

**Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

Version 4.2

Revision Date 2021-09-22

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

Product Name : Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)  
Material : 1015406, 1037554

**Company** : Chevron Phillips Chemical Company LP  
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 2  
Skin irritation, Category 2  
Eye irritation, Category 2A  
Germ cell mutagenicity, Category 1B  
Carcinogenicity, Category 1A  
Reproductive toxicity, Category 2  
Specific target organ toxicity - single exposure, Category 3,  
Respiratory system, Central nervous system

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Specific target organ toxicity - repeated exposure, Category 1, Blood, Eyes  
 Specific target organ toxicity - repeated exposure, Category 2, Inhalation, Auditory organs, color vision, Nervous system  
 Aspiration hazard, Category 1

**Labeling**

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H225: Highly flammable liquid and vapor.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H319: Causes serious eye irritation.  
 H335: May cause respiratory irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H360Df: May damage the unborn child. Suspected of damaging fertility.  
 H372: Causes damage to organs (Blood, Eyes) through prolonged or repeated exposure.  
 H373: May cause damage to organs (Auditory organs, color vision, Nervous system) through prolonged or repeated exposure if inhaled.

Precautionary Statements

: **Prevention:**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 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.  
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear protective gloves/ protective clothing/ 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

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water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P308 + P313 IF exposed or concerned: Get medical advice/attention.  
 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.  
 P362 Take off contaminated clothing and wash before reuse.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**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.

**Carcinogenicity:****IARC**

Group 1: Carcinogenic to humans

Benzene 71-43-2

Group 2B: Possibly carcinogenic to humans

Hydrotreated Light Distillate 68410-97-9

Ethylbenzene 100-41-4

Naphthalene 91-20-3

Cumene 98-82-8

**NTP**

Known to be human carcinogen

Benzene 71-43-2

Reasonably anticipated to be a human carcinogen

Naphthalene 91-20-3

Cumene 98-82-8

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

Synonyms : Hexane, Light hydrotreated distillate  
 BTX Concentrate

Molecular formula : UVCB

| Component                     | CAS-No.    | Weight % |
|-------------------------------|------------|----------|
| Hydrotreated Light Distillate | 68410-97-9 | 100      |
| Benzene                       | 71-43-2    | 0 - 80   |
| Toluene                       | 108-88-3   | 0 - 30   |
| Xylenes                       | 1330-20-7  | 0 - 10   |
| Ethylbenzene                  | 100-41-4   | 0 - 10   |
| n-Heptane                     | 142-82-5   | 0 - 5    |
| n-hexane                      | 110-54-3   | 0 - 10   |
| Methylcyclopentane            | 96-37-7    | 0 - 5    |
| Naphthalene                   | 91-20-3    | 0 - 1    |

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|                        |          |       |
|------------------------|----------|-------|
| Cyclohexane            | 110-82-7 | 0 - 5 |
| Cyclopentane           | 287-92-3 | 0 - 1 |
| Cumene                 | 98-82-8  | 0 - 1 |
| 1,2,4-Trimethylbenzene | 95-63-6  | 0 - 1 |

**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 : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- 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 : 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 : 4°C (39°F)
- Autoignition temperature : No data available
- 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 a naked flame or any 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

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surfaces and sources of ignition.

Hazardous decomposition products : Carbon monoxide.

**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. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. 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 a naked flame or any 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****Ingredients with workplace control parameters**

