

**AlphaPlus® 1-Decene**

Version 1.14

Revision Date 2019-10-30

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

Product Name : AlphaPlus® 1-Decene  
Material : 1095875, 1068252, 1037000, 1015428, 1036999

**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**

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 3  
Aspiration hazard, Category 1

**Labeling**

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Symbol(s) :  

Signal Word : Danger

Hazard Statements : H226: Flammable liquid and vapor.  
H304: May be fatal if swallowed and enters airways.

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.  
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.  
P331 Do NOT induce vomiting.  
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.

**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.

**SECTION 3: Composition/information on ingredients**

Synonyms : Decene-n-1  
NAO 10  
Decene-1 (C10)  
(C10 H20)

Molecular formula : C10H20

| Component        | CAS-No.   | Weight % |
|------------------|-----------|----------|
| 1-Decene         | 872-05-9  | 96 - 100 |
| 2-Butyl-1-Hexene | 6795-79-5 | 1 - 5    |

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2-Ethyl-1-Octene

51655-64-2

1 - 5

**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. 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 : 49 °C (120 °F)
- Autoignition temperature : 210 °C (410 °F)
- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). 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). Keep away from open flames, hot surfaces and sources of ignition.

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Hazardous decomposition : Carbon oxides.  
products

**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 : Avoid formation of aerosol. Do not breathe vapors/dust. 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). 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**

US

| Components | Basis   | Value | Control parameters | Note |
|------------|---------|-------|--------------------|------|
| 1-Decene   | US WEEL | TWA   | 100 ppm,           |      |

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**Personal protective equipment**

- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- 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, colorless

**Safety data**

- Flash point : 49 °C (120 °F)
- Lower explosion limit : 0.7 %(V)
- Upper explosion limit : 5.9 %(V)
- Oxidizing properties : no
- Autoignition temperature : 210 °C (410 °F)
- Thermal decomposition : No data available
- Molecular formula : C<sub>10</sub>H<sub>20</sub>
- Molecular weight : 140.3 g/mol
- pH : Not applicable
- Freezing point : -66 °C (-87 °F)
- Pour point : No data available
- Boiling point/boiling range : 170.56 °C (339.01 °F)
- Vapor pressure : 0.21 kPa  
at 25 °C (77 °F)
- 2.30 kPa  
at 65 °C (149 °F)

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|                                        |                                                                                                                                                |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Relative density                       | : 0.75<br>at 15.6 °C (60.1 °F)                                                                                                                 |
| Density                                | : 745 kg/m <sup>3</sup><br>at 15 °C (59 °F)<br><br>740 kg/m <sup>3</sup><br>at 20 °C (68 °F)<br><br>717 kg/m <sup>3</sup><br>at 50 °C (122 °F) |
| Water solubility                       | : Soluble in hydrocarbon solvents; insoluble in water.                                                                                         |
| Partition coefficient: n-octanol/water | : No data available                                                                                                                            |
| Viscosity, kinematic                   | : 1.1 cSt<br>at 20 °C (68 °F)                                                                                                                  |
| Relative vapor density                 | : 4.84<br>(Air = 1.0)                                                                                                                          |
| Evaporation rate                       | : No data available                                                                                                                            |

**SECTION 10: Stability and reactivity**

|                                           |                                                                                                                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chemical stability</b>                 | : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.                                                                                  |
| <b>Possibility of hazardous reactions</b> |                                                                                                                                                                                                                         |
| <b>Hazardous reactions</b>                | : Hazardous reactions: Hazardous polymerization does not occur.<br><br>Further information: No decomposition if stored and applied as directed.<br><br>Hazardous reactions: Vapors may form explosive mixture with air. |
| <b>Conditions to avoid</b>                | : Heat, flames and sparks.                                                                                                                                                                                              |
| <b>Materials to avoid</b>                 | : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.                                                                                                                       |
| <b>Thermal decomposition</b>              | : No data available                                                                                                                                                                                                     |
| <b>Hazardous decomposition products</b>   | : Carbon oxides                                                                                                                                                                                                         |
| <b>Other data</b>                         | : No decomposition if stored and applied as directed.                                                                                                                                                                   |

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**SECTION 11: Toxicological information****Acute oral toxicity**

1-Decene : LD50: > 3,575 mg/kg  
Species: Rat  
Sex: male and female  
Method: Fixed Dose Method  
Information given is based on data obtained from similar substances.

