1. IDENTIFICATION OF THE SUBSTANCE/ PREPARATION AND COMPANY/ UNDERTAKING

Material Name : **Methanol**
Product Code : 67-56-1

Supplier : Chemisol Inc.
3/F Johnson Bldg. #5 D. Muñoz St.
Tandang Sora, Quezon City
Philippines

Telephone : (632) 938 5388
Fax : (632) 938 3818

Emergency Telephone Number : (632) 938 5388

Recommended use of the chemical and restrictions on use
Recommended use : Solvent. Raw Material for use in the chemical industry.
Restrictions on use : This product must not be used in applications other than the above without first seeking the advice of the supplier.

2. HAZARDS IDENTIFICATION

GHS Classification	:	
Flammable liquids	:	Category 2
Acute Toxicity (Dermal)	:	Category 3
Acute Toxicity (Inhalation)	:	Category 3
Acute Toxicity (Oral)	:	Category 3
Specific target organ toxicity - single exposure	:	Category 1 (Visual system, Nervous system)

GHS Label Statements
Symbol :

Signal Words : Danger

GHS Hazards Statements : PHYSICAL HAZARDS:
H225 Highly flammable liquid and vapour.

: HEALTH HAZARDS:
H311 Toxic in contact with skin.
H301 Toxic if swallowed.
H331 Toxic if inhaled.
H370 Causes damage to organs (Eyes, Nervous system).

: ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

GHS Precautionary statements

Prevention : P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
P243 Take precautionary measures against static discharge.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapours.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P271 Use only outdoors or in a well-ventilated area.

Response : P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P330 Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P363 Wash contaminated clothing before reuse.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.
P370+P378 In case of fire: Use appropriate media for extinction.

Storage : P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal : P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other Hazards which do not result in classification :
In use, may form flammable/explosive vapour-air mixture. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Substance/Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (%)
methanol	67-56-1	Flam. Liq.2; H225 Acute Tox.2; H330 Acute Tox.3; H311 Acute Tox.3; H301 STOT SE1; H370	<= 100

4. FIRST AID MEASURES

General advice : DO NOT DELAY.
Keep victim calm. Obtain medical treatment immediately.

If inhaled : Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.

In case of skin contact : Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

In case of eye contact : Flush eye with copious quantities of water.
If persistent irritation occurs, obtain medical attention.

If swallowed : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Most important symptoms and effects, both acute and delayed : Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.
Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.
Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.
Acute methanol toxicity may progress as follows: drowsiness or fatigue, and mild irritation of the eyes and mucous membranes; this may be followed (in about 18 to 24 hours and in some cases up to 72 hours) by more severe central nervous system (CNS) effects and visual disturbances including diminished eyesight or blindness, metabolic acidosis (metabolism to formic acid) and deep respirations.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

Notes to physician	: Causes acidosis. Causes central nervous system depression. Symptoms and effects may be delayed for 18 to 24 hours and in some cases up to 72 hours. Treatment of poisoning may require use of ethanol. Treatment of acidosis may include correction with alkali solution, haemodialysis and supportive measures such as correction of electrolyte imbalances, where necessary. Potassium supplements may also be required.

5. FIRE FIGHTING MEASURES

Suitable extinguishing Media	: Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing Media	: None
Specific hazards during Firefighting	: The vapour is heavier than air, spreads along the ground and distant ignition is possible. Carbon monoxide may be evolved if incomplete combustion occurs.
Specific extinguishing methods	: Standard procedure for chemical fires. Clear fire area of all non-emergency personnel. Keep adjacent containers cool by spraying with water.
Special protective Equipment for firefighters	: Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, Protective equipment and emergency procedures	: Observe the relevant local and international regulations Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Vapour may form an explosive mixture with air. Avoid contact with skin, eyes and clothing. Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low areas.

Environmental Precautions	: Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Ventilate contaminated area thoroughly. Monitor area with combustible gas indicator.
Methods and materials for containment and cleaning up	: For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely Remove contaminated soil and dispose of safely.
Additional advice	: For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

7. HANDLING STORAGE

General Precautions	: Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Ensure that all local regulations regarding handling and storage facilities are followed.
Advice on safe handling	: Avoid contact with skin, eyes and clothing. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Bulk storage tanks should be diked (bunded). Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Do NOT use compressed air for filling, discharging, or handling operations.

Avoidance of contact : Strong oxidising agents.

Product Transfer : Refer to guidance under Handling section.