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**US**

| Components                    | Basis                    | Value | Control parameters     | Note  |
|-------------------------------|--------------------------|-------|------------------------|---|
| Hydrotreated Light Distillate | OSHA Z-1                 | TWA   | 500 ppm, 2,000 mg/m3   |   |
|                               | OSHA Z-1-A               | TWA   | 400 ppm, 1,600 mg/m3   |   |
| Benzene                       | ACGIH                    | TWA   | 0.5 ppm,               | A1, Skin,   |
|                               | ACGIH                    | STEL  | 2.5 ppm,               | A1, Skin,   |
|                               | OSHA Z-1-A               | TWA   | 1 ppm,                 |   |
|                               | OSHA Z-1-A               | CEIL  | 5 ppm,                 |   |
|                               | OSHA Z-2                 | Peak  | 50 ppm,                |   |
|                               | OSHA 29 CFR 1910.1028(c) | TWA   | 1 ppm,                 |   |
|                               | OSHA 29 CFR 1910.1028(c) | STEL  | 5 ppm,                 |   |
|                               | OSHA CARC                | PEL   | 1 ppm,                 |   |
|                               | OSHA CARC                | STEL  | 5 ppm,                 |   |
|                               | ACGIH                    | TWA   | 20 ppm,                | A4,   |
|                               | OSHA Z-2                 | TWA   | 200 ppm,               |   |
|                               | OSHA Z-2                 | CEIL  | 300 ppm,               |   |
| Toluene                       | OSHA Z-2                 | Peak  | 500 ppm,               |   |
|                               | OSHA Z-1-A               | TWA   | 100 ppm, 375 mg/m3     |   |
|                               | OSHA Z-1-A               | STEL  | 150 ppm, 560 mg/m3     |   |
|                               | OSHA Z-1                 | TWA   | 100 ppm, 435 mg/m3     |   |
|                               | OSHA Z-1-A               | STEL  | 150 ppm, 655 mg/m3     |   |
|                               | OSHA Z-1-A               | TWA   | 100 ppm, 435 mg/m3     |   |
| Xylenes                       | ACGIH                    | TWA   | 100 ppm,               | A4,   |
|                               | ACGIH                    | STEL  | 150 ppm,               | A4,   |
|                               | OSHA Z-1                 | TWA   | 100 ppm, 435 mg/m3     |   |
|                               | OSHA Z-1-A               | STEL  | 125 ppm, 545 mg/m3     |   |
|                               | ACGIH                    | TWA   | 20 ppm,                | A3,   |
|                               | ACGIH                    | TWA   | 50 ppm,                | Skin,   |
| Ethylbenzene                  | OSHA Z-1                 | TWA   | 100 ppm, 435 mg/m3     |   |
|                               | OSHA Z-1-A               | TWA   | 100 ppm, 435 mg/m3     |   |
| n-hexane                      | OSHA Z-1-A               | STEL  | 125 ppm, 545 mg/m3     |   |
|                               | ACGIH                    | TWA   | 20 ppm,                | A3,   |
|                               | ACGIH                    | TWA   | 50 ppm,                | Skin,   |
|                               | OSHA Z-1                 | TWA   | 500 ppm, 1,800 mg/m3   |   |
|                               | OSHA Z-1-A               | TWA   | 50 ppm, 180 mg/m3      |   |
|                               | ACGIH                    | TWA   | 500 ppm,               | CNS impair, URT irr, eye irr,                             |
| Methylcyclopentane            | ACGIH                    | STEL  | 1,000 ppm,             | CNS impair, URT irr, eye irr,                             |
|                               | OSHA Z-1-A               | TWA   | 500 ppm, 1,800 mg/m3   |   |
|                               | OSHA Z-1-A               | STEL  | 1,000 ppm, 3,600 mg/m3 |   |
| n-Heptane                     | OSHA Z-1                 | TWA   | 500 ppm, 2,000 mg/m3   |   |
|                               | OSHA Z-1-A               | TWA   | 400 ppm, 1,600 mg/m3   |   |
|                               | OSHA Z-1-A               | STEL  | 500 ppm, 2,000 mg/m3   |   |
|                               | ACGIH                    | TWA   | 400 ppm,               |   |
|                               | ACGIH                    | STEL  | 500 ppm,               |   |
| Cyclopentane                  | ACGIH                    | TWA   | 600 ppm,               |   |
|                               | OSHA Z-1-A               | TWA   | 600 ppm, 1,720 mg/m3   |   |
| Cyclohexane                   | ACGIH                    | TWA   | 100 ppm,               |   |
|                               | OSHA Z-1                 | TWA   | 300 ppm, 1,050 mg/m3   |   |
|                               | OSHA Z-1-A               | TWA   | 300 ppm, 1,050 mg/m3   |   |
| Naphthalene                   | ACGIH                    | TWA   | 10 ppm,                | A3, Skin,   |
|                               | ACGIH                    | STEL  | 15 ppm,                | hematologic eff, URT irr, eye irr, eye dam, (), A4, Skin, |
|                               | OSHA Z-1                 | TWA   | 10 ppm, 50 mg/m3       |   |
|                               | OSHA Z-1-A               | TWA   | 10 ppm, 50 mg/m3       |   |
|                               | OSHA Z-1-A               | STEL  | 15 ppm, 75 mg/m3       |   |
|                               | ACGIH                    | TWA   | 50 ppm,                |   |
|                               | OSHA Z-1                 | TWA   | 50 ppm, 245 mg/m3      | X,  |
|                               | OSHA Z-1-A               | TWA   | 50 ppm, 245 mg/m3      | X,  |
| 1,2,4-Trimethylbenzene        | ACGIH                    | TWA   | 25 ppm,                |   |
|                               | OSHA Z-1-A               | TWA   | 25 ppm, 125 mg/m3      |   |

