

**Styrene Monomer**

Version 3.9

Revision Date 2021-09-15

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

Product Name : Styrene Monomer  
Material : 1102867, 1103436, 1025306

**Company** : Jubail Chevron Phillips Company  
P.O. Box 11221  
Jubail Industrial City  
Saudi Arabia 31961

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

**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  
Globally Harmonized System of Classification and Labeling of Chemicals (GHS)****GHS-Classification**

: Flammable liquids, Category 3  
Skin corrosion/irritation, Category 2  
Serious eye damage/eye irritation, Category 2A  
Specific target organ toxicity - repeated exposure, Category 1,

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Auditory organs  
 Aspiration hazard, Category 1  
 Short-term (acute) aquatic hazard, Category 2  
 Long-term (chronic) aquatic hazard, Category 3

**GHS-Labeling**

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H226: Flammable liquid and vapor.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H319: Causes serious eye irritation.  
 H372: Causes damage to organs (Auditory organs) through prolonged or repeated exposure.  
 H401: Toxic to aquatic life.  
 H412: Harmful to aquatic life with long lasting effects.

Precautionary Statements

: **Prevention:**  
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground and bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
 P242 Use non-sparking tools.  
 P243 Take action to prevent static discharges.  
 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.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing 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.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P314 Get medical advice/ attention if you feel unwell.  
 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 + P364 Take off contaminated clothing and wash it before reuse.  
 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.

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**Disposal:**

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

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

Synonyms : Inhibited Styrene  
Phenylethylene  
Benzene, Ethenyl  
Styrol  
Cinnamene  
Vinylbenzene  
Styrolene  
Styrene Monomer  
S-Chem Styrene

Molecular formula : C<sub>8</sub>H<sub>8</sub>

Chemical name	CAS-No. / EINECS-No.	Concentration [wt%]
Styrene	100-42-5	99.9 - 100

**SECTION 4: First aid measures**

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

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

In case of skin contact : If 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 : 31°C (88°F)  
Method: closed cup

Autoignition temperature : 490°C (914°F)

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.

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- 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). Keep away from open flames, hot surfaces and sources of ignition.

**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 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). Keep away from open flames, hot surfaces and sources of ignition.

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**Storage**

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

**SECTION 8: Exposure controls/personal protection****Ingredients with workplace control parameters****DE**

Components	Basis	Value	Control parameters	Note
Styrene	DE TRGS 900	AGW	20 ppm, 86 mg/m <sup>3</sup>	Y,

Y When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child

**ID**

Komponen	Dasar	Nilai	Parameter pengendalian	Catatan
Stirena	ID OEL	NAB	20 ppm,	A4,
	ID OEL	PSD	40 ppm,	A4,

A4 Tidak diklasifikasikan karsinogen terhadap manusia. Tidak cukup data untuk mengklasifikasikan bahan-bahan ini bersifat karsinogen terhadap manusia ataupun binatang

**IN**

Components	Basis	Value	Control parameters	Note
Styrene	IN OEL	TWA	50 ppm, 215 mg/m <sup>3</sup>	
	IN OEL	STEL	100 ppm, 425 mg/m <sup>3</sup>	

**MY**

Komponen	Dasar	Nilai	Parameter Kawalan	Nota
Stirena	MY PEL	TWA	20 ppm, 85.2 mg/m <sup>3</sup>	

**PH**

Components	Basis	Value	Control parameters	Note
Styrene	PH OEL	TWA	100 ppm, 420 mg/m <sup>3</sup>	

**US**

Components	Basis	Value	Control parameters	Note
Styrene	OSHA Z-2	TWA	100 ppm,	
	OSHA Z-2	CEIL	200 ppm,	
	OSHA Z-2	Peak	600 ppm,	
	OSHA Z-1-A	TWA	50 ppm, 215 mg/m <sup>3</sup>	
	OSHA Z-1-A	STEL	100 ppm, 425 mg/m <sup>3</sup>	
	ACGIH	TWA	10 ppm,	OTO, A3,
	ACGIH	STEL	40 ppm,	OTO, A3,