Storage
Conditions for safe storage : The vapour is heavier than air. Beware of accumulation in pits and confined spaces.
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Packaging material : Suitable material: For containers, or container linings use mild steel, stainless steel.

Unsuitable material : Natural, butyl, neopreneor nitrile rubbers.

Container Advice : Containers, even those that have been emptied, can contain explosive vapours.
Do not cut, drill, grind, weld or perform similar operations on or near containers.

Specific use(s) : Not applicable

Ensure that all local regulations regarding handling and storage facilities are followed.
See additional references that provide safe handling practices:
American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concnetration	Basis
methanol	67-56-1	PEL (long term)	200 ppm 262 mg/m^3	SG OEL
methanol		PEL (short term)	250 ppm 328 mg/m^3	SG OEL
methanol	67-56-1	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		TWA	200 ppm 260 mg/m^3	OSHA Z-1

Biological occupational exposure limits

Biological Limit Values (BLV) have not been established for this material.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Firewater monitors and deluge systems are recommended.
Eye washes and showers for emergency use.
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Personal protective equipment
Protective measures
Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
Select a filter suitable for organic gases and vapours [Type A boiling point >65°C (149°F)].

Hand protection
Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Butyl rubber. Incidental contact/Splash protection: Nitrile rubber. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye protection : Wear goggles for use against liquids and gas.
Wear full face shield if splashes are likely to occur.

Skin and body Protection : Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall with integral hood.
Wear antistatic and flame retardant clothing.
Wear chemical and heat resistant gloves and boots. Where risk of splashing, also wear an apron.

Thermal hazards : Not applicable
Hygiene measures : Wash hands before eating, drinking, smoking and using the toilet.
Launder contaminated clothing before re-use.

Environmental exposure
Controls General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.
Colour : colourless
Odour : characteristic
Odour Threshold : Data not available

pH	: Not applicable
Melting / freezing point	: -97.5°C / -143.5°F
Boiling point/boiling range	: 63.6-64.6°C / 146.5-148.3°F
Flash point	: 10°C / 50°F Method: Abel
Evaporation rate	: 1.9 Method: ASTM D 3539, nBuAc=1 6.3 Method: DIN 53170, diethyl ether=1
Flammability (solid, gas)	: Not applicable
Upper explosion limit	: 44% (V)
Lower explosion limit	: 6.1% (V)
Vapour pressure	: 13.1 kPa (20°C / 68°F) 55.7 kPa (50°C / 122°F)
Relative vapour density	: Data not available
Relative density	: Data not available
Density	: 791-792 kg/m^3 (20°C / 68°F)
Solubility (ies)	
Water solubility	: Completely miscible (20°C / 68°F)
Partition coefficient: n-octanol/water	: log Pow: <0
Auto-ignition temperature	: 455°C / 851°F Method: ASTM E-659
Decomposition Temperature	: Data not available
Viscosity, dynamic	: 0.59 mPa.s (20°C / 68°F)
Viscosity, kinematic	: Data not available
Explosive properties	: Not applicable
Oxidizing properties	: Data not available
Surface tension	: 22.6 mN/m, 20°C / 68°F
Conductivity	: Electrical conductivity: > 10 000 pS/m, A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be a static accumulator.
Molecular weight	: 32 g/mol

10. STABILITY AND REACTIVITY

Reactivity	: The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.
Chemical stability	: No hazardous reaction is expected when handled and stored according to provisions

Possibility of hazardous Reactions : Reacts with strong oxidising agents.

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.
Prevent vapour accumulation.
In certain circumstances product can ignite due to static electricity.

Incompatible materials : Strong oxidising agents

Hazardous decomposition Products : Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product data.

Information on likely routes of Exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity
Product
Acute oral toxicity : LD50 Rat: > 2,000 mg/kg
Remarks: Classified as toxic.
There is a marked difference in acute oral toxicity between animals and man, man being more susceptible than animals. The estimated fatal dose for man is 100 milliliters (1/2 cup).

Acute inhalation toxicity : LC50 Rat: > 20 mg/l
Exposure time: 4 h
Remarks: Classified as toxic.

Acute dermal toxicity : LD50 Rat: > 2,000 mg/kg
Remarks: Classified as toxic.

Skin corrosion/irritation
Product : Remarks: Expected to be non-irritating to skin.

Serious eye damage/ eye irritation
Product : Remarks: Slightly irritating to the eye.

