

SAFETY DATA SHEET

Prepared according to GB/T 16483, GB/T 17519

Heavy Propylene Glycols

800001034065

Initial release date: 2005.07.08

Version 2.2

Revision Date 2020.10.30

Print Date 2022.09.03

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Heavy Propylene Glycols

Product code : U1531

Synonyms : Propylene glycols

Manufacturer or supplier's details

Supplier : SHELL EASTERN CHEMICALS (S)
A REGISTERED BUSINESS OF SHELL EASTERN
TRADING (PTE) LTD (UEN:198902087C)
9 North Buona Vista Drive , #07-01
The Metropolis Tower 1
Singapore 138588
Singapore

Telephone : +65 6384 8737

Telefax : +65 6384 8454

Email Contact for Safety Data Sheet : If you have any enquiries about the content of this SDS
please email sccmsds@shell.com

Emergency telephone number : +86-532-83889090

Recommended use of the chemical and restrictions on use

Recommended use : Use only as a chemical intermediate.

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

Emergency Overview

Appearance	Liquid.
Colour	colourless
Odour	odourless
Health Hazards	No specific hazards under normal use conditions.
Safety Hazards	Not classified as flammable but will burn.
Environmental Hazards	Not classified as dangerous for the environment.

GHS Classification

Based on available data this substance / mixture does not meet the classification criteria.

GHS label elements

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:

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Not classified as a physical hazard under GHS criteria.

HEALTH HAZARDS:

Not classified as a health hazard under GHS criteria.

ENVIRONMENTAL HAZARDS:

Not classified as an environmental hazard under GHS criteria.

Precautionary statements

:

Prevention:

No precautionary phrases.

Response:

No precautionary phrases.

Storage:

No precautionary phrases.

Disposal:

No precautionary phrases.

Other hazards which do not result in classification

Not classified as flammable but will burn.

Physical and chemical hazards	Not classified as flammable but will burn.
Health Hazards	Inhalation: No specific hazards under normal use conditions. Skin: No specific hazards under normal use conditions. Eyes: No specific hazards under normal use conditions. Ingestion: No specific hazards under normal use conditions.
Environmental Hazards	Not classified as dangerous for the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Substance

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Tripropylene glycol	1638-16-0		60 - 90
Dipropylene glycol	25265-71-8		5 - 25
Water	7732-18-5		0 - 1.5

4. FIRST-AID MEASURES

General advice

: Not expected to be a health hazard when used under normal conditions.

If inhaled

: No treatment necessary under normal conditions of use.

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If symptoms persist, obtain medical advice.

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| In case of skin contact | : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention. |
| In case of eye contact | : Flush eye with copious quantities of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
If persistent irritation occurs, obtain medical attention. |
| If swallowed | : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice. |
| Most important symptoms and effects, both acute and delayed | : Not considered to be an inhalation hazard under normal conditions of use.
Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

No specific hazards under normal use conditions.
Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.

No specific hazards under normal use conditions.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

No specific hazards under normal use conditions.
Ingestion may result in nausea, vomiting and/or diarrhoea. |
| 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 | : Call a doctor or poison control center for guidance.
Treat symptomatically. Following cases of gross over-exposure, investigation of liver, kidney and eye function may be advisable. Records of such incidents should be maintained for future reference. |

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 | : Do not use water in a jet. |
| Specific hazards during firefighting | : Material will not burn unless preheated.
Carbon monoxide may be evolved if incomplete combustion occurs.
Containers exposed to intense heat from fires should be |

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cooled with large quantities of water.

- Specific extinguishing methods : Standard procedure for chemical fires.
Evacuate the area of all non-essential 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 all 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.
- : Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Use appropriate containment to avoid environmental contamination.
Ventilate contaminated area thoroughly.
- Methods and materials for containment and cleaning up : Contain run-off from residue flush and dispose of properly.
Soak up residue with an absorbent such as clay, sand or other suitable material.
- 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.
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.
- Additional advice : For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

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7. HANDLING AND STORAGE

Handling

- 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 Section 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 : Use local exhaust extraction over processing area.
Handle and open container with care in a well-ventilated area.
Do not empty into drains.
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Handling Temperature:
Ambient.
- Avoidance of contact : Strong oxidising agents.
Strong acids.
Strong bases.
- Product Transfer : Keep containers closed when not in use. Do not pressurize drum containers to empty.