( ) Adopted values or notations enclosed are those for which changes are proposed in the NIC

A1 Confirmed human carcinogen

A3 Confirmed animal carcinogen with unknown relevance to humans

A4 Not classifiable as a human carcinogen

CNS impair Central Nervous System impairment

eye dam Eye damage

eye irr Eye irritation

hematologic eff Hematologic effects

Skin Danger of cutaneous absorption

URT irr Upper Respiratory Tract irritation

X Skin notation

**Immediately Dangerous to Life or Health Concentrations (IDLH)**

| Substance name | CAS-No. | Control parameters | Update |
|----------------|---------|--------------------|--------|
|----------------|---------|--------------------|--------|

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|              |           |  |            |
|--------------|-----------|--|------------|
| Benzene      | 71-43-2   | Immediately Dangerous to Life or Health<br>Concentration Value<br>500 parts per million  | 1995-03-01 |
| Toluene      | 108-88-3  | Immediately Dangerous to Life or Health<br>Concentration Value<br>500 parts per million  | 1995-03-01 |
| Xylenes      | 1330-20-7 | Immediately Dangerous to Life or Health<br>Concentration Value<br>900 parts per million  | 2017-09-01 |
| Ethylbenzene | 100-41-4  | Immediately Dangerous to Life or Health<br>Concentration Value<br>800 parts per million  | 1995-03-01 |
| n-hexane     | 110-54-3  | Immediately Dangerous to Life or Health<br>Concentration Value<br>1100 parts per million | 1995-03-01 |
| n-Heptane    | 142-82-5  | Immediately Dangerous to Life or Health<br>Concentration Value<br>750 parts per million  | 1995-03-01 |
| Cyclohexane  | 110-82-7  | Immediately Dangerous to Life or Health<br>Concentration Value<br>1300 parts per million | 1995-03-01 |
| Naphthalene  | 91-20-3   | Immediately Dangerous to Life or Health<br>Concentration Value<br>250 parts per million  | 1995-03-01 |
| Cumene       | 98-82-8   | Immediately Dangerous to Life or Health<br>Concentration Value<br>900 parts per million  | 1995-03-01 |

