SAFETY DATA SHEET

Liquid Flowzan® Biopolymer XPT


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

1.1 Product information

Product Name: Liquid Flowzan® Biopolymer XPT
Material: 1095838, 1101333, 1091030

EC- No. Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index No.</th>
<th>Legal Entity Registration number</th>
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<tbody>
<tr>
<td>Isoprene</td>
<td>78-79-5</td>
<td>201-143-3</td>
<td>601-014-00-5</td>
<td>Chevron Phillips Chemicals International NV 01-2119457891-29-0009</td>
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<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>202-851-5</td>
<td>601-026-00-0</td>
<td>Chevron Phillips Chemicals International NV 01-2119457861-32-0005</td>
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<tr>
<td>Hydrocarbons, C11- C14, n-alkanes, isoalkanes, cyclic, &lt;2% aromatics</td>
<td></td>
<td></td>
<td></td>
<td>Chevron Phillips Chemicals International NV 01-2119456620-43-0010</td>
</tr>
</tbody>
</table>

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant Identified Uses Supported: Use in Oil and Gas field drilling and production operations - Industrial

1.3 Details of the supplier of the safety data sheet

Company: Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
10001 Six Pines Drive
The Woodlands, TX 77380

Local: Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vinci Lane 19
1831 Diegem
Belgium

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SDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:sds@cpchem.com

1.4   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 +32.14583516 (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

2.1   Classification of the substance or mixture

   REGULATION (EC) No 1272/2008

   Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

2.2   Labeling (REGULATION (EC) No 1272/2008)

   Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

   Additional Labeling:
   EUH210 Safety data sheet available on request.

SECTION 3: Composition/information on ingredients

3.1 - 3.2   Substance or Mixture

   Synonyms : Drilling Mud Additive

   Molecular formula : Mixture

   Contains no hazardous ingredients according to GHS.

   Remarks : Contains no hazardous ingredients according to GHS.
SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice: No hazards which require special first aid measures.

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: Immediately flush eye(s) with plenty of water. 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: 77 °C (171 °F)
Method: ASTM D 93

Autoignition temperature: 225 °C (437 °F)

5.1 Extinguishing media

Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Standard procedure for chemical fires.

5.3 Advice for firefighters

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

Further information: For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

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.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up: 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.

6.4 Reference to other sections

Reference to other sections: For personal protection see section 8. For disposal considerations see section 13.

A quantitative risk assessment is not required for the environment.
A quantitative risk assessment is not required for human health.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling

Advice on safe handling: Avoid formation of aerosol. 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. 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.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Requirements for storage areas and containers: No smoking. 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.
SECTION 8: Exposure controls/personal protection

8.2 Exposure controls
Engineering measures

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. 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 according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Safety shoes. Protective suit.

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

A quantitative risk assessment is not required for the environment.
A quantitative risk assessment is not required for human health.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Light brown</td>
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<tr>
<td>Odor</td>
<td>Slight</td>
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**Safety data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Flash point</td>
<td>77 °C (171 °F)</td>
</tr>
<tr>
<td>Method</td>
<td>ASTM D 93</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>0.6 % (V)</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>5.1 % (V)</td>
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<tr>
<td>Oxidizing properties</td>
<td>no</td>
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<tr>
<td>Autoignition temperature</td>
<td>225 °C (437 °F)</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>Mixture</td>
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<tr>
<td>Molecular weight</td>
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<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Pour point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>217.8 - 237.8 °C (424.0 - 460.0 °F)</td>
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<tr>
<td>Vapor pressure</td>
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<tr>
<td>Relative density</td>
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<tr>
<td>Water solubility</td>
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<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Viscosity, kinematic</td>
<td>79983 mm²/s</td>
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<tr>
<td>Relative vapor density</td>
<td>No data available</td>
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<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

10.1

**Reactivity**

Stable at normal ambient temperature and pressure.