**Acute inhalation toxicity**

1-Decene : LC50: > 2.1 mg/l  
Exposure time: 4 h  
Species: Rat  
Sex: male and female  
Method: OECD Test Guideline 403  
Information given is based on data obtained from similar substances.  
Not classified due to data which are conclusive although insufficient for classification.

**Acute dermal toxicity**

1-Decene : LD50: > 2,000 mg/kg  
Species: Rat  
Sex: male and female  
Method: OECD Test Guideline 402  
Information given is based on data obtained from similar substances.

**Skin irritation**

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

**Eye irritation**

1-Decene : No eye irritation

**Sensitization**

1-Decene : Did not cause sensitization on laboratory animals.  
Information given is based on data obtained from similar substances.

**Repeated dose toxicity**

1-Decene : Species: Rat, Male and female  
Sex: Male and female  
Application Route: Oral  
Dose: 0, 100, 500, 1000 mg/kg  
Exposure time: 13 wks  
Number of exposures: 7 d/wk  
NOEL: 1,000 mg/kg  
Method: OCED Guideline 408

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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 wks  
Number of exposures: 6 hr/d, 5 d/wk  
NOEL: 3000 ppm  
Method: OECD Guideline 413  
Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

1-Decene

: Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: Mutagenicity (Escherichia coli - reverse mutation assay)  
Result: negative

Test Type: Mammalian cell gene mutation assay  
Metabolic activation: with and without metabolic activation  
Method: OECD Guideline 476  
Result: negative

Test Type: Chromosome aberration test in vitro  
Metabolic activation: with and without metabolic activation  
Method: OECD Guideline 473  
Result: negative

**Genotoxicity in vivo**

1-Decene

: Test Type: Micronucleus test  
Species: Mouse  
Method: Mutagenicity (micronucleus test)  
Result: negative

**Reproductive toxicity**

1-Decene

: Species: Rat  
Sex: male  
Application Route: Oral diet  
Dose: 0, 100, 500, 1000 mg/kg  
Method: OECD Guideline 421  
NOAEL Parent: 1,000 mg/kg  
NOAEL F1: 1,000 mg/kg

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Aspiration toxicity**

: 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-Decene

: Carcinogenicity: Not available

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Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.  
 Teratogenicity: Animal testing did not show any effects on fetal development.  
 Reproductive toxicity: Animal testing did not show any effects on fertility.

**AlphaPlus® 1-Decene****Further information**

: Solvents may degrease the skin.

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

1-Decene : LC50: 0.12 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-Decene : EC50: 0.56 - 1 mg/l  
 Exposure time: 48 h  
 Species: Daphnia  
 Method: OECD Test Guideline 202

**Toxicity to algae**

1-Decene : EC50: 1 - 1.8 mg/l  
 Exposure time: 72 h  
 Species: Pseudokirchneriella subcapitata (microalgae)  
 Method: OECD Test Guideline 201

**M-Factor**

dec-1-ene

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

M-Factor (Chron. Aquat. Tox.) 1

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

1-Decene : NOEC: 0.0194 mg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 Analytical monitoring: yes  
 Test substance: yes  
 Method: OECD Test Guideline 211

Biodegradability

: This material is expected to be readily biodegradable.

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Elimination information (persistence and degradability)

Bioaccumulation

1-Decene : No data available

Mobility

1-Decene : No data available

Results of PBT assessment

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

Additional ecological  
information

: 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-Decene : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard

1-Decene : Very toxic to aquatic life with long lasting effects.