**Biological exposure indices****US**

| Substance name | CAS-No.   | Control parameters  | Sampling time  | Update     |
|----------------|-----------|---|--|------------|
| Benzene        | 71-43-2   | S-Phenylmercapturic acid: 25<br>µg/g creatinine Background (Urine)                            | End of shift (As soon as possible after exposure ceases) | 2010-03-01 |
|                |           | t,t-Muconic acid: 500 µg/g<br>creatinine Background (Urine)                                   | End of shift (As soon as possible after exposure ceases) | 2010-03-01 |
| Toluene        | 108-88-3  | Toluene: 0.02 mg/l (In blood)   | Prior to last shift of workweek                          | 2010-03-01 |
|                |           | Toluene: 0.03 mg/l (Urine)  | End of shift (As soon as possible after exposure ceases) | 2010-03-01 |
|                |           | o-Cresol: 0.3 mg/g Creatinine<br>Background (Urine) With<br>hydrolyses ( )                    | End of shift (As soon as possible after exposure ceases) | 2010-03-01 |
| Xylenes        | 1330-20-7 | Methylhippuric acids: 1.5 g/g<br>creatinine (Urine)   | End of shift (As soon as possible after exposure ceases) | 2013-03-01 |
| Ethylbenzene   | 100-41-4  | Sum of mandelic acid and phenyl<br>glyoxylic acid: 0.15 g/g creatinine<br>Nonspecific (Urine) | End of shift (As soon as possible after exposure ceases) | 2016-03-01 |
| n-hexane       | 110-54-3  | 2,5-Hexanedione: 0.5 mg/l<br>Without hydrolysis (Urine)                                       | End of shift   | 2020-02-01 |

**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.

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**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. Full-Face Air-Purifying Respirator for Organic Vapors, Dusts and Mists. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, aerosolization, 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 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.
- Protective measures : Wear suitable protective equipment. Avoid contact with skin. When using do not eat, drink or smoke.

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****Appearance**

- Form : liquid
- Physical state : liquid
- Color : Colorless
- Odor : Mild
- Odor Threshold : No data available

**Safety data**

- Flash point : 4°C (39°F)
- Lower explosion limit : No data available
- Upper explosion limit : No data available



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|  |                                |
|--|--------------------------------|
| Oxidizing properties                   | : No                           |
| Autoignition temperature               | : No data available            |
| Molecular formula                      | : UVCB                         |
| Molecular weight                       | : 81.2 g/mol                   |
| pH                                     | : Not applicable               |
| Pour point                             | : No data available            |
| Boiling point/boiling range            | : 66-232°C (151-450°F)         |
| Vapor pressure                         | : No data available            |
| Relative density                       | : 0.86<br>at 21.6 °C (70.9 °F) |
| Water solubility                       | : negligible                   |
| Partition coefficient: n-octanol/water | : No data available            |
| Viscosity, kinematic                   | : No data available            |
| Relative vapor density                 | : No data available            |
| Evaporation rate                       | : 2.8                          |
| Percent volatile                       | : > 99 %                       |

**SECTION 10: Stability and reactivity**

|   |  |
|---|--|
| <b>Reactivity</b>                         | : Stable under recommended storage conditions.   |
| <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: 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>Hazardous decomposition products</b>   | : Carbon monoxide  |

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

**SECTION 11: Toxicological information****Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

**Acute oral toxicity** : LD50 Oral: > 5,000 mg/kg  
Species: Rat

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**Acute inhalation toxicity** : LC50: > 12400 ppm  
Exposure time: 4 h  
Species: Rat  
Test atmosphere: vapor

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**Acute dermal toxicity** : LD50 Dermal: > 2,000 mg/kg  
Species: Rabbit  
Information refers to the main ingredient.

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**Skin irritation** : May cause skin irritation in susceptible persons.

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**Eye irritation** : May irritate eyes.

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

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**Repeated dose toxicity** : Method: Based on product or component testing, long term repeated exposure may cause damage to the following organs:  
Target Organs: Auditory organs, Eyes, Blood, Nervous system  
Estimated based on individual component values.