10.2

**Chemical stability**

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

10.3

**Possibility of hazardous reactions**
**Hazardous reactions**: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

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

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

10.6 **Hazardous decomposition products**: Carbon oxides

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

**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Liquid Flowzan® Biopolymer XPT**

**Aspiration toxicity**: No aspiration toxicity classification.

**Liquid Flowzan® Biopolymer XPT**

**Further information**: Solvents may degrease the skin.

**SECTION 12: Ecological information**

12.1 **Toxicity**

12.2 **Persistence and degradability**

**Biodegradability**: Expected to be biodegradable

12.3 **Bioaccumulative potential**

**Elimination information (persistence and degradability)**

12.4 **Mobility in soil**

12.5 **Results of PBT and vPvB assessment**

12.6 **Other adverse effects**

**Additional ecological information**: This material is not expected to be harmful to aquatic organisms.

**Ecotoxicology Assessment**
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Short-term (acute) aquatic hazard : This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard : This material is not expected to be harmful to aquatic organisms.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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.

A quantitative risk assessment is not required for the environment.
A quantitative risk assessment is not required for human health.

SECTION 14: Transport information

14.1 - 14.7 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)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Testing (ASTM D4206) has shown product does not sustain combustion.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR
TRANSPORTATION BY THIS AGENCY.

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
**National legislation**

**Water contaminating class**
(Germany) : WGK 1 slightly water endangering

#### 15.2 Major Accident Hazard Legislation
: 96/82/EC Update: 2003
**Directive 96/82/EC does not apply**

### Other Registrations
**Regulation**

<table>
<thead>
<tr>
<th>Country</th>
<th>Registration number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danish PR number</td>
<td>1182417</td>
</tr>
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</table>

### Notification status
**Europe REACH**
: This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).

**Switzerland CH INV**
: Not in compliance with the inventory

**United States of America (USA)**
: Not On TSCA Inventory

**TSCA**

**Canada DSL**
: This product contains one or several components that
Liquid Flowzan® Biopolymer XPT

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Australia AICS : Not in compliance with the inventory
New Zealand NZIoC : Not in compliance with the inventory
Japan ENCS : Not 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 : Not in compliance with the inventory
China IECSC : Not in compliance with the inventory
Taiwan TCSI : Not in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 1
Fire Hazard: 1
Reactivity Hazard: 0

Further information

Legacy SDS Number : E303

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>Abbreviation</th>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACGIH</td>
<td></td>
<td>American Conference of Government Industrial Hygienists</td>
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<tr>
<td>AICS</td>
<td></td>
<td>Australia, Inventory of Chemical Substances</td>
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<tr>
<td>DSL</td>
<td></td>
<td>Canada, Domestic Substances List</td>
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<tr>
<td>NDSL</td>
<td></td>
<td>Canada, Non-Domestic Substances List</td>
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<tr>
<td>CNS</td>
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<td>Central Nervous System</td>
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<tr>
<td>CAS</td>
<td></td>
<td>Chemical Abstract Service</td>
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<tr>
<td>EC50</td>
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<td>Effective Concentration</td>
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<tr>
<td>EC50</td>
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<td>Effective Concentration 50%</td>
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<tr>
<td>EGEST</td>
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<td>EOSCA Generic Exposure Scenario Tool</td>
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<td>LD50</td>
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<td>Lethal Dose 50%</td>
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<td>LOAEL</td>
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<td>Lowest Observed Adverse Effect Level</td>
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<td>NFPA</td>
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<td>National Fire Protection Agency</td>
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<tr>
<td>NIOSH</td>
<td></td>
<td>National Institute for Occupational Safety &amp; Health</td>
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<tr>
<td>NTP</td>
<td></td>
<td>National Toxicology Program</td>
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<tr>
<td>NZIoC</td>
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<td>New Zealand Inventory of Chemicals</td>
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<td>NOAEL</td>
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<td>NOEC</td>
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<td>No Observed Effect Level</td>
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<tr>
<td>OSHA</td>
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<td>Occupational Safety &amp; Health Administration</td>
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SDS Number:100000013524
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
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<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
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<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
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<td>GHS</td>
<td>Globally Harmonized System</td>
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<td>IC50</td>
<td>Inhibition Concentration 50%</td>
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<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
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<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
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<td>Korea, Existing Chemical Inventory</td>
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<td>Permissible Exposure Limit</td>
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<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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<tr>
<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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<td>SARA</td>
<td>Supercfund 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>TSCA</td>
<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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