

**N-Octyl Mercaptan**

Version 1.22

Revision Date 2021-12-07

MSDS number: AA00974-0000000143

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

Product Name : N-Octyl Mercaptan
Material : 1115893, 1086427, 1092079, 1089361, 1086426, 1021507,
1021501, 1021505, 1021503, 1021502, 1021508, 1021506,
1021504, 1024813, 1026777, 1036311, 1021509, 1035162,
1024812, 1033723

Recommended use of the product : Process regulators, used in vulcanization or polymerization processes
Restrictions on use : None known.

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

Address : CHEVRON PHILLIPS CHEMICALS ASIA PTE. LTD.
C/O DONG WOO CORPORATION
#B-2601,JEONGJAIL-RO,
BUNDANG-GU,SEONGNAMI-SI,
GYEONGGI-DO,13557
SOUTH KOREA
Telephone no.: +612-9186-1132

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

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Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group
 E-mail address : SDS@CPChem.com
 Website : www.CPChem.com
 Appointees : 회사명: 리이치 24 시코리아(주).

주소: 서울시 서초구 헌릉로 7,

외국기업창업지원연구센터
 (IKP) 908-909호

전화: + 82-1067838981

SECTION 2: Hazards identification**Hazard classification**

**Standards for classification and labeling of chemical substances and material safety data sheet
 (ministry of employment and labor public notice No. 2020-130)**

Classification

: Skin sensitization, Category 1
 Aspiration hazard, Category 2
 Short-term (acute) aquatic hazard, Category 1
 Long-term (chronic) aquatic hazard, Category 1

Warning label elements including precautionary statements

Symbol(s)



Signal Word

: Warning

Hazard Statements

: H305: May be harmful if swallowed and enters airways.
 H317: May cause an allergic skin reaction.
 H400: Very toxic to aquatic life.
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements

: **Prevention:**
 P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
 P273: Avoid release to the environment.
 P280: Wear protective gloves.
Response:
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
 P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

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P331: Do NOT induce vomiting.
 P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention.
 P362 + P364: Take off contaminated clothing and wash it before reuse.
 P391: Collect spillage.
Disposal:
 P501: Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification : None

SECTION 3: Composition/information on ingredients

Synonyms : 1-Octanethiol
 normal-Octyl mercaptan
 NOM
 NC8SH

Molecular formula : C₈H₁₈S

Common name	Synonyms	CAS-No.	Concentration	KECI Number
n-Octyl Mercaptan	octane-1-thiol	111-88-6	98.5 % - 100%	KE-26627

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.

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.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

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

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

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Take victim immediately to hospital.

Other cautions for Doctors

Symptoms : No information available.

Risks : No information available.

Treatment : No information available.

SECTION 5: Firefighting measuresFlash point : 69-71°C (156-160°F) at 101.325 kPa
Method: EU Method A.9

Autoignition temperature : No data available

Suitable extinguishing media : Carbon dioxide (CO₂).

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

Hazardous decomposition products : Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions : Use personal protective equipment. Ensure adequate ventilation.

Environmental precautions : Prevent product from entering drains. Prevent further leakage

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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). Keep in suitable, closed containers for disposal.

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. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

Secure storage

Requirements for storage areas and containers : No smoking. Keep in a 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.

Uses advised against : None known.

Specific Use : Process regulators, used in vulcanization or polymerization processes

SECTION 8: Exposure controls/personal protection**Chemical exposure standards, biological exposure standards, etc.**

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: 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.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- 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.
- 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 protective clothing. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
- 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 : Pungent
- Odor Threshold : No data available
- pH : Not applicable
- Melting point/freezing point : No data available
- Pour point : No data available

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Boiling point/boiling range	: 199°C (390°F)
Flash point	: 69-71°C (156-160°F) at 101.325 kPa Method: EU Method A.9
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Vapor pressure	: 0.02 PSI at 37.8°C (100.0°F)
Solubility	: negligible
Relative density	: 0.8460 at 15 °C (59 °F) 0.8420 at 20 °C (68 °F) 0.8174 at 50 °C (122 °F)
Vapor density	: 1 (Air = 1.0)
Partition coefficient: n-octanol/water	: No data available
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 1.04 mm ² /s at 40°C (104°F)
Molecular weight	: 146.32 g/mol

SECTION 10: Stability and reactivity

Reactivity : Stable under recommended storage conditions.

