SAFETY DATA SHEET

AlphaPlus® 1-Octene

Version 1.11

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: AlphaPlus® 1-Octene
Material: 1117428, 1064097, 1021765, 1015426, 1037082

Company:
Chevron Phillips Chemical Company LP
Normal Alpha Olefins (NAO)
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 +32.14583516 (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)

Emergency Overview

Danger
Form: Liquid  Physical state: Liquid  Color: Clear, colorless
Hazards: Highly flammable liquid and vapor. Causes mild skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.
SAFETY DATA SHEET

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Version 1.11
Revision Date 2019-10-11

Classification:
- Flammable liquids, Category 2
- Skin corrosion/irritation, Category 3
- Serious eye damage/eye irritation, Category 2A
- Specific target organ toxicity - single exposure, Category 3,
  Narcotic effects
- Aspiration hazard, Category 1
- Short-term (acute) aquatic hazard, Category 2
- Long-term (chronic) aquatic hazard, Category 2

Labeling:

Symbol(s):

Signal Word: Danger

Hazard Statements:
- H225: Highly flammable liquid and vapor.
- H304: May be fatal if swallowed and enters airways.
- H316: Causes mild skin irritation.
- H319: Causes serious eye irritation.
- H336: May cause drowsiness or dizziness.
- 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 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P331: Do NOT induce vomiting.
- P332 + P313: If skin irritation occurs: Get medical advice/attention.
- P337 + P313: If eye irritation persists: Get medical advice/attention.
- P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391: Collect spillage.

**Storage:**
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
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:**
- Octene-n-1
- Octene-1 (C8)
- AlphaPlus™ NAO 8
- C8H16

**Molecular formula:**
C8H16

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. / EINECS-No.</th>
<th>Concentration [wt%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Octene</td>
<td>111-66-0</td>
<td>95 - 100</td>
</tr>
<tr>
<td>2-Ethyl-1-Hexene</td>
<td>1632-16-2</td>
<td>1 - 5</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 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. 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:**
13 °C (55 °F)
Method: Tag closed cup

**Autoignition temperature:**
221 °C (430 °F)
### Suitable extinguishing media
- Alcohol-resistant foam.
- Carbon dioxide (CO2).
- Dry chemical.

### Unsuitable extinguishing media
- High volume water jet.

### 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. 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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

### Hazardous decomposition products
- Carbon oxides.

## 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
- 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
- Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient. Review all operations, which have the potential to generating and accumulation of electrostatic charge and/or a flammable atmosphere (including tank and
### Safety Data Sheet

#### AlphaPlus® 1-Octene

**Version 1.11**

**SDS Number:** 100000068580

**Revision Date:** 2019-10-11

**Container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.**

For more information, refer to OSHA Standard 29 CFR 1910.106 “Flammable and Combustible Liquids”; National Fire Protection Association (NFPA 77), “Recommended Practice on Static Electricity”; and/or the American Petroleum Institute (API) Recommended Practice 2003, “Protection Against Ignitions Arising Out of Static, Lightning, and stray Currents”.

**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). Use only explosion-proof equipment. 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

**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 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
**AlphaPlus® 1-Octene**

**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. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.

**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**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
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<tr>
<td>Color</td>
<td>Clear, colorless</td>
</tr>
<tr>
<td><strong>Safety data</strong></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>13 °C (55 °F) Method: Tag closed cup</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>0.7 %(V)</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>6.8 %(V)</td>
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<td>Oxidizing properties</td>
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<tr>
<td>Autoignition temperature</td>
<td>221 °C (430 °F)</td>
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<tr>
<td>Molecular formula</td>
<td>C8H16</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>112.24 g/mol</td>
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<tr>
<td>pH</td>
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<td>Boiling point/boiling range</td>
<td>121 °C (250 °F)</td>
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<td>Vapor pressure</td>
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<td></td>
<td>at 20 °C (68 °F)</td>
</tr>
<tr>
<td></td>
<td>15.30 kPa</td>
</tr>
<tr>
<td></td>
<td>at 65 °C (149 °F)</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>at 15.6 °C (60.1 °F)</td>
</tr>
<tr>
<td>Density</td>
<td>719 kg/m3</td>
</tr>
<tr>
<td></td>
<td>at 15 °C (59 °F)</td>
</tr>
</tbody>
</table>
AlphaPlus® 1-Octene

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 polymerization does not occur.

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

Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid: Heat, sparks, fire, and oxidizing agents.

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

Hazardous decomposition products: Carbon oxides

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

SECTION 11: Toxicological information

Acute oral toxicity

1-Octene: LD50: > 10,000 mg/kg
AlphaPlus® 1-Octene

Species: Rat
Sex: male and female
Method: Fixed Dose Method

**Acute inhalation toxicity**

1-Octene

LC50: 40.2 mg/l
Exposure time: 4 h
Species: Rat
Sex: male
Test atmosphere: vapor
Method: OECD Test Guideline 403

**Acute dermal toxicity**

1-Octene

LD50: > 2,000 mg/kg
Species: Rabbit
Sex: male and female
Method: OECD Test Guideline 402

**AlphaPlus® 1-Octene Skin irritation**

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin resulting in desiccation of the skin.

**AlphaPlus® 1-Octene Eye irritation**

No eye irritation.

