

**Sulfole® 120 Mercaptan (tert-Dodecyl Mercaptan)**

Version 2.11

Revision Date 2017-05-31

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

Product Name : Sulfole® 120 Mercaptan (tert-Dodecyl Mercaptan)
Material : 1121184, 1113774, 1017942, 1111452, 1024818, 1024817,
1103990, 1084934, 1101771, 1086417, 1086418, 1021548,
1036536, 1035962, 1021538, 1021539, 1021542, 1021543,
1021544, 1021546, 1021547, 1021550, 1021551, 1021552,
1021553, 1021719, 1032613, 1021545, 1021549, 10462848

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

Local : See Company Address

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)

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

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****GHS Classification and labelling according to JIS Z7252-2014 and JIS Z7253-2012 (GHS 2011)****Classification**

: Skin irritation, Category 2
Eye irritation, Category 2A
Skin sensitization, Category 1
Chronic aquatic toxicity, Category 4

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Labeling

Symbol(s)

:



Signal Word

: Warning

Hazard Statements

: H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H319: Causes serious eye irritation.
 H413: May cause long lasting harmful effects to aquatic life.

Precautionary Statements

: **Prevention:**
 P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
 P264: Wash skin thoroughly after handling.
 P272: Contaminated work clothing must not be allowed out of the workplace.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 P302 + P352: IF ON SKIN: Wash with plenty of soap and 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.
 P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313: If eye irritation persists: Get medical advice/ attention.
 P362: Take off contaminated clothing and wash before reuse.
 P391: Collect spillage.
Storage:
 P405: Store locked up.
Disposal:
 P501: Dispose of contents/ container to an approved waste disposal plant.

SECTION 3: Composition/information on ingredients

Synonyms

: TDM

Molecular formula

: C₁₂H₂₆S

Chemical name	CAS-No.	Concentration	ENCS/ISHL number
tert-Dodecanethiol	25103-58-6	90 % - 100%	2-464

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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. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

- Flash point : 98 - 110 °C (208 - 230 °F)
- Autoignition temperature : 198 - 230 °C (388 - 446 °F)
- 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.
- Fire and explosion protection : Normal measures for preventive fire protection.
- 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 or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

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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. 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. 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 : Normal measures for preventive fire protection.

Storage

Requirements for storage areas and containers : 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****Chevron Phillips Chemical Company LP**

Ingredients	Basis	Value	Control parameters	Note
tert-Dodecanethiol	Manufacturer	TWA	0.1 ppm,	

JP

Ingredients	Basis	Value	Control parameters	Note
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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

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- occur, such as: Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, 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. Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the 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.
- Protective measures : Wear suitable protective equipment. When using do not eat, drink or smoke. Avoid contact with skin.

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

- Physical state : Liquid
 Color : Colorless
 Odor : Repulsive

Safety data

- Flash point : 98 - 110 °C (208 - 230 °F)
 Lower explosion limit : No data available
 Upper explosion limit : No data available
 Oxidizing properties : no
 Autoignition temperature : 198 - 230 °C (388 - 446 °F)
 Thermal decomposition : 300 °F
- Molecular formula : C₁₂H₂₆S
 Molecular weight : 202.44 g/mol
 pH : Not applicable

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Pour point	: No data available
Melting point/range	-16 °C (3 °F)
Boiling point/boiling range	: 233 °C (451 °F)
Vapor pressure	: 4.00 Pa at 24 °C (75 °F)
Relative density	: 0.86 at 16 °C (61 °F)
Water solubility	: 0.00393 mg/l Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	: Pow: 7.43 at 20 °C (68 °F)
Viscosity, dynamic	: 2.6 cP at 20 °C (68 °F)
Viscosity, kinematic	: No data available
Relative vapor density	: 3 (Air = 1.0)
Evaporation rate	: < 1

SECTION 10: Stability and reactivity

Chemical stability	: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
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Possibility of hazardous reactions

Conditions to avoid	: Heat, sparks, fire, and oxidizing agents.
Thermal decomposition	: 300 °F
Hazardous decomposition products	: Carbon oxides Sulfur oxides
Other data	: No decomposition if stored and applied as directed.

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

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tert-Dodecanethiol : LD50: > 5,000 mg/kg
Species: Rat
Sex: male and female
Method: OECD Test Guideline 401
Information given is based on data obtained from similar substances.

Acute inhalation toxicity

tert-Dodecanethiol : LC50: > 1.97milligram per literExposure time: 4 h
Species: Rat
Sex: male and female
Method: OECD Test Guideline 403
Information given is based on data obtained from similar substances.

Acute dermal toxicity

tert-Dodecanethiol : LD50: >2000 mg/kg
Species: Rat
Sex: male
Method: OECD Test Guideline 402
Information given is based on data obtained from similar substances.

Skin irritation

tert-Dodecanethiol : Skin irritation

Eye irritation

tert-Dodecanethiol : Eye irritation

Sensitization

tert-Dodecanethiol : The product is a skin sensitizer, sub-category 1B.