**Genotoxicity in vitro**

**Benzene** : Test Type: Ames test  
Result: negative

Test Type: Cytogenetic assay  
Result: positive

Test Type: Mouse lymphoma assay  
Result: positive

Test Type: Sister Chromatid Exchange Assay  
Result: negative

**Toluene** : Test Type: Ames test  
Result: negative

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|              |   |
|--------------|---|
|              | Test Type: Sister Chromatid Exchange Assay<br>Result: negative  |
|              | Test Type: Mouse lymphoma assay<br>Result: negative   |
|              | Test Type: Cytogenetic assay<br>Result: negative  |
| Xylenes      | Test Type: Ames test<br>Result: negative  |
|              | Test Type: Mouse lymphoma assay<br>Result: negative   |
| Ethylbenzene | Test Type: Ames test<br>Result: negative  |
|              | Test Type: Unscheduled DNA synthesis assay<br>Result: negative  |
| n-Heptane    | Test Type: Ames test<br>Method: Mutagenicity (Escherichia coli - reverse mutation assay)<br>Result: negative  |
|              | Test Type: Mammalian cell gene mutation assay<br>Method: OECD Guideline 476<br>Result: negative   |
|              | Test Type: Chromosome aberration test in vitro<br>Method: OECD Guideline 473<br>Result: negative  |
|              | Test Type: Mitotic recombination<br>Result: negative  |
| n-hexane     | Test Type: Ames test<br>Metabolic activation: with and without metabolic activation<br>Method: OECD Test Guideline 471<br>Result: negative  |
|              | Test Type: Mouse lymphoma assay<br>Metabolic activation: with and without metabolic activation<br>Method: OECD Test Guideline 476<br>Result: negative   |
|              | Test Type: Mouse lymphoma assay<br>Metabolic activation: with and without metabolic activation<br>Method: OECD Test Guideline 476<br>Result: Positive results were obtained in some in vitro tests. |
| Naphthalene  | Test Type: Ames test<br>Result: negative  |

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|-----------------------------|--|
|                             | <p>Test Type: Sister Chromatid Exchange Assay<br/>Result: negative</p> <p>Test Type: Unscheduled DNA synthesis assay<br/>Result: negative</p>  |
| Cyclohexane                 | <p>Test Type: Ames test<br/>Metabolic activation: with and without metabolic activation<br/>Method: Mutagenicity (Escherichia coli - reverse mutation assay)<br/>Result: negative</p> <p>Test Type: Mouse lymphoma assay<br/>Metabolic activation: with and without metabolic activation<br/>Result: negative</p>  |
| Cyclopentane                | <p>Test Type: Mouse lymphoma assay<br/>Metabolic activation: with and without metabolic activation<br/>Method: OECD Guideline 476<br/>Result: negative</p> <p>Test Type: Modified Ames test<br/>Concentration: 1250 microgram/plate<br/>Metabolic activation: with and without metabolic activation<br/>Method: see user defined free text<br/>Result: negative<br/>Remarks: In vitro tests did not show mutagenic effects</p> <p>Test Type: Mouse lymphoma assay<br/>Concentration: 200 microgram/mililiter<br/>Metabolic activation: with and without metabolic activation<br/>Result: negative<br/>Remarks: In vitro tests did not show mutagenic effects</p> |
| Cumene                      | <p>Test Type: Ames test<br/>Result: negative</p> <p>Test Type: Cytogenetic assay<br/>Result: negative</p> <p>Test Type: HGPRT assay<br/>Result: negative</p> <p>Test Type: Unscheduled DNA synthesis assay<br/>Result: negative</p>  |
| <b>Genotoxicity in vivo</b> |  |
| Benzene                     | : Test Type: Mouse micronucleus assay<br>Result: positive  |
| Toluene                     | Test Type: Cytogenetic assay<br>Result: negative   |
|                             | Test Type: Mouse micronucleus assay<br>Result: negative  |
| Xylenes                     | Test Type: Mouse micronucleus assay<br>Result: negative  |

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Ethylbenzene                      Test Type: Mouse micronucleus assay  
Species: Mouse  
Result: negative

n-hexane                              Test Type: Dominant lethal assay  
Species: Mouse  
Dose: 100 and 400 ppm  
Result: negative

