

# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR  
1910.1200

Version 17.0

Revision Date: 03/30/2015

Print Date: 04/01/2015

## SECTION 1. IDENTIFICATION

Product name : Ethylene Glycol Industrial Grade

Product code : U1284

### Manufacturer or supplier's details

Company : **Shell Chemical LP**  
PO Box 2463  
HOUSTON TX 77252-2463  
USA

SDS Request : 1-800-240-6737

Customer Service : 1-855-697-4355

### Emergency telephone number

Chemtrec Domestic (24 hr) : 1-800-424-9300

Chemtrec International (24 hr) : 1-703-527-3887

### Recommended use of the chemical and restrictions on use

Recommended use : 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.

## SECTION 2. HAZARDS IDENTIFICATION

### GHS Classification

Acute toxicity : Category 4

Specific target organ toxicity  
- repeated exposure : Category 2 (Kidney)

### GHS Label element

Hazard pictograms :



Signal word : Warning

Hazard statements : PHYSICAL HAZARDS:  
Not classified as a physical hazard under GHS criteria.  
HEALTH HAZARDS:  
H302 Harmful if swallowed.  
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.  
Kidney  
ENVIRONMENTAL HAZARDS:  
Not classified as an environmental hazard under GHS criteria.

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Precautionary statements : **Prevention:**  
P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
**Response:**  
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.  
P330 Rinse mouth.  
P314 Get medical advice/ attention if you feel unwell.  
**Disposal:**  
P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

## Other hazards which do not result in classification

Inhalation of vapours or mists may cause irritation to the respiratory system.  
The classification of this material is based on OSHA HCS 2012 criteria.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance  
Synonyms : Dihydroxy ethane 1,2, Ethane diol 1,2, Ethylene Glycol, Glycol, MEG

### Hazardous components

Chemical Name	Synonyms	CAS-No.	Concentration (%)
Ethylene Glycol	ethane-1,2-diol	107-21-1	99 - 100
diethylene glycol	2,2'-oxydiethanol	111-46-6	0 - < 1

## SECTION 4. FIRST-AID MEASURES

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

If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

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.  
If persistent irritation occurs, obtain medical attention.

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

Most important symptoms : Kidney toxicity may be recognized by blood in the urine or

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and effects, both acute and  
delayed

increased or decreased urine flow. Other signs and symptoms  
can include nausea, vomiting, abdominal cramps, diarrhoea,  
lumbar pain shortly after ingestion, and possibly narcosis and  
death.

Eye irritation signs and symptoms may include a burning sen-  
sation, redness, swelling, and/or blurred vision.

Skin irritation signs and symptoms may include a burning sen-  
sation, redness, swelling, and/or blisters.

Respiratory irritation signs and symptoms may include a tem-  
porary burning sensation of the nose and throat, coughing,  
and/or difficulty breathing.

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.

Immediate medical attention,  
special treatment

: IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!  
May cause significant renal, respiratory, and CNS toxicity.  
May cause significant acidosis.  
Call a doctor or poison control center for guidance.

## SECTION 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 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 me-  
thods

: Standard procedure for chemical fires.

Further information

: Clear fire area of all non-emergency personnel.  
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-  
tive equipment and emer-

: Observe all relevant local and international regulations.  
Notify authorities if any exposure to the general public or the

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agency procedures	<p>environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained.</p> <p>: Avoid contact with skin, eyes and clothing.</p>
Environmental precautions	<p>: 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.</p>
Methods and materials for containment and cleaning up	<p>: Contain run-off from residue flush and dispose of properly. Soak up residue with an absorbent such as clay, sand or other suitable material.</p> <p>For small liquid spills (&lt; 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.</p> <p>For large liquid spills (&gt; 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.</p>
Additional advice	<p>: For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.</p>

## SECTION 7. HANDLING AND STORAGE

Technical measures	<p>: Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.</p> <p>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.</p> <p>Ensure that all local regulations regarding handling and storage facilities are followed.</p>
Precautions for safe handling	<p>: 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:</p>

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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.

## Storage

Conditions for safe storage, including any incompatibilities : 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 storage facilities are followed.

## SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethylene Glycol	107-21-1	C (Aerosol only)	100 mg/m3	ACGIH

### 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.

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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

: 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 explosion-proof 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

### 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

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and vapours [Type A/Type P boiling point >65°C (149°F)].

Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

## 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. When prolonged or frequent repeated contact occurs. 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 recommended national standards. Check with PPE suppliers.

## Hygiene measures

: Wash hands before eating, drinking, smoking and using the toilet.  
Launder contaminated clothing before re-use.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

: Slightly viscous liquid.

### Colour

: colourless

### Odour

: mild

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Odour Threshold	: 25 ppm
pH	: Data not available
Melting / freezing point	: -13 °C / 9 °F
Boiling point/boiling range	: 196 - 200 °C / 385 - 392 °F
Flash point	: 116 °C / 241 °F
Evaporation rate	: 0.01 Method: ASTM D 3539, nBuAc=1
Flammability (solid, gas)	: Not classified as a flammability hazard
Upper explosion limit	: 28 %(V)
Lower explosion limit	: 3.2 %(V)
Vapour pressure	: < 10 Pa (20 °C / 68 °F)
Relative vapour density	: 2.2
Relative density	: 1.1155 (20 °C / 68 °F)
Density	: Typical 1,113 kg/m3 (20 °C / 68 °F) Method: ASTM D4052
Solubility(ies)	
Water solubility	: completely soluble
Partition coefficient: n-octanol/water	: log Pow: -1.93 (20 °C / 68 °F)Data not available
Auto-ignition temperature	: 398 °C / 748 °F
Decomposition temperature	: Data not available
Viscosity	
Viscosity, dynamic	: 16.1 mPa.s (25 °C / 77 °F)
Viscosity, kinematic	: 24.8 mm2/s (20 °C / 68 °F)
Explosive properties	: Not applicable
Oxidizing properties	: Not applicable
Surface tension	: Data not available
Conductivity	: Data not available



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Molecular weight : 62 g/mol

## 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 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 degradation.