A3 Confirmed animal carcinogen with unknown relevance to humans  
OTO Ototoxicant

**Biological exposure indices****DE**

Substance name	CAS-No.	Control parameters	Sampling time	Update
Styrene	100-42-5	mandelic acid + phenylglyoxylic acid: 600 mg/g Creatinine (Urine)	In case of long-term exposure: after more than one shiftImmediately after exposure or after working hours	2018-06-07

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		mandelic acid + phenylglyoxylic acid: 600 mg/g Creatinine (Urine)	In case of long-term exposure: after more than one shift Immediately after exposure or after working hours	2018-06-07
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**ID**

Nama bahan	No-CAS	Parameter pengendalian	Waktu pengambilan sampel	Terkini
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**IN**

Substance name	CAS-No.	Control parameters	Sampling time	Update
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**MY**

Nama bahan	No.-CAS	Parameter Kawalan	Waktu persampelan	Kemaskini
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**PH**

Substance name	CAS-No.	Control parameters	Sampling time	Update
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**US**

Substance name	CAS-No.	Control parameters	Sampling time	Update
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid: 400 mg/g Creatinine Nonspecific (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01
		Styrene: 40 µg/l (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01

**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.

**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, 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

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	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.

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

Physical state	: liquid
Color	: Colorless
Odor	: Sweet

**Safety data**

Flash point	: 31°C (88°F) Method: closed cup
Lower explosion limit	: 0.9 %(V)
Upper explosion limit	: 6.8 %(V)
Oxidizing properties	: no
Autoignition temperature	: 490°C (914°F)
Molecular formula	: C <sub>8</sub> H <sub>8</sub>
Molecular weight	: 104.16 g/mol
pH	: Not applicable
Freezing point	: -30.63°C (-23.13°F)
Pour point	No data available
Boiling point/boiling range	: 145.15°C (293.27°F)
Vapor pressure	: 4.50 MMHG at 20°C (68°F)
Relative density	: 0.91 at 20 °C (68 °F)
Water solubility	: 0.029 wt.% styrene in water @ 20 °C (68°F)
Partition coefficient: n-	: log Pow: 2.96

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octanol/water	at 25°C (77°F)
Viscosity, dynamic	: 0.763 cP
Relative vapor density	: 3.6 (Air = 1.0)
Evaporation rate	: No data available
Percent volatile	: 100 % Concentration : 910 g/l  100 % Concentration : 910 g/l
Conductivity	: < 50 pSm

**SECTION 10: Stability and reactivity**

<b>Reactivity</b>	: Stable at normal ambient temperature and pressure.
<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>	: Further information: No decomposition if stored and applied as directed.  Hazardous reactions: Vapors may form explosive mixture with air.
<b>Conditions to avoid</b>	: Heat, flames and sparks.
<b>Materials to avoid</b>	: No data available.
<b>Other data</b>	: No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information**

<b>Acute oral toxicity</b>	
Styrene	: LD50: > 5,000 mg/kg Species: Rat Sex: male and female
<b>Styrene Monomer Acute inhalation toxicity</b>	: Acute toxicity estimate: 11 mg/l Exposure time: 4 h Test atmosphere: vapor



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Method: Calculation method

**Acute dermal toxicity**

Styrene : LD50: > 2,000 mg/kg  
Species: Rat  
Sex: male and female

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Skin irritation**

: May cause skin irritation in susceptible persons.

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Eye irritation**

: May cause irreversible eye damage.

**Sensitization**

Styrene : Classification: Does not cause skin sensitization.  
largely based on human evidence.