Test Type: Cytogenetic assay  
Species: Rat  
Dose: 900, 3000, 9000 ppm  
Result: negative

Naphthalene                      Test Type: Mouse micronucleus assay  
Result: negative

Cyclohexane                      Test Type: Cytogenetic assay  
Species: Rat  
Cell type: Bone marrow  
Dose: 96.6, 307.2, 10141.6 ppm  
Result: negative

Cyclopentane                      Test Type: Micronucleus test  
Species: Mouse  
Dose: 28.7 mg/l  
Result: negative

Cumene                              Test Type: Mouse micronucleus assay  
Result: negative

**Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

**Carcinogenicity**                      : Method: Estimated based on individual component values.  
Remarks: Suspect cancer hazard

**Reproductive toxicity**

Toluene                              : Species: Rat  
Application Route: Inhalation  
Dose: 0, 100, 500, 2000 ppm  
Test period: 95 d  
NOAEL Parent: 2000 ppm

n-Heptane                              Species: Rat  
Sex: male and female  
Application Route: Inhalation  
Dose: 0, 900, 3000, 9000 ppm  
Number of exposures: 6 hr/d, 5 d/wk  
Test period: 13 wk  
Method: OECD Test Guideline 416  
NOAEL Parent: 9000 ppm  
NOAEL F1: 3000 ppm  
NOAEL F2: 3000 ppm  
Information given is based on data obtained from similar substances.

n-hexane                              Species: Rat

**Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

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|                               |   |
|-------------------------------|---|
|                               | Sex: male<br>Application Route: Inhalation<br>Dose: 5,000 ppm<br>Number of exposures: 16 hr/d, 6 d/wk<br>Test period: 6 wks<br>permanent testicular damage characterized by loss of germ-cell line  |
| Cyclohexane                   | Species: Rat<br>Application Route: Inhalation<br>Dose: 0, 500, 2000, 7000 ppm<br>Number of exposures: 6 hr/d, 5 d/wk<br>Method: OECD Test Guideline 416<br>NOAEL Parent: 500 ppm<br>NOAEL F1: 7000 ppm<br>NOAEL F2: 7000 ppm  |
| Cyclopentane                  | Species: Rat<br>Sex: males<br>Application Route: Inhalation<br>Dose: 0, 500, 2000, 7000 ppm<br>Number of exposures: 6 h/day<br>NOAEL Parent: 2000 ppm<br>NOAEL F1: 2000 ppm<br>NOAEL F2: 2000 ppm   |
| <b>Developmental Toxicity</b> |   |
| Toluene                       | : Species: Rat<br>Application Route: Inhalation<br>Dose: 0, 100, 500, 2000 ppm<br>Test period: 95 d<br>NOAEL Teratogenicity: 400-750 ppm  |
| Xylenes                       | Species: Rat<br>Application Route: Inhalation<br>Dose: 0, 805, 1610 ppm<br>Number of exposures: 6 h/d<br>Test period: GD 7-16<br>NOAEL Maternal: 1610 ppm<br><br>Species: Mouse<br>Application Route: oral gavage<br>Dose: 0, 780, 1960, 2619 mg/kg<br>Number of exposures: 3 times/d<br>Test period: GD 6-15<br>NOAEL Teratogenicity: 780 mg/kg<br>NOAEL Maternal: 780 mg/kg |
| n-Heptane                     | Species: Rat<br>Application Route: Inhalation<br>Dose: 0, 900, 3000, 9000 ppm<br>Exposure time: GD6-15<br>Number of exposures: 6 hrs/d<br>NOAEL Teratogenicity: 9000 ppm<br>NOAEL Maternal: 3000 ppm  |
| n-hexane                      | Species: Rat<br>Application Route: Inhalation   |

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Dose: 200, 1,000, 5,000 ppm  
 Number of exposures: 20 hr/d, daily  
 Test period: GD 6-20  
 NOAEL Teratogenicity: 200 ppm  
 NOAEL Maternal: 200 ppm