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

SECTION 11: Toxicological information**Information on exposure routes****Acute oral toxicity**

n-Octyl Mercaptan : LD50: 2,436 mg/kg
Species: Rat
Sex: male and female
Method: Fixed Dose Method

Acute inhalation toxicity

n-Octyl Mercaptan : LC50: > 0.24 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: vapor
Method: OECD Test Guideline 403
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Acute dermal toxicity

n-Octyl Mercaptan : LD50: > 1,680 mg/kg
Species: Rat

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Sex: male and female
Method: OECD Test Guideline 402

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Skin corrosion or irritation : slight irritation. largely based on animal evidence.

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Eye corrosion or irritation : slight irritation. largely based on animal evidence.

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Respiratory Sensitization : No data available

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Skin sensitization : May cause sensitization by skin contact.

Repeated dose toxicity

n-Octyl Mercaptan : Species: Rat, males
Sex: males
Application Route: Oral
Dose: 0, 10, 50, 250 mg/kg
Exposure time: 35 D
Number of exposures: once daily
NOEL: 50 mg/kg
Method: OECD Guideline 422

Species: Rat, females
Sex: females
Application Route: Oral
Dose: 0, 10, 50, 250 mg/kg
Number of exposures: once daily
NOEL: 50 mg/kg
Method: OECD Guideline 422

Germ cell mutagenicity (in vitro)

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n-Octyl Mercaptan : Test Type: Reverse mutation assay
 Metabolic activation: with and without metabolic activation
 Method: Mutagenicity (Escherichia coli - reverse mutation assay)
 Result: negative

Test Type: Chromosome aberration test in vitro
 Test system: Human lymphocytes
 Metabolic activation: with and without metabolic activation
 Result: negative

Test Type: Sister chromatid exchange
 Metabolic activation: with and without metabolic activation
 Result: negative

Germ cell mutagenicity (in vivo)

n-Octyl Mercaptan : Test Type: Micronucleus test
 Species: Mouse
 Method: Mutagenicity (micronucleus test)
 Result: negative

Developmental Toxicity

n-Octyl Mercaptan : Species: Rat
 Application Route: Oral diet
 Dose: 0, 10, 50, 250 mg/kg
 Number of exposures: once daily
 NOAEL Teratogenicity: 250 mg/kg

Specific Target Organ Toxicity (Single Exposure)

Not classified due to data which are conclusive although insufficient for classification.

Specific Target Organ Toxicity (Repeated Exposure)

Not classified due to data which are conclusive although insufficient for classification.

Aspiration toxicity

n-Octyl Mercaptan : May be harmful if swallowed and enters airways.

CMR effects

n-Octyl Mercaptan : Mutagenicity: Tests on bacterial or mammalian cell cultures

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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.

Reproductive toxicity

n-Octyl Mercaptan : Species: Rat
 Sex: male
 Application Route: Oral diet
 Dose: 0, 10, 50, 250 mg/kg
 Exposure time: 35 D
 Number of exposures: once daily
 Method: OECD Guideline 422
 NOAEL Parent: 250 mg/kg
 NOAEL F1: 250 mg/kg

Species: Rat
 Sex: female
 Application Route: Oral diet
 Dose: 0, 10, 50, 250 mg/kg
 Number of exposures: once daily
 Method: OECD Guideline 422
 NOAEL Parent: 50 mg/kg
 NOAEL F1: 250 mg/kg

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Further information : Solvents may degrease the skin.

SECTION 12: Ecological information

Ecological Toxicity

Toxicity to fish

n-Octyl Mercaptan : LC50: 0.326 mg/l
 Exposure time: 96 h
 Species: *Oryzias latipes* (Orange-red killifish)
 semi-static test Analytical monitoring: yes
 Method: OECD Test Guideline 203
 Very toxic to fish.

Toxicity to daphnia and other aquatic invertebrates

n-Octyl Mercaptan : 0.0243 mg/l
 Exposure time: 48 h
 Species: *Daphnia magna* (Water flea)
 Immobilization Analytical monitoring: yes
 Method: OECD Test Guideline 202
 Very toxic to aquatic organisms.

