

AlphaPlus® 1-Tetradecene

Version 1.11

Revision Date 2023-11-27

MSDS number: AA00974-0000000400

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

Product Name : AlphaPlus® 1-Tetradecene
Material : 1128492, 1064098, 1037032, 1037031

Recommended use of the product : Commercial Product
Restrictions on use : None known.

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

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

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

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Cyprus: 1401
 Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402
 Denmark: Danish Poison Center (Gifftlinjen): +45 8212 1212
 Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
 Finland: 0800 147 111 09 471 977 (24 hours/day)
 France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)
 Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
 Greece: (0030) 2107793777 (24 hours/day, 7 days/week)
 Hungary: +36-80-201-199 (24 hours/day, 7 days/week)
 Iceland: 543 2222 (24 hours/day, 7 days/week)
 Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
 Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
 Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic
 Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371
 67042473. (24 hours.)
 Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
 Lithuania: +370 (85) 2362052
 Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)
 Malta: +356 2395 2000
 The Netherlands: NVIC: +31 (0)88 755 8000
 Norway: 22 59 13 00 (24 hours/day, 7 days/week)
 Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
 Portugal: CIAV phone number: +351 800 250 250
 Romania: +40213183606
 Slovakia: +421 2 5477 4166
 Slovenia: Phone number: 112
 Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24
 hours/day, 7 days/week)
 Sweden: 112 – ask for Poisons Information

Responsible Department : Product Safety and Toxicology Group
 E-mail address : SDS@CPChem.com
 Website : www.CPChem.com
 Appointees : 회사명: 리이치24시코리아(주).
 주소: 서울특별시 강남구 강남대로 94길 34,4층
 전화: + 82-02-6245-1610

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. 2023-9)

Classification

: Skin corrosion/irritation, Category 2
Aspiration hazard, Category 1


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Long-term (chronic) aquatic hazard, Category 4

Warning label elements including precautionary statements

Symbol(s)	:	
Signal Word	:	Danger
Hazard Statements	:	H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H413: May cause long lasting harmful effects to aquatic life.
Precautionary Statements	:	Prevention: P264: Wash the contact area thoroughly after handling. 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. P321: Specific treatment (see supplemental first aid instructions on this label). P331: Do NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/ attention. P362 + P364: Take off contaminated clothing and wash it before reuse. Storage: P405: Store locked up. 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	:	Tetradec-1-ene (C ₁₄ H ₂₈) 1-Tetradecene (C ₁₄ H ₂₈) NAO 14 (C ₁₄ H ₂₈)
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Number:100000067489

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Molecular formula : C₁₄H₂₈

Common name	Synonyms	CAS-No.	Concentration	KECI Number
1-Tetradecene	tetradec-1-ene	1120-36-1	94%	KE-33369
2-Butyl-1-Decene	Tridecane, 5-methylene-	51655-65-3	2%	
2-Ethyl-1-Dodecene	Tridecane, 3-methylene-	19780-34-8	2%	
2-Hexyl-1-Octene	Tridecane, 7-methylene-	19780-80-4	1%	
Related Materials			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.
- In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If 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. Take victim immediately to hospital.

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Other cautions for Doctors

Symptoms : No data available.

Risks : No data available.

Treatment : No data available.

SECTION 5: Firefighting measures

Flash point : 107°C (225°F)

Autoignition temperature : 235°C (455°F)

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire and explosion protection : Normal measures for preventive fire protection.

SECTION 6: Accidental release measures

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

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 : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage**Handling**

Advice on safe handling : Do not breathe vapors/dust. For personal protection see

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section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Secure storage

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Uses advised against : None known.

Specific Use : Commercial Product

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.

Personal protective equipment

Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as: Air-Purifying Respirator for Dusts and Mists / P100. A positive pressure, air-supplying respirator may be appropriate 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

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- 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 according to the amount and concentration of the substance and the task performed at the work place. Appropriate PPE may include:. Protective suit. Safety shoes.
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:. Protective suit. Safety shoes.
- 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 : No data available
Odor Threshold : No data available

pH : Not applicable

Melting point/range : -13.9°C (7.0°F)

Freezing point No data available

Boiling point/boiling range : 251°C (484°F)

Flash point : 107°C (225°F)

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Lower explosion limit : > 0.5 %(V)

Upper explosion limit : < 5.4 %(V)

Vapor pressure : 0.01 MMHG
at 25°C (77°F)

< 0.10 kPa
at 65°C (149°F)

Solubility : Soluble in hydrocarbon solvents; insoluble in water.

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Relative density : 0.77
at 15.6 °C (60.1 °F)
0.779
at 10 °C (50 °F)
0.771
at 20 °C (68 °F)
0.750
at 50 °C (122 °F)
0.746
at 55 °C (131 °F)

Density : 775 kg/m³
at 15°C (59°F)
774 kg/m³
at 25°C (77°F)
750 kg/m³
at 50°C (122°F)

Vapor density : 6.8
(Air = 1.0)

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : 235°C (455°F)

Viscosity, kinematic : 2.61 cSt
at 20°C (68°F)

Molecular weight : 196.42 g/mol

SECTION 10: Stability and reactivity

Reactivity : Stable at normal ambient temperature and pressure.

