

# ***Rathlin Energy***

Chemical Inventory

Environmental Permit  
Variation

West Newton A  
Wellsite




East Riding of Yorkshire

PEDL 183

December 2018



**APPROVAL LIST**

	<b>Title</b>	<b>Name</b>	<b>Signature</b>
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INDICATIVE CHEMICAL INVENTORY - West Newton A - Well Testing Operations										
PRODUCT NAME	UNIT SIZE	QTY	TOTAL VOLUME (KG)	MAX TONNES	UN NO	CLP CLASSIFICATIONS	CHEMICAL COMPOSITION	CAS No	RESULTS OF PBT ASSESSMENT	COMMENTS
<b>Engine Oils and Maintenance Oils (Indicative List Only)</b>										
Engine Oil 15W40	200 ltr drum	5	~883	0.883	N/A	Not Classified	Zinc alkyl dithiophosphate 1-2.5% Interchangeable low viscosity base oil 0-90%	68649-42-3 N/A	Not identified as a PBT substance.	
Hydraulic Oil Shell Tullus 32	200 ltr Drum	5	~875	0.875	N/A	Not Classified	Interchangeable low viscosity base oil 0 – 90%	N/A	Not identified as a PBT substance.	
Shell Omala S2 G 220 Gear Lub	200 ltr Drum	3	~534.6	0.534	N/A	Not Classified	Amine Phosphate 0.1 – 0.5%	91745-46-9	Not identified as a PBT substance.	
Shell Omala S2 G 100 Gear Lub	200 ltr Drum	3	~534.7	0.534	N/A	Not Classified	Amine Phosphate 0.1 – 0.5%	91745-46-9	Not identified as a PBT substance.	
<b>Workover Rig - Well Testing</b>										
Workover Rig Fuel Tank	563 litres	1	~450.4	0.450	1202	H226, H304, H332, H315, H351, H373, H411	Fuels, Diesel (60 – 100%) Distillates (Fischer- Tropsch) C8-26 - Branched and Linear (0 – 30%) Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes (0 – 10%)	68334-30-5 848301-67-7 848301-66-6	Not a PBT or vPvB substance	
Bunded Fuel Tank	1,000 litres	1	~800	0.800	1202	H226, H304, H332, H315, H351, H373, H412	Fuels, Diesel (60 – 100%) Distillates (Fischer- Tropsch) C8-26 - Branched and Linear (0 – 30%) Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes (0 – 10%)	68334-30-5 848301-67-7 848301-66-7	Not a PBT or vPvB substance	
<b>Fluid Additives - Well Testing</b>										
15% Hydrochloric Acid	1,000 Litre IBC	15	15,000	17.850	1789	H315, H319, H335, H290	Hydrochloric acid 15%	7647-01-0	Not classified as PBT by current EU criteria.	
Potassium Chloride	25 kg Sack	100	2,500	2.500	N/A	Not Classified	Potassium Chloride 60-100%	7447-40-7	Not classified as PBT/vPvB by current EU criteria.	
Nitrogen, Refrigerated Liquid	40 kg bottle	15	600	0.600	1066	H280	Nitrogen 100%	7727-37-9	Not classified as PBT or vPvB	
Carbon Dioxide, Refrigerated Liquid	6,000 litres	1	6,000	6.000	2187	H281	Carbon Dioxide 100%	124-38-9	Not classified as PBT or vPvB	
Methanol	159 litres	1	159	0.126	1230	H225, H301, H311, H330, H370	Methanol 100%	67-56-1	Assessed by Environment Agency Contractors as Non-hazardous	Antifreeze for well test surface equipment operation.

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### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product Identifier

**Material Name** : Shell Rimula R4 L 15W-40  
**Product Code** : 001C4590

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

**Product Use** : Engine oil.

**Uses Advised Against** : This product must not be used in applications other than those recommended 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 Deutschland Oil GmbH  
Suhrenkamp 71-77  
D-22335 Hamburg

**Telephone** : (+49) 40 6324-6255

**Fax** : (+49) 40 6321-051

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

#### 1.4 Emergency Telephone Number

: (+49) 30 3068 6790 (Giftnotruf Berlin)

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### SECTION 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

1999/45/EC	
Hazard Characteristics	R-phrases(s)
Not classified as dangerous under EC criteria.;	

#### 2.2 Label Elements

##### Labeling according to Directive 1999/45/EC

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EC Symbols : No Hazard Symbol required

EC Classification : Not classified as dangerous under EC criteria.