Repeated dose toxicity

tert-Dodecanethiol : Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 0, 26, 98 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
Lowest observable effect level: 26 ppm
Method: OECD Test Guideline 412
Target Organs: Kidney, Liver

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Species: Rat, female
Sex: female
Application Route: Inhalation
Dose: 0, 26, 98 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
NOEL: 26 ppm
Method: OECD Guideline 412
Target Organs: Liver, Kidney

Species: Dog, male and female
Sex: male and female
Application Route: Inhalation
Dose: 0, 25, 106 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
NOEL: 25 ppm
Lowest observable effect level: 109 ppm
Method: OECD Test Guideline 412
Target Organs: Liver

Species: Mouse, male and female
Sex: male and female
Application Route: Inhalation
Dose: 0, 25, 109 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
Lowest observable effect level: 25 ppm
Method: OECD Test Guideline 412
Target Organs: Liver

Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 10, 50, 250 mg/kg
Exposure time: 35 d
Number of exposures: once daily
NOEL: 50 mg/kg
Method: OECD Guideline 422
Target Organs: Liver, spleen
Information given is based on data obtained from similar substances.

Species: Rat, female
Sex: female
Application Route: oral gavage
Dose: 10, 50, 250 mg/kg
Exposure time: 53 d
Number of exposures: once daily
NOEL: 50 mg/kg
Method: OECD Guideline 422
Target Organs: Liver, spleen
Information given is based on data obtained from similar substances.

Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 5, 25, 100 ppm
Exposure time: 90 d

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Number of exposures: 6h/d, 5d/wk
NOEL: 25 ppm
Method: OECD Test Guideline 413

Species: Rat, female
Sex: female
Application Route: Inhalation
Dose: 5, 25, 100 ppm
Exposure time: 90 d
Number of exposures: 6h/d, 5d/wk
NOEL: 25 ppm
Method: OECD Test Guideline 413

Reproductive toxicity

tert-Dodecanethiol

: Species: Rat
Sex: male
Application Route: oral gavage
Dose: 10, 50, 250 mg/kg/d
Exposure time: 35 d
Number of exposures: Daily
Method: OECD Guideline 422
NOAEL Parent: ≥ 250 mg/kg
Information given is based on data obtained from similar substances.

Species: Rat
Sex: female
Application Route: oral gavage
Dose: 10, 50, 250 mg/kg/d
Exposure time: 53 d
Number of exposures: Daily
Method: OECD Guideline 422
NOAEL Parent: 50 mg/kg
NOAEL F1: 50 mg/kg
Information given is based on data obtained from similar substances.
Decrease in Delivery Index

Developmental Toxicity

tert-Dodecanethiol

: Species: Rat
Application Route: Inhalation
Dose: 0, 22.7, 88.6 ppm
Number of exposures: 6 hrs/d
Test period: GD 6-19
Method: OECD Guideline 414
NOAEL Teratogenicity: ≥ 88.6 ppm
No adverse effects expected

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Species: Mouse
Application Route: Inhalation
Dose: 0, 22.7, 88.6 ppm
Number of exposures: 6 hrs/d
Test period: GD 6-19
Method: OECD Guideline 414
NOAEL Teratogenicity: ≥ 88.6 ppm
No adverse effects expected

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Aspiration toxicity : May be harmful if swallowed and enters airways.

CMR effects

tert-Dodecanethiol : Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: No toxicity to reproduction

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Further information : Solvents may degrease the skin.

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

tert-Dodecanethiol : LL50: > 100 mg/l
Exposure time: 96 h
Species: Danio rerio (Zebra Fish)
static test Method: OECD Test Guideline 203
No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates

tert-Dodecanethiol : EC50: > 0.056 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
semi-static test Method: OECD Test Guideline 202
No toxicity at the limit of solubility.

Toxicity to bacteria

tert-Dodecanethiol : NOEC: 8.6 mg/l
Exposure time: 3 h
Growth rate
Respiration inhibition
Method: OECD Test Guideline 209

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NOEC: > 10 mg/l
 Exposure time: 3 h
 Growth rate
 Respiration inhibition
 Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

tert-Dodecanethiol : NOEC: 0.0108 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
 semi-static test
 Method: OECD Test Guideline 211
 No toxicity at the limit of solubility.

Bioaccumulation

tert-Dodecanethiol : Species: Danio rerio (zebra fish)
 Exposure time: 15 d
 Bioconcentration factor (BCF): > 500 - < 1,950
 Method: OECD Test Guideline 305
 Biomagnification factor <1
 The product may be accumulated in organisms.

Biodegradability

tert-Dodecanethiol : Result: Not readily biodegradable.
 0 %
 Testing period: 28 d
 Method: OECD Test Guideline 301D

Ecotoxicology Assessment**Acute aquatic toxicity**

tert-Dodecanethiol : No toxicity at the limit of solubility.

Chronic aquatic toxicity

tert-Dodecanethiol : May cause long lasting harmful effects to aquatic life.

Toxicity Data on Soil

tert-Dodecanethiol : Adsorbs on soil.

Results of PBT assessment

tert-Dodecanethiol : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information

: May cause long lasting harmful effects to aquatic life.

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.

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)

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)

UN3334, AVIATION REGULATED LIQUID, N.O.S., (TERTIARY DODECANETHIOL), 9, III

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

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

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.

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

Other information	: tert- Dodecanethiol, S.T. 3, Cat.Y
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SECTION 15: Regulatory information**National legislation****Poisonous and Deleterious Substances Control Law**

: Not relevant

Industrial Safety and Health Law

Substances Subject to be : Not relevant
Notified Names

Hazardous Substances : Not relevant
Subject to Labeling
Requirements

Ordinance on Prevention of : Not relevant
Organic Solvent Poisoning

Chemical Substance Control Law

: Not relevant

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Class I Designated Chemical : tert-dodecanethiol(274)
Substances

Other regulations**Notification status**

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
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	:	On the inventory, or 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

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SECTION 16: Other information**Further information**

Legacy SDS Number : 34650

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 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%		