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

1.1 Product identifier

Trade name : Heavy Propylene Glycols
Product code : U1531

Other means of identification : Propylene glycols

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Use only as a chemical intermediate.
Uses advised against : This product must not be used in applications other than the above without first seeking the advice of the supplier.
This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier : **Shell Trading (M.E.) Pvt. Ltd.**
PO Box 16968
16968 Jebel Ali
Unit.Arab Emir.
Telephone : +971 4 331 6500
Telefax : +971 4 332 1597
Contact for Safety Data Sheet : sccmsds@shell.com

1.4 Emergency telephone number

+ (65) 6542 9595 (Alert-SGS)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification

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

2.2 Label elements

GHS-Labelling

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:
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.

2.3 Other hazards

Not classified as flammable but will burn.

SECTION 3: Composition/information on ingredients

3.1 Substances

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Tripropylene glycol	1638-16-0	60- 90
Dipropylene glycol	25265-71-8	5- 25
Water	7732-18-5	0- 1,5

SECTION 4: First aid measures

4.1 Description of first aid measures

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

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.

If inhaled : No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.

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.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	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.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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.

5.2 Special hazards arising from the substance or mixture

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 cooled with large quantities of water.

5.3 Advice for firefighters

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).
Specific extinguishing methods	:	Standard procedure for chemical fires.
Further information	:	Evacuate the area of all non-essential personnel. Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions :

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.

6.2 Environmental precautions

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.

6.3 Methods and materials for containment and cleaning up

Methods for 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

6.4 Reference to other sections

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.

SECTION 7: Handling and 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 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.

7.1 Precautions for safe handling

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.
Product Transfer	:	Keep containers closed when not in use. Do not pressurize drum containers to empty.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	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.

7.3 Specific end use(s)

Specific use(s)	:	Not applicable

Ensure that all local regulations regarding handling and storage facilities are followed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

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 Securité, (INRS), France http://www.inrs.fr/accueil

8.2 Exposure controls

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:
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.

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.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

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

Eye protection	:	If material is handled such that it could be splashed into eyes, protective eyewear is recommended.

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.

Skin and body protection	:	Skin protection is not ordinarily required beyond standard work clothes. It is good practice to wear chemical resistant gloves.
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)].
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.

SECTION 9: Physical and chemical properties

9.1 Information on basic 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

Flash point	:	145 °C Method: ASTM D93 (PMCC)
Evaporation rate	:	Data not available

Flammability

Flammability (solid, gas)	:	Not applicable

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit	:	12,6 %(V)
Lower explosion limit	:	Data not available
Vapour pressure	:	< 1 Pa (20 °C)
Relative vapour density	:	Data not available
Relative density	:	1,0204 (20 °C) Method: ASTM D4052
Density	:	1.020 - 1.025 kg/m3 (20 °C) Method: ASTM D4052

Solubility(ies)

Water solubility	:	Completely miscible.
Partition coefficient: n-octanol/water	:	Data not available
Auto-ignition temperature	:	310 °C
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

9.2 Other information

Surface tension	:	71,4 mN/m, 22 °C
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 : Data not available

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions, Oxidises on contact with air.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

Product cannot ignite due to static electricity.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.
Strong acids.
Strong bases.

10.6 Hazardous decomposition products

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.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Basis for assessment : Information given is based on product testing, and/or similar products, and/or components.
Unless indicated otherwise, the data presented is

representative of the product as a whole, rather than for individual component(s).

Information on likely routes of exposure : 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.

Components:

Dipropylene glycol:

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.

Components:

Dipropylene glycol:
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.

Components:

Dipropylene glycol:
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.

Components:

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

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: MouseMethod: OECD Test Guideline 474
Remarks: Based on available data, the classification criteria are not met.

Components:

Dipropylene glycol:

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: MouseMethod: 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.

Components:

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

Components:

Dipropylene glycol:
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
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.

Components:

Dipropylene glycol:

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.

Components:

Dipropylene glycol:
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

Components:

Dipropylene glycol:
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.

Components:
Dipropylene glycol:
Based on available data, the classification criteria are not met.

Further information

Product:

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

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

SECTION 12: Ecological information

12.1 Toxicity

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. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

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 daphnia and other aquatic invertebrates (Acute toxicity)	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to algae (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 daphnia and other aquatic invertebrates (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 bacteria (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

Components:
Dipropylene glycol :

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 daphnia and other aquatic invertebrates (Acute toxicity) : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae (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 bacteria (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

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 daphnia and other aquatic invertebrates (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

12.2 Persistence and degradability

Product:

Biodegradability : Biodegradation: 84,4 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Readily biodegradable.

Components:
Dipropylene glycol :

Biodegradability : Biodegradation: 84,4 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Readily biodegradable.

12.3 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

Components:
Dipropylene glycol :

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.

12.4 Mobility in soil

Product:

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

Components:
Dipropylene glycol :

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

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : 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.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

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

SECTION 14: Transport information

14.1 UN number

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.2 Proper shipping name

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.3 Transport hazard class

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.4 Packing group

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.5 Environmental hazards

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good

14.6 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.

14.7 Maritime transport in bulk according to IMO instruments

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

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.

SECTION 15: Regulatory information

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

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

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

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

SECTION 16: Other information

Abbreviations and Acronyms : The standard abbreviations and acronyms used in this

document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS = Australian Inventory of Chemical Substances
ASTM = American Society for Testing and Materials
BEL = Biological exposure limits
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
CAS = Chemical Abstracts Service
CEFIC = European Chemical Industry Council
CLP = Classification Packaging and Labelling
COC = Cleveland Open-Cup
DIN = Deutsches Institut fur Normung
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals
ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPV = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical

Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

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.
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).

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.