**SECTION 13: Disposal considerations**

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

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

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.

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

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, III

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

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, III, (49 °C), MARINE POLLUTANT, (1-DECENE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, III

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

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS, (1-DECENE)

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

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, III, ENVIRONMENTALLY HAZARDOUS, (1-DECENE)

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

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, III, ENVIRONMENTALLY HAZARDOUS, (1-DECENE)

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

|                          |                                      |
|--------------------------|--------------------------------------|
| <b>Other information</b> | <b>: Decene (N), S. T. 2, CAT. X</b> |
|--------------------------|--------------------------------------|

**SECTION 15: Regulatory information****National legislation**

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Aspiration hazard

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

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

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SARA 302 Threshold Planning Quantity : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Components : 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.

**Clean Air Act**

Ozone-Depletion Potential : 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).

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 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**US State Regulations**

Pennsylvania Right To Know : No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right To Know : No components are subject to the New Jersey Right to Know Act.

California Prop. 65 Components : This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

Europe REACH : This product is in full compliance according to REACH

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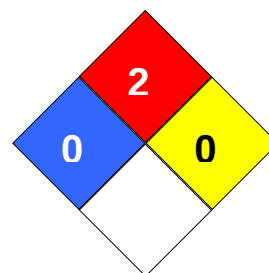
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|                                     |   |                                                                                                                                                                                                                                                                                                     |
|-------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switzerland CH INV                  | : | regulation 1907/2006/EC.                                                                                                                                                                                                                                                                            |
| United States of America (USA) TSCA | : | On the inventory, or in compliance with the inventory                                                                                                                                                                                                                                               |
| Canada DSL                          | : | On or in compliance with the active portion of the TSCA inventory                                                                                                                                                                                                                                   |
| Australia AICS                      | : | All components of this product are on the Canadian DSL                                                                                                                                                                                                                                              |
| 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                          | : | On the inventory, or in compliance with the inventory                                                                                                                                                                                                                                               |
| Philippines PICCS                   | : | 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. |
| China IECSC                         | : |                                                                                                                                                                                                                                                                                                     |
| Taiwan TCSI                         | : | On the inventory, or in compliance with the inventory                                                                                                                                                                                                                                               |

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 0  
Fire Hazard: 2  
Reactivity Hazard: 0

**Further information**

Legacy SDS Number : PE0018

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 |                                                         |       |                                                     |
|---------------------------------------------------------------------------|---------------------------------------------------------|-------|-----------------------------------------------------|
| 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 & Health |
| CNS                                                                       | Central Nervous System                                  | NTP   | National Toxicology Program                         |
| CAS                                                                       | Chemical Abstract Service                               | NZIoC | New Zealand Inventory of                            |

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|        |                                                          |       |                                                                                      |
|--------|----------------------------------------------------------|-------|--------------------------------------------------------------------------------------|
|        |                                                          |       | 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 & 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 Values                     | PRNT  | Presumed Not Toxic                                                                   |
| GHS    | Globally Harmonized System                               | RCRA  | Resource Conservation Recovery Act                                                   |
| >=     | Greater Than or Equal To                                 | STEL  | Short-term Exposure Limit                                                            |
| IC50   | Inhibition Concentration 50%                             | SARA  | Superfund Amendments and Reauthorization Act.                                        |
| IARC   | International Agency for Research on Cancer              | TLV   | Threshold Limit Value                                                                |
| IECSC  | Inventory of Existing Chemical Substances in China       | TWA   | Time Weighted Average                                                                |
| ENCS   | Japan, Inventory of Existing and New Chemical Substances | TSCA  | Toxic Substance Control Act                                                          |
| KECI   | Korea, Existing Chemical Inventory                       | UVCB  | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <=     | Less Than or Equal To                                    | WHMIS | Workplace Hazardous Materials Information System                                     |
| LC50   | Lethal Concentration 50%                                 |       |                                                                                      |