**Repeated dose toxicity**

Styrene : Species: Mouse, Male and female  
Sex: Male and female  
Application Route: Oral  
Dose: 0, 150, 300 mg/kg  
Exposure time: 78 wk  
Number of exposures: 5 d/wk  
NOEL: 150 mg/kg  
Lowest observable effect level: 300 mg/kg

Species: Rat, male  
Sex: male  
Application Route: Inhalation  
Dose: 0, 500, 650, 850, 1000 ppm  
Exposure time: 4 wk  
Number of exposures: 6 h/d, 5 d/wk  
NOEL: 500 ppm  
Target Organs: Ototoxicity

**Genotoxicity in vitro**

Styrene : Test Type: Ames test  
Result: negative

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Test Type: Cytogenetic assay  
Result: positive

Test Type: Reverse mutation assay  
Result: negative

Test Type: Mouse lymphoma assay  
Result: negative

Test Type: Sister Chromatid Exchange Assay  
Result: positive

Test Type: Mammalian cell gene mutation assay  
Result: negative

**Genotoxicity in vivo**

Styrene : Remarks: No significant adverse effects were reported

**Aspiration toxicity**

Styrene : May be fatal if swallowed and enters airways.

**CMR effects**

Styrene : Carcinogenicity: This substance has been reported to cause tumors in certain animal species.  
Mutagenicity: In vitro tests showed mutagenic effects which were not observed with in vivo test.  
Teratogenicity: Did not show teratogenic effects in animal experiments.  
Reproductive toxicity: No toxicity to reproduction

**Styrene Monomer  
Further information**

: Solvents may degrease the skin.

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

Styrene : LC50: 4.02 mg/l  
Exposure time: 96 h  
Species: Pimephales promelas (fathead minnow)  
flow-through test Test substance: yes  
Toxic to fish.

**Toxicity to daphnia and other aquatic invertebrates**

Styrene : EC50: 4.7 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
flow-through test

**Toxicity to algae**

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Styrene : EC50: 4.9 mg/l  
 Exposure time: 72 h  
 Species: Selenastrum capricornutum (algae)

**Toxicity to bacteria**

Styrene : EC10: 0.28 mg/l  
 Exposure time: 96 h  
 Growth rate  
 Species: Skeletonema costatum (Marine Algae)  
 Test substance: yes

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

Styrene : NOEC: 1.01 mg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 semi-static test  
 Test substance: yes  
 Method: OECD Test Guideline 211

**Biodegradability**

Styrene : According to the results of tests of biodegradability this product is considered as being readily biodegradable.

**Bioaccumulation**

Styrene : Does not significantly accumulate in organisms.

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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

**Ecotoxicology Assessment**

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

Long-term (chronic) aquatic hazard : Harmful to aquatic life with long lasting effects.

**SECTION 13: Disposal considerations**

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

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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)**

UN2055, STYRENE MONOMER, STABILIZED, 3, III, RQ (STYRENE)

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

UN2055, STYRENE MONOMER, STABILIZED, 3, III, (31°C)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN2055, STYRENE MONOMER, STABILIZED, 3, III

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

UN2055, STYRENE MONOMER, STABILIZED, 3, III, (D/E)

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

UN2055, STYRENE MONOMER, STABILIZED, 3, III

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

UN2055, STYRENE MONOMER, STABILIZED, 3, III, ENVIRONMENTALLY HAZARDOUS, (STYRENE)

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<b>Other information</b>	: Styrene Monomer, S.T.3, Cat. Y
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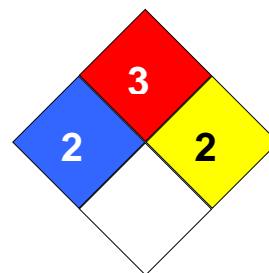
**Maritime transport in bulk according to IMO instruments**

**SECTION 15: Regulatory information****Notification status**

Europe REACH	:	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	:	Not in compliance with the inventory
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

**SECTION 16: Other information**

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

**Further information**

Legacy SDS Number : JCP00001

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	NIOSH	National Institute for Occupational

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	Substances List		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 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%		