SAFETY DATA SHEET

DEHA (N,N-Diethylhydroxylamine), 85%

Version 1.9 Revision Date 2017-07-12

according to GB/T 16483 and GB/T 17519

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

Product information

Product Name : DEHA (N,N-Diethylhydroxylamine), 85%
Material : 1025310, 1067076, 1034532, 1031290, 1017929, 1034283, 1024842, 1031122

Use : Oxygen Scavenger

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

Local : Chevron Phillips Chemicals (Shanghai) Corporation
Room 1810-1812, Shanghai Mart,
2299 Yan An Road (W),
Shanghai, PRC 200336
local emergency contact number : 0532-83889090

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

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

SDS Number:100000014144
# Emergency Overview

## Warning

**Form:** Liquid  
**Physical state:** Liquid  
**Color:** Colorless to light yellow  
**Odor:** Slight amine  
**Hazard Statements:** Flammable liquid and vapor. Harmful if inhaled. Harmful in contact with skin. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

## Classification

- Flammable liquids, Category 3  
- Acute toxicity, Category 4, Inhalation  
- Acute toxicity, Category 4, Dermal  
- Acute aquatic toxicity, Category 2  
- Chronic aquatic toxicity, Category 2

## Labeling

**Symbol(s):**  
- Flammable  
- Harmful in contact with skin or if inhaled  
- Toxic to aquatic life with long lasting effects.

**Signal Word:** Warning

**Hazard Statements:**  
- H226: Flammable liquid and vapor.  
- H312 + H332: Harmful in contact with skin or if inhaled.  
- H411: Toxic to aquatic life with long lasting effects.

**Precautionary Statements:**  
- **Prevention:**  
  - P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
  - P233: Keep container tightly closed.  
  - P240: Ground/bond container and receiving equipment.  
  - P241: Use explosion-proof electrical/ventilating/lighting/equipment.  
  - P242: Use only non-sparking tools.  
  - P243: Take precautionary measures against static discharge.  
  - P261: Avoid breathing dust/fume/gas/mist/vapors/spray.  
  - P264: Wash skin thoroughly after handling.  
  - P271: Use only outdoors or in a well-ventilated area.  
  - P280: Wear protective gloves/eye protection/face protection.

- **Response:**  
  - P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
  - P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
  - P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
  - P312: Call a POISON CENTER/doctor if you feel unwell.  
  - P321: Specific treatment (see supplemental first aid instructions on this label).  
  - 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.
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DEHA (N,N-Diethylhydroxylamine), 85%

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P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 + P235: Store in a well-ventilated place. Keep cool.
P405: Store locked up.

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

SECTION 3: Composition/information on ingredients

Synonyms: Ethanamine, N-Ethyl-N-Hydroxy- (85%)

Molecular formula: (C2H5)2-N-OH

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. / EINECS-No.</th>
<th>Concentration [wt%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylhydroxylamine</td>
<td>3710-84-7</td>
<td>85</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. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

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

In case of skin contact: 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: 45 °C (113 °F)

Autoignition temperature: No data available

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media: High volume water jet.
### DEHA (N,N-Diethylhydroxylamine), 85%

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<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific hazards during fire fighting</td>
<td>Do not allow run-off from fire fighting to enter drains or water courses.</td>
</tr>
<tr>
<td>Special protective equipment for fire-fighters</td>
<td>Wear self-contained breathing apparatus for firefighting if necessary.</td>
</tr>
<tr>
<td>Further information</td>
<td>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. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.</td>
</tr>
<tr>
<td>Fire and explosion protection</td>
<td>Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Diethyamine. Carbon oxides.</td>
</tr>
</tbody>
</table>

### SECTION 6: Accidental release measures

| Personal precautions | Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. |
| 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 | Neutralize with acid. 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). |

### 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. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. 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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). |

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**DEHA (N,N-Diethylhydroxylamine), 85%**

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### 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

**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**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory protection</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Hand protection</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Eye protection</strong></td>
<td>Eye wash bottle with pure water. Tightly fitting safety goggles.</td>
</tr>
<tr>
<td><strong>Skin and body protection</strong></td>
<td>Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Footwear protecting against chemicals.</td>
</tr>
<tr>
<td><strong>Hygiene measures</strong></td>
<td>When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.</td>
</tr>
</tbody>
</table>
# DEHA (N,N-Diethylhydroxylamine), 85%

## VERSION 1.9

**Revision Date 2017-07-12**

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

**Appearance**

- **Form**: Liquid
- **Physical state**: Liquid
- **Color**: Colorless to light yellow
- **Odor**: Slight amine

### Safety data

- **Flash point**: 45 °C (113 °F)
- **Lower explosion limit**: 1.7 %(V)
- **Upper explosion limit**: 11.2 %(V)
- **Oxidizing properties**: no
- **Autoignition temperature**: No data available
- **Molecular formula**: \((\text{C}_2\text{H}_5)_2\text{-N-OH}\)
- **Molecular weight**: 89.14 g/mol
- **pH**: 10.2
- **Freezing point**: No data available
- **Pour point**: No data available
- **Boiling point/boiling range**: 95 - 132 °C (203 - 270 °F)
- **Vapor pressure**: 32.25 MMHG at 25 °C (77 °F)
- **Relative density**: 0.89 at 20 °C (68 °F)
- **Density**: 0.9 G/ML
- **Water solubility**: Soluble
- **Partition coefficient: n-octanol/water**: No data available
- **Viscosity, kinematic**: No data available
- **Relative vapor density**: No data available
- **Evaporation rate**: No data available

