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SECTION 1. IDENTIFICATION OF THE HAZARDOUS PRODUCT OR MIXTURE AND THE SUPPLIER OR MANUFACTURER

Product name : Monopropylene glycol - USP

Product code : U1512, U1530, U1535, U1540

Synonyms : Propane-1,2-diol

CAS-No. : 57-55-6

Manufacturer or supplier's details

Company : Shell Chemical LP

PO Box 576

HOUSTON TX 77001

USA

SDS Request : +52 (55) 3223 9057

Customer Service : +52 (55) 5089 5792, +52 (55) 5089 5790

Emergency telephone number

Chemtrec Domestic (24 hr) : CHEMTREC +1 (703) 527-3887 (Internacional)

Chemtrec International (24 : SETIQ ANIQ 800 002 1400 (Rep. Mexicana), +52 (55) 5559

hr) 1588 (local e internacional)

Recommended use of the chemical and restrictions on use

Recommended use : Generally accepted for use in food, animal feed, flavours and

cosmetics and as an excipient (inactive carrier) for pharmaceuticals. Restrictions or limitations set by local regulations

have to be followed.

Restrictions on use : This product must not be used in applications other than the

above without first seeking the advice of the supplier.

Do not use in theatrical fogs or other artificial smoke generator applications., Monopropylene Glycol USP is not an approved additive to cat foodstuff acc. to 91/336/EEC and 21CFR §

582.1666.

SECTION 2. HAZARDS IDENTIFICATION

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.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	Synonyms	CAS-No.	Concentration (% w/w)
Monopropylene gly-	propane-1,2-	57-55-6	<= 100
col	diol		

SECTION 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.

If symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Flush exposed area with wa-

ter 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

Not considered to be an inhalation hazard under normal con-

ditions of use.

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delayed Possible respiratory irritation signs and symptoms may include

a temporary burning sensation of the nose and throat, cough-

ing, and/or difficulty breathing.

No specific hazards under normal use conditions.

Skin irritation signs and symptoms may include a burning sen-

sation, redness, or swelling.

No specific hazards under normal use conditions.

Eye irritation signs and symptoms may include a burning sen-

sation, 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.

Indication of any immediate medical attention and special

treatment needed

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. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical pow-

der, 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 fire-

fighting

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.

Specific extinguishing meth-

ods

Standard procedure for chemical fires.

Further information : 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).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- : Observe all relevant local and international regulations.

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tive equipment and emergency procedures

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 contami-

nation.

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.

SECTION 7. HANDLING AND STORAGE

Technical measures

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.

Precautions that must be taken to ensure 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:

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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.

Hygiene measures : Wash hands before eating, drinking, smoking and using the

toilet

Launder contaminated clothing before re-use.

Conditions for safe storage, including any incompatibility

Refer to section 15 for any additional specific legislation cov-

ering the packaging and storage of this product.

Recommended storage tem-

perature

<= 40 °C

Further information on stor-

age stability

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.

Protect from frost, heat and sunlight.

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 stor-

age facilities are followed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Biological occupational exposure limits

No biological limit allocated.

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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.dquv.de/inhalt/index.isp

L'Institut National de Recherche et de Securité, (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.

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

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

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.

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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.

Skin and body protection : Skin protection is not ordinarily required beyond standard

work clothes.

It is good practice to wear chemical resistant gloves.

Protective measures : Personal protective equipment (PPE) should meet recom-

mended national standards. Check with PPE suppliers.

Thermal hazards : Not applicable

Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances

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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 envi-

ronmental legislation.

Information on accidental release measures are to be found in

section 6.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Colour : colourless

Odour : odourless

Odour Threshold : Data not available

pH : 7

Melting / freezing point : -59 °C / -74 °F

Boiling point/boiling range : 186 - 189 °C / 367 - 372 °F

Flash point : 99 °C / 210 °F

Method: ASTM D-93 / PMCC

Evaporation rate : Data not available

Flammability (solid, gas) : Not applicable

Upper explosion limit / upper

flammability limit

12.6 %(V)

Lower explosion limit / Lower

flammability limit

2.6 %(V)

Vapour pressure : ca. 7 Pa (20 °C / 68 °F)

Relative vapour density : 2.5 (20 °C / 68 °F)

Relative density : 1.04 (3.89 °C / 39.00 °F)

Density : 1,036 kg/m3 (20 °C / 68 °F)

Solubility(ies)

Water solubility : completely soluble

Partition coefficient: n-

octanol/water

: log Pow: ca. -1

Auto-ignition temperature : 421 °C / 790 °F

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Decomposition temperature : Data not available

Viscosity

Viscosity, dynamic : 55 mPa.s (20 °C / 68 °F)

Viscosity, kinematic : Data not available

Explosive properties : Not applicable

Oxidizing properties : Not applicable

Surface tension : 71.6 mN/m, 21.5 °C / 70.7 °F

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 : 76.1 g/mol

Particle size : Data not available

SECTION 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 reac-

tions

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 degra-

dation.

SECTION 11. TOXICOLOGICAL INFORMATION

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

products, and/or components.

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

Components:

Monopropylene glycol:

Acute oral toxicity : LD 50 (Rat, male and female): 22,000 mg/kg

Method: Literature data

Remarks: Based on available data, the classification criteria

are not met.

Acute inhalation toxicity : LC50 (Rabbit): > 317 mg/l

Exposure time: 2 h
Test atmosphere: Aerosol
Method: Literature data

Remarks: Based on available data, the classification criteria

are not met.

Acute dermal toxicity : LD 50 (Rabbit): > 2,000 mg/kg

Method: Acceptable non-standard method.

Remarks: Based on available data, the classification criteria

are not met.