Species: Mouse  
 Application Route: Inhalation  
 Dose: 200, 1,000, 5,000 ppm  
 Number of exposures: 20 hr/d, daily  
 Test period: GD 6-17  
 NOAEL Maternal: 1,000 ppm

Naphthalene  
 Species: Rabbit  
 Application Route: oral gavage  
 Dose: 40, 200, 400 mg/kg  
 Test period: 29 d, GD 6-18  
 NOAEL Teratogenicity: 400 mg/kg

Cyclohexane  
 Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 500, 2,000, 7,000 PPM  
 Number of exposures: 6 hr/d  
 Test period: GD 6-15  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 7,000 ppm  
 NOAEL Maternal: 500 ppm

Species: Rabbit  
 Application Route: Inhalation  
 Dose: 0, 500, 2,000, 7,000 PPM  
 Number of exposures: 6 hr/d  
 Test period: GD 6-18  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 7,000 ppm  
 NOAEL Maternal: 500 ppm

Cumene  
 Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 100, 500, 1200 ppm  
 Number of exposures: 6 h/d  
 Test period: GD 6-15  
 NOAEL Teratogenicity: > 1200 ppm  
 NOAEL Maternal: 100 ppm

Species: Rabbit  
 Application Route: Inhalation  
 Dose: 0, 500, 1200, 2300 ppm  
 Number of exposures: 6 h/d  
 Test period: GD 6-18  
 NOAEL Teratogenicity: > 2300 ppm

**Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

**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.

**Toxicology Assessment**

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**Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

**CMR effects** : Carcinogenicity:  
May cause cancer.  
Mutagenicity:  
May cause genetic defects.  
Teratogenicity:  
May damage the unborn child.  
Reproductive toxicity:  
Suspected of damaging fertility.

**Benzene, Toluene, Xylene (BTX) / Hydrogenated Pygas (HPG)**

**Further information** : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

**SECTION 12: Ecological information****Ecotoxicity effects**

**Toxicity to fish** : Estimated based on individual component values.  
Toxic to fish.

**Toxicity to daphnia and other aquatic invertebrates** : Estimated based on individual component values.  
Toxic to aquatic organisms.

**Toxicity to algae** : Estimated based on individual component values.  
Toxic to algae.

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

**Toxicity to fish (Chronic toxicity)**

n-Heptane : NOELR: 1.284 mg/l  
Exposure time: 28 d  
Species: Oncorhynchus mykiss (rainbow trout)  
Method: QSAR modeled data

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

Ethylbenzene : NOEC: 1 mg/l  
Exposure time: 7 d  
Species: Daphnia pulex (Water flea)  
semi-static test  
Analytical monitoring: yes

Biodegradability : Expected to be ultimately biodegradable



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## Elimination information (persistence and degradability)

Bioaccumulation : This material is not expected to bioaccumulate.

## Mobility

Benzene : No data available

Toluene : Not expected to adsorb on soil.

Ethylbenzene : Method: Calculation, Mackay Level I Fugacity Model  
Disperses rapidly in air.n-Heptane : Medium: Air  
Method: Calculation, Mackay Level I Fugacity Model  
Content: 100 %  
After release, disperses into the air.

Cyclohexane : Not expected to adsorb on soil.

Results of PBT assessment : This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects.

**Ecotoxicology Assessment**

Short-term (acute) aquatic hazard : Toxic to aquatic life.

Long-term (chronic) aquatic hazard : 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).**

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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)**

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, MARINE POLLUTANT, (N-HEPTANE, N-HEXANE)

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, (4°C), MARINE POLLUTANT, (N-HEPTANE, N-HEXANE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE, N-HEXANE)

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE, N-HEXANE)

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE, N-HEXANE)

**Maritime transport in bulk according to IMO instruments**

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

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
 Germ cell mutagenicity  
 Carcinogenicity  
 Reproductive toxicity  
 Specific target organ toxicity (single or repeated exposure)  
 Aspiration hazard  
 Skin corrosion or irritation  
 Serious eye damage or eye irritation

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CERCLA Reportable Quantity : 12 lbs  
Benzene

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

SARA 302 Threshold Planning Quantity : This material does not contain any components with a section 302 EHS TPQ.