Storage

- Conditions for safe storage : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
- Other data : Tanks must be clean, dry and rust-free.
Keep container tightly closed.
Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat.
Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
Drums should be stacked to a maximum of 3 high.
Storage Temperature:
Ambient.
- Packaging material : Suitable material: Stainless steel., Mild steel., Carbon steel
Unsuitable material: Data not available
- 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

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storage facilities are followed.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Biological occupational exposure limits

No biological limit allocated.

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 Sécurité, (INRS), France <http://www.inrs.fr/accueil>

Engineering measures

: Adequate ventilation to control airborne concentrations.
Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Eye washes and showers for emergency use.
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:

General Information:

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.

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Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or 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. If air-filtering respirators are suitable for conditions of use: Select a filter suitable for the combination of organic gases and vapours and particles [Type A/Type P 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: Nitrile rubber gloves. Incidental contact/Splash protection: PVC or neoprene rubber gloves. 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. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. 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 : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.

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| Skin and body protection | : Skin protection is not ordinarily required beyond standard work clothes.
It is good practice to wear chemical resistant gloves. |
| 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.
Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.
Information on accidental release measures are to be found in section 6. |
|----------------|--|

9. PHYSICAL AND CHEMICAL PROPERTIES

- | | |
|-----------------------------|--|
| Appearance | : Liquid. |
| Colour | : colourless |
| Odour | : odourless |
| Odour Threshold | : Data not available |
| pH | : Typical 7 |
| Melting / freezing point | : Data not available |
| Boiling point/boiling range | : > 255 °C / 491 °F |
| Flash point | : 145 °C / 293 °F
Method: ASTM D93 (PMCC) |
| Evaporation rate | : Data not available |
| Flammability (solid, gas) | : Not applicable |
| Upper explosion limit | : 12.6 %(V) |
| Lower explosion limit | : Data not available |
| Vapour pressure | : < 1 Pa (20 °C / 68 °F) |
| Relative vapour density | : Data not available |
| Relative density | : 1.0204 (20 °C / 68 °F) |
| Density | : 1,020 - 1,025 kg/m3 (20 °C / 68 °F) |

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Solubility(ies)

Water solubility : Completely miscible.

Partition coefficient: n-octanol/water : Data not available

Auto-ignition temperature : 310 °C / 590 °F

Decomposition temperature : Data not available

Viscosity

Viscosity, dynamic : Data not available

Viscosity, kinematic : Data not available

Explosive properties : Not applicable

Oxidizing properties : Data not available

Surface tension : 71.4 mN/m, 22 °C / 72 °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.

Particle size : Data not available

Molecular weight : Data not available

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 Oxidises on contact with air.

Possibility of hazardous reactions : None known.

Conditions to avoid : Extremes of temperature and direct sunlight.

Product cannot ignite due to static electricity.

Incompatible materials : Strong oxidising agents.
Strong acids.
Strong bases.

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

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degradation.

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11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product testing, and/or similar products, and/or components.

Exposure routes : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity : LD 50 Rat, male and female: > 5,000 mg/kg
Method: US EPA Test Guideline OPP 81-1
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 Rat, male and female: > 2.34 mg/l
Exposure time: 4 h
Test atmosphere: Aerosol
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 Rabbit, male and female: > 5,000 mg/kg
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product:

Species: Rabbit
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Product:

Species: Rabbit
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Species: Guinea pig
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

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Germ cell mutagenicity

Product:

- Genotoxicity in vitro
- : Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.
 - : Method: Test(s) equivalent or similar to OECD Test Guideline 476
Remarks: Based on available data, the classification criteria are not met.
 - : Test species: Mouse Method: OECD Test Guideline 474
Remarks: Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Species: Mouse, (male and female)
Application Route: Oral
Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.