Respiratory or skin sensitization
Product : Remarks: Not expected to be a sensitiser.

Germ cell mutagenicity

Product : Remarks: Not mutagenic.

Carcinogenicity
Product : Remarks: Not a carcinogen.

Material	GHS/CLP Carcinogenicity Classification
methanol	No carcinogenicity classification

Reproductive toxicity
Product : Remarks: Not expected to be a developmental toxicant., Does not impair fertility.

STOT - single exposure
Product : Remarks: High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death., Visual system: may cause marked impairment of vision or blindness.

STOT - repeated exposure
Product : Remarks: Visual system: may cause decreased color perception.

Aspiration toxicity
Product : Not considered an aspiration hazard.

Further information
Product : Remarks: Classifications by other authorities under varying regulatory frameworks may exist., In humans, over-exposure to methanol can result in blindness and metabolic acidosis There is a marked difference in acute oral toxicity between animals and man, man being more susceptible than animals. The estimate mean fatal dose = 300 mg/kg for an adult.

12. ECOLOGICAL INFORMATION

Basis for assessment : Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s). Information given is based on product testing.

Ecotoxicity
Product :
Toxicity to fish
(Acute toxicity) : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l
:

Toxicity to crustacean
(Acute toxicity) : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/ aquatic plants (Acute toxicity)	: Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to fish (Chronic toxicity)	: Remarks: NOEC/NOEL expected to be > 100 mg/l
Toxicity to crustacean (Chronic toxicity)	: Remarks: NOEC/NOEL expected to be > 100 mg/l
Toxicity to microorganisms (Acute toxicity)	: Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Persistence and degradability	
Product	:
Biodegradability	: Remarks: Readily biodegradable., Oxidises rapidly by photo-chemical reactions in air.
Bioaccumulative potential	
Product	:
Bioaccumulation	: Remarks: Does not bioaccumulate significantly.
Partition coefficient n-octanol/water	: : log Pow: < 0
Mobility in soil	
Product	:
Mobility	: Remarks: If product enters soil, it will be highly mobile and may contaminate groundwater.
Other adverse effects	:
Product	: no data available

13. DISPOSAL CONSIDERATIONS

Material Disposal	: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses Waste product should not be allowed to contaminate soil or water. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local regulations may be more stringent than regional or national requirements and must be complied with.

Container Disposal : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard.
Do not, puncture, cut, or weld uncleaned drums.
Send to drum recoverer or metal reclaimer.

14. TRANSPORT CONSIDERATIONS

International Regulation

ADR

UN number	: 1230
Proper shipping name	: METHANOL
Class	: 3
Subsidiary risk	: 6.1
Packing group	: II
Labels	: 3 (6.1)
Hazard Identification Number	:336
Environmentally hazardous	: no

IATA-DGR

UN/ID No.	: UN 1230
Proper shipping name	: Methanol
Class	: 3
Subsidiary risk	: 6.1
Packing group	: II
Labels	: 3 (6.1)

IMDG-Code

UN number	: 1230
Proper shipping name	: METHANOL
Class	: 3
Subsidiary risk	: 6.1
Packing group	: II
Labels	: 3 (6.1)
Marine pollutant	: no

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

Pollution category	: Y
Ship type	: 3
Product name	: Methanol

Special precautions for user

Remarks : Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

Additional Information : This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Local Regulations

Workplace Safety and Health Act & Workplace Safety and Health (General Provision) Regulations	This product is subject to the requirements in the Act/Regulations.
Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations	This product is subject to the requirements in the Act/Regulations.
Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives Regulations)	This product is subject to the requirements in the Act/Regulations.
Environmental Protection and Management Act And Environmental Protections and Managemetn (Hazardous Substances) Regulations	This product is not subject to the requirements in th Act/Regulations.

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Other international regulations
The components of this product are reported in the following inventories:

AICS	: Listed
DSL	: Listed
IECSC	: Listed
ENCS	: Listed
KECI	: Listed
NZIoC	: Listed
PICCS	: Listed
CH INV	: Listed
TSCA	: Listed

16. OTHER INFORMATION

Full text of H-Statements

H225 Highly flammable liquid and vapour.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H330 Fatal if inhaled.
H370 Causes damage to organs.

Full text of other abbreviations

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
STOT SE	Specific target organ toxicity - single exposure

Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

Training advice : Provide adequate information, instruction and training for operators.

Sources of key data used to compile the Safety Data Sheet : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

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.