EC Risk Phrases : Not classified.

EC Safety Phrases : Not classified.

**2.3 Other Hazards**

**Health Hazards** : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.

**Safety Hazards** : Not classified as flammable but will burn.

**Environmental Hazards** : Not classified as dangerous for the environment.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substance**

**Material Name** : Not applicable.

**3.2 Mixtures**

**Mixture Description** : Highly refined mineral oils and additives.

**Hazardous Components****Classification of components according to Regulation (EC) No 1272/2008**

Chemical Name	CAS No.	EC Number	REACH Registration No.	Conc.
Zinc alkyl dithiophosphate	68649-42-3	272-028-3	Not available / Not applicable.	1,00 - 2,40%
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	*	*	*	0,00 - 90,00%

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Chemical Name	Hazard Class & Category	Hazard Statement
Zinc alkyl dithiophosphate	Skin Corr., 2; Eye Dam., 1; Aquatic Chronic, 2;	H315; H318; H411;
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	Asp. Tox., 1;	H304;

## Classification of components according to 67/548/EEC

Chemical Name	CAS No.	EC Number	REACH Registration No.	Symbol(s)	R-phrase(s)	Conc.
Zinc alkyl dithiophosphate	68649-42-3	272-028-3	Not available / Not applicable.	Xi, N	R38; R41; R51/53	1,00 - 2,40%

**Additional Information** : The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Ch 16 for full text of R- and H- phrases.

\* contains one or more of the following CAS-numbers (REACH registration numbers): 64742-53-6 (01-2119480375-34), 64742-54-7 (01-2119484627-25), 64742-55-8 (01-2119487077-29), 64742-56-9 (01-2119480132-48), 64742-65-0 (01-2119471299-27), 68037-01-4 (01-2119486452-34), 72623-86-0 (01-2119474878-16), 72623-87-1 (01-2119474889-13), 8042-47-5 (01-2119487078-27), 848301-69-9 (01-0000020164-80).

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

## SECTION 4. FIRST AID MEASURES

## 4.1 Description of First Aid Measures

- General Information** : Not expected to be a health hazard when used under normal conditions.
- Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
- 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.
- Eye Contact** : Flush eye with copious quantities of water. If persistent

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<b>Ingestion</b>	: irritation occurs, obtain medical attention.
<b>Self-protection of the first aider</b>	: In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
<b>4.2 Most important symptoms and effects, both acute and delayed</b>	: When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	: Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
	: Notes to doctor/physician: Treat symptomatically.

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### SECTION 5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

<b>5.1 Extinguishing Media</b>	: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
<b>Unsuitable Extinguishing Media</b>	: Do not use water in a jet.
<b>5.2 Special hazards arising from the substance or mixture</b>	: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
<b>5.3 Advice for firefighters</b>	: 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).

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Observe the relevant local and international regulations.

<b>6.1 Personal Precautions, Protective Equipment and Emergency Procedures</b>	: 6.1.1 For non emergency personnel: Avoid contact with skin and eyes.
	: 6.1.2 For emergency responders: Avoid contact with skin and eyes.

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- 6.2 Environmental Precautions** : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- 6.3 Methods and Material for Containment and Cleaning Up** : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
- Additional Advice** : Local authorities should be advised if significant spillages cannot be contained.
- 6.4 Reference to other sections** : For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

**SECTION 7. HANDLING AND STORAGE**

- General Precautions** : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. 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.
- 7.1 Precautions for Safe Handling** : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers.
- Product Transfer** : This material has the potential to be a static accumulator. Proper grounding and bonding procedures should be used during all bulk transfer operations.
- 7.2 Conditions for safe storage, including any incompatibilities** : Store at ambient temperature.
- Recommended Materials** : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.  
: For containers or container linings, use mild steel or high density polyethylene.
- Unsuitable Materials** : PVC.
- 7.3 Specific end use(s)** : Not applicable
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.