## SECTION 11. TOXICOLOGICAL INFORMATION

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 through inhalation or following accidental ingestion.

### Acute toxicity

#### Product:

Acute oral toxicity : LD 50 (Rat): >300 - <=2000 milligram per kilogram  
Remarks: Harmful if swallowed.  
There is a marked difference in acute oral toxicity between rodents and man, man being more susceptible than rodents.  
The estimated fatal dose for man is 100 milliliters (1/2 cup).  
This material has also been shown to be toxic and potentially lethal by ingestion to cats and dogs.

Acute inhalation toxicity : Remarks: Low toxicity by inhalation.

Acute dermal toxicity : LD 50 : > 5,000 mg/kg  
Remarks: Expected to be of low toxicity:

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## Skin corrosion/irritation

### Product:

Remarks: Slightly irritating to skin.

## Serious eye damage/eye irritation

### Product:

Remarks: Slightly irritating to the eye.

## Respiratory or skin sensitisation

### Product:

Remarks: Not expected to be a sensitiser.

## Germ cell mutagenicity

### Product:

: Remarks: No evidence of mutagenic activity.

## Carcinogenicity

### Product:

Remarks: Not carcinogenic in animal studies.

### 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.

### ACGIH

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

### OSHA

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

### 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

### Product:

:

Remarks: Does not impair fertility., Not a developmental toxicant., Causes foetotoxicity in animals; considered to be secondary to maternal toxicity.

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## STOT - single exposure

### Product:

Remarks: Inhalation of vapours or mists may cause irritation to the respiratory system., Ingestion may cause drowsiness and dizziness.

## STOT - repeated exposure

### Product:

Target Organs: Kidney

Remarks: May cause damage to organs or organ systems through prolonged or repeated exposure.

## Aspiration toxicity

### Product:

Not considered an aspiration hazard.

## SECTION 12. ECOLOGICAL INFORMATION

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

### Ecotoxicity

#### Product:

Toxicity to fish (Acute toxicity) : LC50: > 100 mg/l  
Remarks: Practically non toxic:

Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) : EC50: > 100 mg/l  
Remarks: Practically non toxic:

Toxicity to algae (Acute toxicity) : ErC50: > 100 mg/l  
Remarks: Practically non toxic:

Toxicity to fish (Chronic toxicity) : Remarks: NOEC/NOEL > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: NOEC/NOEL > 100 mg/l

Toxicity to bacteria (Acute toxicity) : IC50: > 100 mg/l  
Remarks: Practically non toxic:

### Persistence and degradability

#### Product:

Biodegradability : Remarks: Readily biodegradable.

### Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: Does not have the potential to bioaccumulate signif-

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icantly.

## Mobility in soil

### Product:

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

## Other adverse effects

no data available

### Product:

Additional ecological information : Data not available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Recover or recycle if possible.  
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.  
Remove all packaging for recovery or waste disposal.

Do not dispose into the environment, in drains or in water courses  
Waste product should not be allowed to contaminate soil or water.

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 : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

## SECTION 14. TRANSPORT INFORMATION

### National Regulations

#### US Department of Transportation Classification (49 CFR Parts 171-180)

UN/ID/NA number : UN 3082  
Proper shipping name : Environmentally hazardous substances, liquid, n.o.s.  
(Ethylene glycol)  
Class : 9  
Packing group : III

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Labels : 9  
Reportable quantity Ethylene glycol  
(5,000 lb)  
Marine pollutant : yes

## International Regulation

### 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 : Y  
Ship type : 2  
Product name : Ethylene glycol  
Special precautions : Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

## Special precautions for user

Not applicable

**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

**OSHA Hazards** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### EPCRA - Emergency Planning and Community Right-to-Know Act

#### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
	107-21-1	5000	5000

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Immediate (Acute) Health Hazard

**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Ethylene Glycol	107-21-1	100 %
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## Clean Water Act

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

## Pennsylvania Right To Know

Ethylene Glycol 107-21-1

## New Jersey Right To Know

Ethylene Glycol 107-21-1

## California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other re-productive harm.

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

AICS : Listed

DSL : Listed

IECSC : Listed

ENCS : Listed

KECI : Listed

NZIoC : Listed

PICCS : Listed

CH INV : Listed

TSCA : Listed

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

## SECTION 16. OTHER INFORMATION

### Further information

NFPA Rating (Health, Fire, Reactivity) 1, 1, 0

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

Due to the conversion of this product to GHS classification and labelling, there has been a significant change to the nature of the information presented in chapter 2.

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

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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 für 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\_HP V = 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

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TWA = Time-Weighted Average

vPvB = very Persistent and very Bioaccumulative

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  
IUCID data base, EC 1272 regulation, etc).

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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.