Skin corrosion/irritation

Components:

Monopropylene glycol:

Species: Rabbit

Method: OECD Test Guideline 404

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

Serious eye damage/eye irritation

Components:

Monopropylene glycol:

Species: Rabbit

Method: OECD Test Guideline 405

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

Respiratory or skin sensitisation

Components:

Monopropylene glycol:

Species: Mouse

Method: Test(s) equivalent or similar to OECD Test Guideline 429 Remarks: Based on available data, the classification criteria are not met.

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Germ cell mutagenicity

Components:

Monopropylene glycol:

: Method: Literature data

Remarks: Based on available data, the classification criteria

are not met.

: Method: OECD Test Guideline 473

Remarks: Based on available data, the classification criteria

are not met.

: Test species: Rat Method: Literature data

Remarks: Based on available data, the classification criteria

are not met.

Test species: Mouse Method: Literature data

Remarks: Based on available data, the classification criteria

are not met.

Carcinogenicity

Components:

Monopropylene glycol:

Species: Rat, (male and female)

Application Route: Oral Method: Literature data

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

IARC No component of this product present at levels greater than or

equal to 0.1% is identified as probable, possible or confirmed

human carcinogen by IARC.

OSHA No component of this product present at levels greater than or

equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or

equal to 0.1% is identified as a known or anticipated carcinogen

by NTP.

Reproductive toxicity

Components:

Monopropylene glycol:

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

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Method: Literature data

Remarks: Based on available data, the classification criteria

are not met.

Effects on foetal develop-

ment

: Species: Mouse, 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

Components:

Monopropylene glycol:

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

STOT - repeated exposure

Components:

Monopropylene glycol:

Remarks: Based on available data, the classification criteria are not met., Cats given high doses of MPG in diet showed a decrease in red blood cell survival.

Repeated dose toxicity

Components:

Monopropylene glycol:

Species: Rat, male and female

Application Route: Oral Method: Literature data

Target Organs: No specific target organs noted

Species: Rat, male and female Application Route: Inhalation Test atmosphere: Aerosol Method: Literature data

Target Organs: No specific target organs noted

Species: Mouse, female Application Route: Dermal Method: Literature data

Target Organs: No specific target organs noted

Aspiration toxicity

Components:

Monopropylene glycol:

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

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Further information

Components:

Monopropylene glycol:

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

SECTION 12. ECOTOXICOLOGICAL INFORMATION

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

Ecotoxicity

Components:

Monopropylene glycol:

Toxicity to fish (Acute toxici-

ty)

LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l

Exposure time: 96 h

Method: Test(s) equivalent or similar to OECD Guideline 203

Remarks: Practically non toxic:

LL/EL/IL50 > 100 mg/l

Toxicity to daphnia and other : aquatic invertebrates (Acute

toxicity)

LC50 (Ceriodaphnia dubia (water flea)): 18,340 mg/l

Exposure time: 48 h

Method: Test(s) equivalent or similar to OECD Guideline 202

Remarks: Practically non toxic:

LL/EL/IL50 > 100 mg/l

Toxicity to algae (Acute tox-

icity)

EC50 (Pseudokirchneriella subcapitata (algae)): 19,000 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201 Remarks: Practically non toxic:

LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic tox-

icity)

Chronic Toxicity Value: 2,500 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 (Chron-

ic toxicity)

NOEC (Ceriodaphnia dubia (Water flea)): 29,000 mg/l

Exposure time: 7 d

Method: Test(s) equivalent or similar to OECD Guideline 211

Remarks: NOEC/NOEL > 100 mg/l

Toxicity to microorganisms

(Acute toxicity)

EC50 (Pseudomonas putida): > 100 mg/l

Method: Test(s) equivalent or similar to OECD Guideline 209

Remarks: Practically non toxic:

LL/EL/IL50 > 100 mg/l

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Persistence and degradability

Components:

Monopropylene glycol:

Biodegradability : Biodegradation: 97 %

Exposure time: 28 d

Method: OECD Test Guideline 301F Remarks: Readily biodegradable.

Bioaccumulative potential

Components:

Monopropylene glycol:

Bioaccumulation : Bioconcentration factor (BCF): 0.09

Method: Based on quantitative structure-activity relationship

(QSAR) modelling

Remarks: Does not bioaccumulate significantly.

Mobility in soil

Components:

Monopropylene glycol:

Mobility : Remarks: If the product enters soil, one or more constituents

will or may be mobile and may contaminate groundwater.

Other adverse effects

no data available

SECTION 13. INFORMATION ON PRODUCT DISPOSAL

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 meth-

ods 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,

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national, and local laws and regulations.

Local regulations may be more stringent than regional or na-

tional requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides tech-

nical 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.

SECTION 14. TRANSPORT INFORMATION

National Regulations

no data available

International Regulations

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Pollution category : OS

Ship type : IBC Chapter 18 cargo, must be double hulled

Product name : Propylene 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.

SECTION 15. REGULATORY INFORMATION

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:

AICS : Listed

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DSL Listed

IECSC Listed

ENCS Listed

KECI Listed

NZIoC Listed

PICCS Listed

TSCA Listed

TCSI Listed

SECTION 16. OTHER INFORMATION

Further information

NFPA Rating (Health, Fire, Reac- 0, 1, 0

tivity)

Full text of other abbreviations

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 Toxicolo-

gy Of Chemicals

ECHA = European Chemicals Agency

EINECS = The European Inventory of Existing Commercial

Chemical Substances

Mexican official standard NOM-018-STPS-2015

Monopropylene glycol - USP

Version 3.0

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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

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

There has been a significant change in transport classification in section 14.

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).

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The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

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.

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