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Storage class according to TRGS 510: 10

Fire hazard classification: B

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### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

#### 8.1 Control Parameters

##### Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

#### Biological Exposure Index (BEI)

No biological limit allocated.

**PNEC related information** : Data not available

**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

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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>

### 8.2 Exposure Controls

#### General Information

: 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.

Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. 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.

#### Occupational Exposure Controls

##### Personal Protective Equipment

: The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards. Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

##### Eye Protection

: Wear safety glasses or full face shield if splashes are likely to occur. Approved to EU Standard EN166.

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- Hand Protection** : 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: PVC, neoprene or nitrile rubber gloves. 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. 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 recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be 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.
- Body protection** : Skin protection not ordinarily required beyond standard issue work clothes.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. 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 suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN14387.
- Thermal Hazards** : Not applicable.
- Environmental Exposure Controls**
- Environmental exposure control measures** : 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.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

Appearance	: Amber. Liquid at room temperature.
Odour	: Slight hydrocarbon.
Odour threshold	: Data not available
pH	: Not applicable.
Initial Boiling Point and Boiling Range	: > 280 °C / 536 °F estimated value(s)
Pour point	: Typical -33 °C / -27 °F
Flash point	: Typical 227 °C / 441 °F (COC)
Upper / lower Flammability or Explosion limits	: Typical 1 - 10 %(V) (based on mineral oil)
Auto-ignition temperature	: > 320 °C / 608 °F
Vapour pressure	: < 0,5 Pa at 20 °C / 68 °F (estimated value(s))
Relative Density	: Typical 0,883 at 15 °C / 59 °F
Density	: Typical 883 kg/m <sup>3</sup> at 15 °C / 59 °F
Water solubility	: Negligible.
Solubility in other solvents	: Data not available
n-octanol/water partition coefficient (log Pow)	: > 6 (based on information on similar products)
Dynamic viscosity	: Data not available
Kinematic viscosity	: Typical 118 mm <sup>2</sup> /s at 40 °C / 104 °F Typical 15,5 mm <sup>2</sup> /s at 100 °C / 212 °F
Vapour density (air=1)	: > 1 (estimated value(s))
Evaporation rate (nBuAc=1)	: Data not available
Decomposition Temperature	: Data not available
Flammability	: Data not available
Oxidizing Properties	: Data not available
Explosive Properties	: Not classified

#### 9.2 Other Information

Electrical conductivity	: This material is not expected to be a static accumulator.
Other Information	: not a VOC
Volatile organic compound	: 0 %

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### 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.
- 10.3 Possibility of Hazardous Reactions** :  
: Reacts with strong oxidising agents.
- 10.4 Conditions to Avoid** : Extremes of temperature and direct sunlight.
- 10.5 Incompatible Materials** : Strong oxidising agents.
- 10.6 Hazardous Decomposition Products** : Hazardous decomposition products are not expected to form during normal storage.

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### SECTION 11. TOXICOLOGICAL INFORMATION

#### 11.1 Information on Toxicological effects

- Basis for Assessment** : Information given is based on data on the components and the toxicology of similar products.  
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
- Likely Routes of Exposure** : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
- Acute Oral Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
- Acute Dermal Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
- Acute Inhalation Toxicity** : Not considered to be an inhalation hazard under normal conditions of use.
- Skin corrosion/irritation** : Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
- Serious eye damage/irritation** : Expected to be slightly irritating.
- Respiratory Irritation** : Inhalation of vapours or mists may cause irritation.
- Respiratory or skin sensitisation** : For respiratory and skin sensitisation: Not expected to be a sensitiser.
- Aspiration Hazard** : Not considered an aspiration hazard.
- Germ cell mutagenicity** : Not considered a mutagenic hazard.
- Carcinogenicity** : Not expected to be carcinogenic. Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting

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studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Material	:	Carcinogenicity Classification
Highly refined mineral oil (IP346 <3%)	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Highly refined mineral oil (IP346 <3%)	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Highly refined mineral oil (IP346 <3%)	:	GHS / CLP: No carcinogenicity classification

**Reproductive and Developmental Toxicity** : Not expected to be a hazard.

**Summary on evaluation of the CMR properties**

**Carcinogenicity** : This product does not meet the criteria for classification in categories 1A/1B.,

**Mutagenicity** : This product does not meet the criteria for classification in categories 1A/1B.

**Reproductive Toxicity (fertility)** : This product does not meet the criteria for classification in categories 1A/1B.

**Specific target organ toxicity - single exposure** : Not expected to be a hazard.

**Specific target organ toxicity - repeated exposure** : Not expected to be a hazard.

**Additional Information** : Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. Continuous contact with used engine oils has caused skin cancer in animal tests. Classifications by other authorities under varying regulatory frameworks may exist.

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**SECTION 12. ECOLOGICAL INFORMATION**

**Basis for Assessment** : Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the

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- product as a whole, rather than for individual component(s).
- 12.1 Toxicity**  
**Acute Toxicity** : Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract. Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
- 12.2 Persistence and degradability** : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
- 12.3 Bioaccumulative Potential** : Contains components with the potential to bioaccumulate.
- 12.4 Mobility in Soil** : Liquid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile. Floats on water.
- 12.5 Result of PBT and vPvB assesment** : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.
- 12.6 Other Adverse Effects** : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

**SECTION 13. DISPOSAL CONSIDERATIONS****13.1 Waste Treatment Methods**

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
- Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

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EU Waste Disposal Code (EWC): 13 02 05 mineral-based non-chlorinated engine, gear and lubricating oils. Classification of waste is always the responsibility of the end user.

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### SECTION 14. TRANSPORT INFORMATION

#### Land transport (ADR/RID):

##### ADR

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

##### RID

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

#### Inland waterways transport (ADN):

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

CDNI Inland Water Waste Agreement : NST 3411 Engine oil

#### Sea transport (IMDG Code):

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

#### Air transport (IATA):

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

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

Pollution Category : Not applicable.  
Ship Type : Not applicable.  
Product Name : Not applicable.  
Special Precaution : Not applicable.

**Additional Information** : MARPOL Annex 1 rules apply for bulk shipments by sea.



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### SECTION 15. REGULATORY INFORMATION

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

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

##### Other regulatory Information

**Authorisations and/or restrictions on use** : Product is not subject to Authorisation under REACH.

**Recommended Restrictions on Use (Advice Against)** : This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.

##### Chemical Inventory Status

**EINECS** : All components listed or polymer exempt.

**TSCA** : All components listed.

##### National Legislation

**Water Pollution Class** : WGK 2 - hazard to waters (appendix 2, VwVwS, preparations).

**Other Information** : Technische Anleitung Luft: Product not listed by name. Observe section 5.2.5 in connection with section 5.4.9

**15.2 Chemical Safety Assessment** : No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

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### SECTION 16. OTHER INFORMATION

#### R-phrases

	Not classified.
R38	Irritating to skin.
R41	Risk of serious damage to eyes.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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### CLP Hazard Statements

- H304            May be fatal if swallowed and enters airways.  
H315            Causes skin irritation.  
H318            Causes serious eye damage.
- H411            Toxic to aquatic life with long lasting effects.

**Additional Information**            : No Exposure Scenario annex is attached to this safety data sheet. It is a non-classified mixture containing hazardous substances as detailed in Section 3; relevant information from Exposure Scenarios for the hazardous substances contained have been integrated into the core sections 1-16 of this SDS.