## SECTION 10: Stability and reactivity
DEHA (N,N-Diethylhydroxylamine), 85%

**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**: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
- **Hazardous decomposition products**: Diethylamine, Carbon oxides.
- **Other data**: No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information**

**Acute oral toxicity**
Diethylhydroxylamine : LD50: 2,190 mg/kg  
Species: Rat  
Sex: male

**Acute inhalation toxicity**
Diethylhydroxylamine : LC50: 11.4 mg/l  
Exposure time: 4 h  
Species: Rat  
Sex: male and female  
Test atmosphere: vapor

**Acute dermal toxicity**
Diethylhydroxylamine : LD50: 1,300 mg/kg  
Species: Rabbit

**Skin irritation**
Diethylhydroxylamine : No skin irritation

**Eye irritation**
Diethylhydroxylamine : slight irritation.

**Sensitization**
Diethylhydroxylamine : Did not cause sensitization on laboratory animals.

**Repeated dose toxicity**
Diethylhydroxylamine : Species: Rat, male and female  
Sex: male and female  
Application Route: Inhalation  
Dose: 15, 150, 1506 ppm
**DEHA (N,N-Diethylhydroxylamine), 85%**

**SECTION 12: Ecological information**

**Toxicity to fish**
- **Diethylhydroxylamine**: LC50: > 134 mg/l
  - Exposure time: 96 h
  - Species: Pimephales promelas (fathead minnow)
  - static test Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates**
- **Diethylhydroxylamine**: EC50: 8.2 mg/l
  - Exposure time: 48 h
  - Species: Daphnia magna (Water flea)
  - static test Method: OECD Test Guideline 202

**Toxicity to algae**
- **Diethylhydroxylamine**: ErC50: > 101 mg/l
  - Exposure time: 72 h
  - Species: Pseudokirchneriella subcapitata (green algae)
  - Growth inhibition Method: OECD Test Guideline 201
## Biodegradability

| Diethylhydroxylamine | Result: Not readily biodegradable. 11% | Testing period: 28 d  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Method: OECD Test Guideline 301</td>
</tr>
</tbody>
</table>

## Ecotoxicology Assessment

### Acute aquatic toxicity

| Diethylhydroxylamine | Toxic to aquatic life.                  |

### Chronic aquatic toxicity

| Diethylhydroxylamine | Toxic to aquatic life with long lasting effects. |

### Results of PBT assessment

| Diethylhydroxylamine | Non-classified PBT substance, Non-classified vPvB substance |

### Additional ecological information

|                      | Toxic to aquatic life with long lasting effects.          |

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## 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

| The product should not be allowed to enter drains, water courses or the soil. 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. |

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## 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.
**SAFETY DATA SHEET**

**DEHA (N,N-Diethylhydroxylamine), 85%**

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UN1993, FLAMMABLE LIQUIDS, N.O.S., (DIETHYLHYDROXYLAMINE), 3, III

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**
UN1993, FLAMMABLE LIQUID, N.O.S., (DIETHYLHYDROXYLAMINE), 3, III, (45 °C), MARINE POLLUTANT, (DIETHYLHYDROXYLAMINE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**
UN1993, FLAMMABLE LIQUID, N.O.S., (DIETHYLHYDROXYLAMINE), 3, III

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**
UN1993, FLAMMABLE LIQUID, N.O.S., (DIETHYLHYDROXYLAMINE), 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS, (DIETHYLHYDROXYLAMINE)

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**
UN1993, FLAMMABLE LIQUID, N.O.S., (DIETHYLHYDROXYLAMINE), 3, III, ENVIRONMENTALLY HAZARDOUS, (DIETHYLHYDROXYLAMINE)

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**
UN1993, FLAMMABLE LIQUID, N.O.S., (DIETHYLHYDROXYLAMINE), 3, III, ENVIRONMENTALLY HAZARDOUS, (DIETHYLHYDROXYLAMINE)

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

### SECTION 15: Regulatory information

<table>
<thead>
<tr>
<th>Classification and Labeling of Commonly Used Dangerous Chemical Substances</th>
<th>Primary label: Combustible Liquid.</th>
</tr>
</thead>
</table>

**Notification status**

<table>
<thead>
<tr>
<th>Europe REACH</th>
<th>United States of America (USA) TSCA</th>
<th>Canada DSL</th>
<th>Australia AICS</th>
<th>New Zealand NZIoC</th>
<th>Japan ENCS</th>
<th>Korea KECI</th>
<th>Philippines PICCS</th>
<th>China IECSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the inventory, or in compliance with the inventory</td>
<td>On the inventory, or in compliance with the inventory</td>
<td>On the inventory, or in compliance with the inventory</td>
<td>On the inventory, or in compliance with the inventory</td>
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<td>On the inventory, or in compliance with the inventory</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
</tbody>
</table>
Further information

Legacy SDS Number: E020

Local emergency contact number: 0532-83889090

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.

### Key or legend to abbreviations and acronyms used in the safety data sheet

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<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>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>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
</tr>
<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
</tr>
<tr>
<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
</tr>
<tr>
<td>NOEC</td>
<td>No Observed Effect Concentration</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
</tr>
<tr>
<td>PRNT</td>
<td>Presumed Not Toxic</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term Exposure Limit</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act.</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>