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Toxicity to algae

n-Octyl Mercaptan : 0.039 mg/l
 Exposure time: 72 h
 Species: Pseudokirchneriella subcapitata (microalgae)
 semi-static test Analytical monitoring: yes
 Method: OECD Test Guideline 201
 Very toxic to algae.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

n-Octyl Mercaptan : > 0.00467 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
 Toxic effects on fish and plankton

Persistence and degradability

n-Octyl Mercaptan : Result: Not readily biodegradable.
 0 %
 Testing period: 28 Days
 Method: OECD Test Guideline 301

Bioaccumulative

n-Octyl Mercaptan : Bioconcentration factor (BCF): 11.83
 Method: QSAR modeled data

Mobility

n-Octyl Mercaptan : Medium: Soil
 Method: Calculation, Mackay Level III Fugacity Model
 This product may float or sink in water.

n-Octyl Mercaptan : Medium: Water
 Method: Calculation, Mackay Level III Fugacity Model
 This product may float or sink in water.

Other adverse effects : Very toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment**Short-term (acute) aquatic hazard**

n-Octyl Mercaptan : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard

n-Octyl Mercaptan : Very toxic to aquatic life with long lasting effects.

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SECTION 13: Disposal considerations

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

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

Disposal method : 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.

Disposal precaution : 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.

UN Number	:	UN3082
UN Product Shipping Name	:	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	:	9
Packing Group	:	III - Less Hazardous Properties
Marine Pollutant	:	Yes
Special Safety Measures on Mode of Transport	:	No data available

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

NA1993, COMBUSTIBLE LIQUID, N.O.S., (N-OCTYL MERCAPTAN), III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (N-OCTYL

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MERCAPTAN), 9, III, (69-71°C), MARINE POLLUTANT, (N-OCTYL MERCAPTAN)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (N-OCTYL MERCAPTAN), 9, III

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

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (N-OCTYL MERCAPTAN), 9, III, (-)

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

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (N-OCTYL MERCAPTAN), 9, III

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

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (N-OCTYL MERCAPTAN), 9, III

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information**National legislation****Regulation under the Occupational Safety and Health Act**

A Material Safety Datasheet (MSDS) for this product is not required according to article 41 of the ISHA.

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Regulation	Chemical name	Threshold limits
Harmful Substances Prohibited from Manufacturing	: Not applicable	
	Not applicable	
Harmful Substances Required Permission for Manufacture	: Not applicable	
	Not applicable	

Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act

Regulation	Chemical name	Threshold limits
Toxic Chemicals	: Not applicable	
	Not applicable	
Prohibited Chemicals	: Not applicable	
	Not applicable	
Restricted Chemicals	: Not applicable	
	Not applicable	
Toxic Release Inventory	: Not applicable	
	Not applicable	

Dangerous Substances Safety Management Act

Dangerous Substances : Flammable liquids, Type 2 petroleums, Water insoluble liquid
 Safety Management Act

Regulations by the Waste Management Act : n-Octyl Mercaptan: Designated Waste

Regulations by other domestic and foreign laws

Europe REACH : On the inventory, or in compliance with the inventory
 Switzerland CH INV : On the inventory, or in compliance with the inventory
 United States of America (USA) : On or in compliance with the active portion of the
 TSCA TSCA inventory
 Canada DSL : All components of this product are on the Canadian
 DSL
 Australia AICS : On the inventory, or in compliance with the inventory
 New Zealand NZIoC : On the inventory, or in compliance with the inventory
 Japan ENCS : On the inventory, or in compliance with the inventory
 Korea KECI : All substances in this product were registered, notified
 to be registered, or exempted from registration by
 CPChem through an Only Representative according to
 K-REACH regulations. Importation of this product is
 permitted if the Korean Importer of Record was
 included on CPChem's notifications or if the Importer of
 Record themselves notified the substances.
 Philippines PICCS : On the inventory, or in compliance with the inventory
 China IECSC : On the inventory, or in compliance with the inventory

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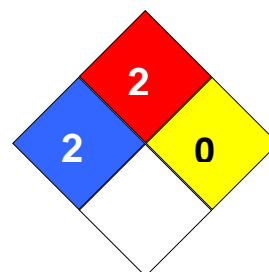
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Taiwan TCSI : On the inventory, or in compliance with the inventory

Other regulations : No data available**SECTION 16: Other information**

Source of data	:	Korea. GHS based classification
Date of initial writing	:	2021-09-28
Revision number	:	1
Last revision date	:	2021-11-18

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

**Other information**

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

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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%		