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

Conditions to avoid : No data available.

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

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

SECTION 11: Toxicological information**Information on exposure routes****AlphaPlus® 1-Tetradecene**

Acute oral toxicity : LD50: > 5,000 mg/kg
Species: Rat
Sex: male and female
Information given is based on data obtained from similar substances.

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Acute inhalation toxicity : LC50: > 5 mg/l
Exposure time: 4 h
Species: Rat
Test atmosphere: dust/mist
Method: Acute toxicity estimate
Information given is based on data obtained from similar substances.
Not classified due to data which are conclusive although insufficient for classification.

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Acute dermal toxicity : LD50 Dermal: > 2,020 mg/kg
Species: Rabbit
Sex: male and female
Information given is based on data obtained from similar substances.

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

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Eye corrosion or irritation : No eye irritation
Information given is based on data obtained from similar substances.

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Respiratory Sensitization : No data available.

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Skin sensitization : Did not cause sensitization on laboratory animals., largely based on animal evidence

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Germ cell mutagenicity (in vitro)

- 1-Tetradecene : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Escherichia coli - reverse mutation assay)
Result: negative
- Test Type: Mammalian cell gene mutation assay
Metabolic activation: with and without metabolic activation
Method: OECD Guideline 476
Result: negative
- Test Type: Chromosome aberration test in vitro
Method: OECD Guideline 473
Result: negative

Germ cell mutagenicity (in vivo)

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

**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.

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Aspiration toxicity**

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

CMR effects

- 1-Tetradecene : Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

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Reproductive toxicity: No toxicity to reproduction

Reproductive toxicity

1-Tetradecene : Species: Rat
Sex: male
Application Route: Oral diet
Dose: 0, 100, 500, 1000 mg/kg
Exposure time: 43-47 days
Method: OECD Guideline 422
NOAEL Parent: 1,000 mg/kg
NOAEL F1: 1,000 mg/kg

Species: Rat
Sex: female
Application Route: Oral diet
Dose: 0, 100, 500, 1000 mg/kg
Exposure time: 46-47 days
Method: OECD Guideline 422
NOAEL Parent: 1,000 mg/kg
NOAEL F1: 1,000 mg/kg

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Further information : Solvents may degrease the skin.

SECTION 12: Ecological information

Ecological Toxicity

Toxicity to fish

1-Tetradecene : LL50: > 1,000 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
semi-static test Test substance: yes
Method: OECD Test Guideline 203
The product has low solubility in the test medium. An aqueous dispersion was tested.

Toxicity to daphnia and other aquatic invertebrates

1-Tetradecene : EL50: > 1,000 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Test substance: yes
Method: OECD Test Guideline 202
The product has low solubility in the test medium. An aqueous

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dispersion was tested.

Toxicity to algae

1-Tetradecene : EL50: > 1,000 mg/l
 Exposure time: 96 h
 Species: Selenastrum capricornutum (algae)
 static test Test substance: yes
 Method: OECD Test Guideline 201
 The product has low solubility in the test medium. An aqueous dispersion was tested.

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

Bioaccumulative : Due to the distribution coefficient n-octanol/water, accumulation in organisms is possible.

Mobility : No data available

Results of PBT assessment
 1-Tetradecene : Non-classified PBT substance, Non-classified vPvB substance

Other adverse effects : No data available

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard : This material is not expected to be harmful to aquatic organisms.

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 : Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

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Disposal precaution : Empty remaining contents. Dispose of as unused product.
Do not re-use empty containers.

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	:	not regulated
UN Product Shipping Name	:	Not regulated as a dangerous good
Hazard Class	:	Not applicable
Packing Group	:	Not applicable
Marine Pollutant	:	Not applicable
Special Safety Measures on Mode of Transport	:	No data available

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Other information	:	OLEFINS (C13 +, all isomers), S.T. 2, Cat.Y
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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.

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

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

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

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Dangerous Substances Safety Management Act

Dangerous Substances : Flammable liquids, Type 3 petroleums, Water insoluble liquid
Safety Management Act

Regulations by the Waste Management Act

: 1- Tetradecene: Designated Waste

Regulations by other domestic and foreign laws

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

Switzerland CH INV : On the inventory, or in compliance with the inventory

United States of America (USA) : 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 AIIC : 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 : A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).

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

Other regulations : No data available

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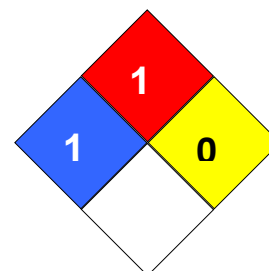
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SECTION 16: Other information

Source of data	:	Korea. GHS based classification
Date of initial writing	:	2023-10-23
Revision number	:	1
Last revision date	:	2023-11-27

NFPA Classification : Health Hazard: 1
Fire Hazard: 1
Reactivity Hazard: 0

**Other information**

None.

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%
AIIC	Australian Inventory of Industrial Chemicals	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 Level

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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%	ATE	Acute toxicity estimate