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

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Benzene - 71-43-2  
Toluene - 108-88-3  
Xylenes - 1330-20-7  
Ethylbenzene - 100-41-4  
n-hexane - 110-54-3  
Cyclohexane - 110-82-7  
Naphthalene - 91-20-3  
Cumene - 98-82-8  
1,2,4-Trimethylbenzene - 95-63-6  
p-xylene - 106-42-3  
o-xylene - 95-47-6  
m-xylene - 108-38-3

**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).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

: Benzene - 71-43-2  
Toluene - 108-88-3  
Xylenes - 1330-20-7  
Ethylbenzene - 100-41-4  
n-hexane - 110-54-3  
Naphthalene - 91-20-3  
Cumene - 98-82-8

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).

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The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMII Intermediate or Final VOC's (40 CFR 60.489):

: Benzene - 71-43-2  
 Toluene - 108-88-3  
 Xylenes - 1330-20-7  
 Ethylbenzene - 100-41-4  
 Cyclohexane - 110-82-7  
 Cumene - 98-82-8

**US State Regulations****Pennsylvania Right To Know**

: Hydrotreated Light Distillate - 68410-97-9  
 Benzene - 71-43-2  
 Toluene - 108-88-3  
 Xylenes - 1330-20-7  
 Ethylbenzene - 100-41-4  
 n-hexane - 110-54-3  
 Methylcyclopentane - 96-37-7  
 n-Heptane - 142-82-5  
 Cyclopentane - 287-92-3  
 Ethyltoluene - 25550-14-5  
 Cyclohexane - 110-82-7  
 Ethylcyclopentane - 1640-89-7  
 Naphthalene - 91-20-3  
 Cumene - 98-82-8  
 1,2,4-Trimethylbenzene - 95-63-6

**California Prop. 65 Components**

: WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov/food](http://www.P65Warnings.ca.gov/food).

|               |          |
|---------------|----------|
| Benzene       | 71-43-2  |
| Ethylbenzene  | 100-41-4 |
| Naphthalene   | 91-20-3  |
| Cumene        | 98-82-8  |
| 1,3-Butadiene | 106-99-0 |

WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

|               |          |
|---------------|----------|
| Benzene       | 71-43-2  |
| Toluene       | 108-88-3 |
| n-hexane      | 110-54-3 |
| 1,3-Butadiene | 106-99-0 |

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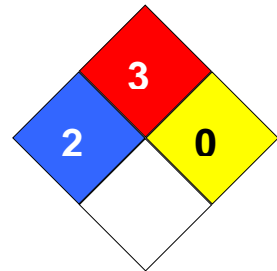
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**Notification status**

|                                     |   |   |
|-------------------------------------|---|---|
| Europe REACH                        | : | Not in compliance with the inventory                              |
| 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                          | : | On the inventory, or in compliance with the inventory             |
| Other AIIC                          | : | On the inventory, or in compliance with the inventory             |
| New Zealand NZIoC                   | : | Not in compliance with the inventory                              |
| Japan ENCS                          | : | Not in compliance with the inventory                              |
| Korea KECI                          | : | Not in compliance with the inventory                              |
| Philippines PICCS                   | : | On the inventory, or in compliance with the inventory             |
| Taiwan TCSI                         | : | On the inventory, or in compliance with the inventory             |
| China IECSC                         | : | On the inventory, or in compliance with the inventory             |

**SECTION 16: Other information**

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

**Further information**

Legacy SDS Number : PE0087

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 Chemicals                  |
| EC50  | Effective Concentration                                 | NOAEL | No Observable Adverse Effect                        |

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|        |  |       | 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%                                 |       |  |