**Sensitization**

1-Octene

Did not cause sensitization on laboratory animals.

**Repeated dose toxicity**

1-Octene

Species: Rat, Male and female
Sex: Male and female
Application Route: Oral diet
Dose: 0, 100, 500, 1000 mg/kg
Exposure time: 13 wk
Number of exposures: daily
NOEL: 1,000 mg/kg
Method: OECD Guideline 408
Information given is based on data obtained from similar substances.

Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 300, 1000, 3000 ppm
Exposure time: 13 wk
Number of exposures: 6 hrs/d, 5 d/wk
NOEL: 3000 ppm
Method: OECD Guideline 413
Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

SDS Number: 100000068580
### 1-Octene

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>Ames test</td>
<td>negative</td>
</tr>
<tr>
<td>Chromosome aberration test in vitro</td>
<td>negative</td>
</tr>
<tr>
<td>Cell transformation assay</td>
<td>negative</td>
</tr>
</tbody>
</table>

#### Genotoxicity in vivo

1-Octene: Remarks: Not classified due to data which are conclusive although insufficient for classification.

#### Reproductive toxicity

**1-Octene**
- **Species:** Rat
- **Sex:** male
- **Application Route:** Oral diet
- **Dose:** 0, 100, 500, or 1000 mg/kg
- **Exposure time:** 44 D
- **Number of exposures:** daily
- **Method:** OECD Guideline 421
- **NOAEL Parent:** 1,000 mg/kg
- **NOAEL F1:** 1,000 mg/kg

**Species:** Rat
- **Sex:** female
- **Application Route:** Oral diet
- **Dose:** 0, 100, 500, or 1000 mg/kg
- **Exposure time:** 41-55 D
- **Number of exposures:** daily
- **Method:** OECD Guideline 421
- **NOAEL Parent:** 1,000 mg/kg
- **NOAEL F1:** 1,000 mg/kg

#### Aspiration toxicity

AlphaPlus® 1-Octene: May be fatal if swallowed and enters airways. Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

#### CMR effects

1-Octene: 
- **Carcinogenicity:** Not available
- **Mutagenicity:** Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- **Teratogenicity:** Not available
- **Reproductive toxicity:** Animal testing did not show any effects on fertility.

#### Further information

**AlphaPlus® 1-Octene**
- **Further information:** Solvents may degrease the skin.

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**SECTION 12: Ecological information**
Toxicity to fish

1-Octene : LC50: 0.87 mg/l
          Exposure time: 96 h
          Species: Oncorhynchus mykiss (rainbow trout)
          semi-static test Method: OECD Test Guideline 203
          Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates

1-Octene : EC50: 1 mg/l
          Exposure time: 48 h
          Species: Daphnia magna (Water flea)
          static test Method: OECD Test Guideline 202
          Information given is based on data obtained from similar substances.

Toxicity to algae

1-Octene : EC50: 1 - 10 mg/l
          Exposure time: 96 h
          Species: Pseudokirchneriella subcapitata (microalgae)
          Method: OECD Test Guideline 201
          Information given is based on data obtained from similar substances.

M-Factor

1-Octene : M-Factor (Acute Aquat. Tox.) 1

Biodegradability : This material is expected to be readily biodegradable.

Elimination information (persistence and degradability)

Bioaccumulation

1-Octene : Bioconcentration factor (BCF): 1,259
          Method: QSAR modeled data

Mobility

1-Octene : No data available

Results of PBT assessment

1-Octene : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information

Very toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Very toxic to aquatic life with long lasting effects.
**Ecotoxicology Assessment**

Short-term (acute) aquatic hazard
1-Octene : Very toxic to aquatic life.
2-Ethyl-1-Hexene : Toxic to aquatic life.

Long-term (chronic) aquatic hazard
1-Octene : Very toxic to aquatic life with long lasting effects.
2-Ethyl-1-Hexene : 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.

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.

**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)**
UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, II

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**
UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, II, (13 °C), MARINE POLLUTANT, (1- OCTENE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**
UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, II
AlphaPlus® 1-Octene

Version 1.11

Revision Date 2019-10-11

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (1-OCTENE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (1-OCTENE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (1-OCTENE)

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

SECTION 15: Regulatory information

Classification and Labeling of Commonly Used Dangerous Chemical Substances
Primary label: Combustible Liquid.

Notification status
Europe REACH
This product is in full compliance according to REACH regulation 1907/2006/EC.

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
On the inventory, or in compliance with the inventory

Japan ENCS
On the inventory, or in compliance with the inventory

Korea KECI
All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was included on CPChem’s notifications or if the Importer of Record themselves notified the substances.

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

SDS Number:1000000068580 12/13
SECTION 16: Other information

Further information

Legacy SDS Number : PE0017

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>Abbreviation</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>EC50</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
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<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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<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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<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
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<tr>
<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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<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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<td>Less Than or Equal To</td>
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<td>LC50</td>
<td>Lethal Concentration 50%</td>
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<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
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<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
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<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
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<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>
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<td>NOEC</td>
<td>No Observed Effect Concentration</td>
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<td>Occupational Safety &amp; Health Administration</td>
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<td>PEL</td>
<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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<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>Superfund Amendments and Reauthorization Act.</td>
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<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>UVGB</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>
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