

**Dimethyl Disulfide**

Version 4.9

Revision Date 2016-10-03

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

Product Name : Dimethyl Disulfide  
Material : 1119676, 1093527, 1086484, 1095605, 1095604, 1095602,  
1097432, 1093526, 1095603, 1076483, 1034521, 1035203,  
1031147, 1032633, 1034638, 1031751, 1036662, 1034642,  
1031840, 1036791, 1036352, 1034364, 1036792, 1036131,  
1024538

Use : Chemical intermediate

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

**Emergency telephone:****Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

**Transport:**

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: +800 CHEMCALL (+800 2436 2255) China: +86-21-22157316

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

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**

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

**Emergency Overview****Danger**

**Form:** Liquid    **Physical state:** Liquid    **Color:** Yellow    **Odor:** Mildly unpleasant

OSHA Hazards : Flammable Liquid, Toxic by inhalation., Harmful by ingestion.,  
Skin sensitizer, Specific target organ systemic toxicity - single

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exposure

**Classification**

: Flammable liquids, Category 2  
 Acute toxicity, Category 4, Oral  
 Skin sensitization, Sub-category 1B  
 Eye irritation, Category 2A  
 Acute toxicity, Category 3, Inhalation  
 Specific target organ systemic toxicity - single exposure,  
 Category 3, Respiratory system

**Labeling**

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H225: Highly flammable liquid and vapor.  
 H302: Harmful if swallowed.  
 H317: May cause an allergic skin reaction.  
 H319: Causes serious eye irritation.  
 H331: Toxic if inhaled.  
 H335: May cause respiratory irritation.

Precautionary Statements

: **Prevention:**  
 P210 Keep away from heat/sparks/open flames/hot surfaces.  
 No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ ventilating/ lighting/  
 equipment.  
 P242 Use only non-sparking tools.  
 P243 Take precautionary measures against static discharge.  
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 P272 Contaminated work clothing must not be allowed out of  
 the workplace.  
 P280 Wear protective gloves/ eye protection/ face protection.  
**Response:**  
 P301 + P312 + P330 IF SWALLOWED: Call a POISON  
 CENTER/doctor if you feel unwell. Rinse mouth.  
 P303 + P361 + P353 IF ON SKIN (or hair): Take off  
 immediately all contaminated clothing. Rinse skin with  
 water/shower.  
 P304 + P340 + P311 IF INHALED: Remove person to fresh  
 air and keep comfortable for breathing. Call a POISON  
 CENTER or doctor/ physician.  
 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.

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P363 Wash contaminated clothing before reuse.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
**Storage:**  
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235 Store in a well-ventilated place. Keep cool.  
 P405 Store locked up.  
**Disposal:**  
 P501 Dispose of contents/ container to an approved waste disposal plant.

**Carcinogenicity:****IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**ACGIH**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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

Synonyms : DMDS,  
 Disulfide, dimethyl  
 Dimethyl disulfide,  
 Dimethyl disulphide,  
 (Methyldithio) methane  
 Methyl disulfide  
 CPChem Dimethyl Disulfide

Molecular formula : C<sub>2</sub>H<sub>6</sub>S<sub>2</sub>

Component	CAS-No.	Weight %
Dimethyl Disulfide	624-92-0	99 - 100

**SECTION 4: First aid measures**

General advice : Move out of dangerous area. Consult a physician. 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 : Call a physician or poison control center immediately. If unconscious place in recovery position and seek medical advice.

In case of skin contact : 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

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- 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 : 15 °C (59 °F)  
Method: closed cup
- Autoignition temperature : No data available
- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
- Unsuitable extinguishing media : High volume water jet.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
- Fire and explosion protection : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
- Hazardous decomposition products : Hydrogen Sulfide. Sulfur oxides.

**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

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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 : In case of an accident, this substance must be handled under Strictly Controlled Conditions (SCC) in accordance with REACH regulation Article 18(4) for transported isolated intermediates. 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 an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

**Storage**

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

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

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Ingredients	Basis	Value	Control parameters	Note
Dimethyl Disulfide	ACGIH	TWA	0.5 ppm,	URT irr, CNS irr, Skin,

CNS irr Central Nervous System irritation  
Skin Danger of cutaneous absorption  
URT irr Upper Respiratory Tract irritation

**Engineering measures**

The substance is registered as a Transported Isolated Intermediate with Strictly Controlled Conditions (SCC) defined in Article 18(4) of Regulation EC No. 1907/2006 and must therefore be handled as such.

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

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**Personal protective equipment**

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. 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. 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:. Flame-resistant clothing. Workers should wear antistatic footwear.
- Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

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

- Form : Liquid
- Physical state : Liquid
- Color : Yellow
- Odor : Mildly unpleasant

**Safety data**

- Flash point : 15 °C (59 °F)  
Method: closed cup
- Lower explosion limit : 1.1 %(V)
- Upper explosion limit : 16 %(V)
- Oxidizing properties : no
- Autoignition temperature : No data available

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Molecular formula	: C <sub>2</sub> H <sub>6</sub> S <sub>2</sub>
Molecular weight	: 94.2 g/mol
pH	: No data available
Pour point	: No data available
Boiling point/boiling range	: 109 °C (228 °F)
Vapor pressure	: 28.60 MMHG at 25 °C (77 °F)
Relative density	: 1.06 at 4 °C (39 °F)
Water solubility	: Negligible
Partition coefficient: n-octanol/water	: Pow: 1.77
Viscosity, dynamic	: 0.62 mPa.s
Relative vapor density	: 3.25 (Air = 1.0)
Evaporation rate	: No data available
Percent volatile	: > 99 %

