical Substances | PICCS | Philippines Inventory of Commercial Chemical Substances |
| MAK | Germany Maximum Concentration | PRNT | Presumed Not Toxic |</p>
<table>
<thead>
<tr>
<th>Values</th>
<th>GHS</th>
<th>IC50</th>
<th>IARC</th>
<th>IECSC</th>
<th>ENCS</th>
<th>KECI</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Globally Harmonized System</td>
<td>Inhibition Concentration 50%</td>
<td>International Agency for Research on Cancer</td>
<td>Inventory of Existing Chemical Substances in China</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
<td>Korea, Existing Chemical Inventory</td>
<td>Lethal Concentration 50%</td>
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<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
<td>STEL</td>
<td>TLV</td>
<td>TWA</td>
<td>TSCA</td>
<td>UVCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short-term Exposure Limit</td>
<td>Threshold Limit Value</td>
<td>Time Weighted Average</td>
<td>Toxic Substance Control Act</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>