Material	GHS/CLP Carcinogenicity Classification
Tripropylene glycol	No carcinogenicity classification.
Dipropylene glycol	No carcinogenicity classification.
Water	No carcinogenicity classification.

Reproductive toxicity

Product:

- : Species: Mouse
Sex: male and female
Application Route: Oral

Method: Literature data
Remarks: Based on available data, the classification criteria are not met.
- Effects on foetal development
 - : Species: Rat, female
Application Route: Oral
Method: Test(s) equivalent or similar to OECD Test Guideline 414
Remarks: Based on available data, the classification criteria are not met.
 - Species: Rabbit, female
Application Route: Oral
Method: Test(s) equivalent or similar to OECD Test Guideline 414

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Remarks: Based on available data, the classification criteria are not met.

STOT - single exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

Repeated dose toxicity

Product:

Rat, male and female:

Application Route: Oral

Method: Acceptable non-standard method.

Target Organs: No specific target organs noted

Aspiration toxicity

Product:

Based on available data, the classification criteria are not met.

Further information

Product:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for assessment : Incomplete ecotoxicological data are available for this product.
The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products.

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity) : LC50 (*Oryzias latipes* (Japanese medaka)): > 1,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to crustacean (Acute toxicity) : EC50 (*Daphnia magna* (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

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Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants (Acute toxicity) : EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Chronic Toxicity Value: 1,340 mg/l
Exposure time: 30 d
Method: Based on quantitative structure-activity relationship (QSAR) modelling
Remarks: NOEC/NOEL > 100 mg/l

Toxicity to crustacean (Chronic toxicity) : Chronic Toxicity Value: 466 mg/l
Exposure time: 16 d
Species: Daphnia (water flea)
Method: Based on quantitative structure-activity relationship (QSAR) modelling
Remarks: NOEC/NOEL > 1.0 - <= 10 mg/l

Toxicity to microorganisms (Acute toxicity) : EC10 (Pseudomonas putida): >= 1,000 mg/l
Exposure time: 18 h
Method: Test(s) equivalent or similar to OECD Guideline 209
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Persistence and degradability

Product:

Biodegradability : Biodegradation: 84.4 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Readily biodegradable.

Bioaccumulative potential

Product:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 42 d
Bioconcentration factor (BCF): 0.3 - 4.6
Method: OECD Test Guideline 305C
Remarks: Does not bioaccumulate significantly.

Partition coefficient: n-octanol/water : Remarks: Data not available

Mobility in soil

Product:

Mobility : Remarks: If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater.

Other adverse effects

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no data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues

: 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.

Remove all packaging for recovery or waste disposal.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.

Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.

Do not dispose into the environment, in drains or in water courses

Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

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.

Contaminated packaging

: Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

Local legislation

Remarks

: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

14. TRANSPORT INFORMATION

National Regulations

International Regulations

ADR

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Pollution category : Z
Ship type : 3
Product name : Dipropylene glycol

Special precautions for user

Remarks : Special Precautions: Refer to Section 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

National regulatory information

Rotterdam Convention (Prior Informed Consent)

Not applicable

Stockholm Convention (Persistent Organic Pollutants)

Not applicable

Law on the Prevention and Control of Occupational Diseases

The categories of occupational disease:

Not applicable

Occupational Disease Classification list:

Not applicable

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals : Not applicable

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218) : Not applicable

Hazardous Chemicals for Priority Management under SAWS : Not applicable

Regulations on Labour Protection in Workplaces where Toxic Substances are Used

Catalogue of Highly Toxic Chemicals : Not applicable

Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

China Severely Restricted Toxic Chemicals for Import and Export : Not applicable

Other international regulations

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

AIIC : Listed

DSL : Listed

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IECSC	: Listed	
KECI	: Listed	
NZIoC	: Listed	
PICCS	: Listed	
TCSI	: Listed	
TSCA	: Listed	
ENCS	: Listed	

16. OTHER INFORMATION

Abbreviations and Acronyms

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; 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.

Other information : A vertical bar (|) in the left margin indicates an amendment from the previous version.

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Sources of key data used to
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: 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 data base, EC 1272 regulation, etc).

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