**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, flames and sparks.
Hazardous decomposition products	: Hydrogen Sulfide Sulfur oxides

Other data	: No decomposition if stored and applied as directed.
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**SECTION 11: Toxicological information****Acute oral toxicity**

Dimethyl Disulfide	: LD <sub>50</sub> : > 300 - < 500 mg/kg Species: Rat Sex: female Method: OECD Test Guideline 423
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**Acute inhalation toxicity**

Dimethyl Disulfide : LC50: 5.05 mg/l  
Exposure time: 4 h  
Species: Rat  
Test atmosphere: vapor  
Method: OECD Test Guideline 403

**Dimethyl Disulfide  
Skin irritation**

: May cause skin irritation and/or dermatitis.

**Dimethyl Disulfide  
Eye irritation**

: May cause irreversible eye damage.

**Dimethyl Disulfide  
Sensitization**

: Causes sensitization.

**Aspiration toxicity**

Dimethyl Disulfide : May be harmful if swallowed and enters airways.

**CMR effects**

Dimethyl Disulfide : Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

**Dimethyl Disulfide  
Further information**

: Solvents may degrease the skin.

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

Dimethyl Disulfide : LC50: 0.97 mg/l  
Exposure time: 96 h  
Species: Oncorhynchus mykiss (rainbow trout)  
static test

**Toxicity to daphnia and other aquatic invertebrates**

Dimethyl Disulfide : LC50: 1.82 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 202

**Toxicity to algae**

Dimethyl Disulfide : EC50: 0.31 mg/l  
Exposure time: 96 h  
Species: Anabaena flosaquae (Blue-green algae)  
Method: OECD Test Guideline 201



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

Dimethyl Disulfide : NOEC: 0.0025 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

**Biodegradability**

Dimethyl Disulfide : aerobic  
Result: Partially biodegradable.  
50 - 60 %  
Testing period: 28 d  
Method: OECD Test Guideline 310  
The 10 day time window criterion is not fulfilled.  
Expected to be inherently biodegradable.

**Ecotoxicology Assessment**

Acute aquatic toxicity  
Dimethyl Disulfide : Very toxic to aquatic life.

Chronic aquatic toxicity  
Dimethyl Disulfide : Very toxic to aquatic life with long lasting effects.

Results of PBT assessment  
Dimethyl Disulfide : Non-classified PBT substance, Non-classified vPvB substance

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

**SECTION 13: Disposal considerations**

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

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

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

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**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)**

UN2381, DIMETHYL DISULFIDE, 3 (6.1), II, MARINE POLLUTANT, (DIMETHYL DISULFIDE)

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

UN2381, DIMETHYL DISULPHIDE, 3 (6.1), II, (15 °C), MARINE POLLUTANT, (DIMETHYL DISULFIDE)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN2381, NON: NOT PERMITTED FOR TRANSPORT

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

UN2381, DIMETHYL DISULPHIDE, 3 (6.1), II, (D/E), ENVIRONMENTALLY HAZARDOUS, (DIMETHYL DISULFIDE)

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

UN2381, DIMETHYL DISULPHIDE, 3 (6.1), II, ENVIRONMENTALLY HAZARDOUS, (DIMETHYL DISULFIDE)

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

UN2381, DIMETHYL DISULPHIDE, 3 (6.1), II, ENVIRONMENTALLY HAZARDOUS, (DIMETHYL DISULFIDE)

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

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

**SARA 311/312 Hazards** : Fire Hazard  
Acute Health Hazard

**CERCLA Reportable** : This material does not contain any components with a CERCLA

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Quantity

RQ.

SARA 302 Reportable  
Quantity: This material does not contain any components with a SARA  
302 RQ.SARA 302 Threshold  
Planning Quantity: No chemicals in this material are subject to the reporting  
requirements of SARA Title III, Section 302.SARA 304 Reportable  
Quantity: This material does not contain any components with a section  
304 EHS RQ.

SARA 313 Ingredients

: This material does not contain any chemical components with  
known CAS numbers that exceed the threshold (De Minimis)  
reporting levels established by SARA Title III, Section 313.**Clean Air Act**Ozone-Depletion  
Potential: This product neither contains, nor was manufactured with a Class I or  
Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR  
82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**US State Regulations**

Pennsylvania Right To Know

: Dimethyl Disulfide - 624-92-0

New Jersey Right To Know

: Dimethyl Disulfide - 624-92-0

California Prop. 65  
Ingredients: This product does not contain any chemicals known to the State  
of California to cause cancer, birth, or any other reproductive  
defects.

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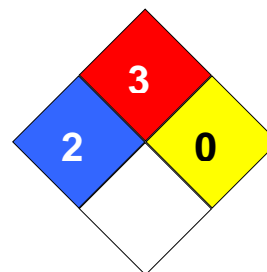
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**Notification status**

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America 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

**SECTION 16: Other information**

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

**Further information**

Legacy SDS Number : 96150

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	OSHA	Occupational Safety & Health

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	Scenario Tool		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%		