### Other Information

### Abbreviations and Acronyms

- : Acute Tox. = Acute toxicity  
Asp. Tox. = Aspiration hazard  
Aquatic Acute = Acute hazards to the aquatic environment  
Aquatic Chronic = Hazardous to the aquatic environment - Long-term Hazard  
Eye Dam. = Serious eye damage/eye irritation  
Flam. Liq. = Flammable liquids  
Skin Corr. = Skin corrosion/irritation  
Skin Sens. = Skin sensitizer  
STOT SE = Specific target organ toxicity - single exposure  
STOT RE = Specific target organ toxicity - repeated exposure

The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ADN = European Agreement concerning the international carriage of dangerous goods by inland waterways (ADN)  
DFG = Federal Institute of Hydrology  
EG = European Community  
EN = European Norm  
IBC = Intermediate Bulk Container  
ISO = International Standards Organisation  
MAK = Maximum workplace concentration  
OECD = Organisation for economic cooperation and development  
OEL = Occupational Exposure Limits  
PSA = Personal protective equipment  
TRGS = Technical rules for hazardous substances

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VO = Regulation

VOC = Volatile Organic Compounds

VwVwS = Water administrative pollutants

WGK = Water Hazard Class

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 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

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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  
 TWA = Time-Weighted Average  
 vPvB = very Persistent and very Bioaccumulative

- SDS Distribution** : The information in this document should be made available to all who may handle the product.
- SDS Version Number** : 2.0
- SDS Effective Date** : 17.12.2012
- SDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- SDS Regulation** : **Regulation 1907/2006/EC as amended by Regulation (EU) 453/2010**
- Disclaimer** : 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.

## Safety Data Sheet

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### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product Identifier

**Material Name** : Shell Tellus S2 M 32  
**Product Code** : 001D7743

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

**Product Use** : Hydraulic oil.

**Uses Advised Against** : This product must not be used in applications other than those recommended 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 Deutschland Oil GmbH  
Suhrenkamp 71-77  
D-22335 Hamburg

**Telephone** : (+49) 40 6324-6255

**Fax** : (+49) 40 6321-051

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

#### 1.4 Emergency Telephone Number

: +49 (0)40 6324-5110

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### SECTION 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

1999/45/EC	
Hazard Characteristics	R-phrases(s)
Not classified as dangerous under EC criteria.;	

#### 2.2 Label Elements

##### Labeling according to Directive 1999/45/EC

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EC Symbols : No Hazard Symbol required

EC Classification : Not classified as dangerous under EC criteria.

EC Risk Phrases : Not classified.

EC Safety Phrases : Not classified.

**2.3 Other Hazards**

**Health Hazards** : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities.

**Safety Hazards** : Not classified as flammable but will burn.

**Environmental Hazards** : Not classified as dangerous for the environment.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substance**

**Material Name** : Not applicable.

**3.2 Mixtures**

**Mixture Description** : Highly refined mineral oils and additives.

**Hazardous Components****Classification of components according to Regulation (EC) No 1272/2008**

Chemical Name	CAS No.	EC Number	REACH Registration No.	Conc.
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	*	*	*	0,00 - 90,00%

Chemical Name	Hazard Class & Category	Hazard Statement
Interchangeable low	Asp. Tox., 1;	H304;

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viscosity base oil (<20,5 cSt @40°C) *		
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**Additional Information** : The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Ch 16 for full text of H phrases.

\* contains one or more of the following CAS-numbers (REACH registration numbers): 64742-53-6 (01-2119480375-34), 64742-54-7 (01-2119484627-25), 64742-55-8 (01-2119487077-29), 64742-56-9 (01-2119480132-48), 64742-65-0 (01-2119471299-27), 68037-01-4 (01-2119486452-34), 72623-86-0 (01-2119474878-16), 72623-87-1 (01-2119474889-13), 8042-47-5 (01-2119487078-27), 848301-69-9 (01-0000020164-80).

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

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**SECTION 4. FIRST AID MEASURES**
**4.1 Description of First Aid Measures**

- General Information** : Not expected to be a health hazard when used under normal conditions.
- Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
- 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. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
- Eye Contact** : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
- Ingestion** : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
- Self-protection of the first aider** : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
- 4.2 Most important symptoms and effects,** : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas.

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- both acute and delayed** Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Ingestion may result in nausea, vomiting and/or diarrhoea.
- 4.3 Indication of any immediate medical attention and special treatment needed** : Notes to doctor/physician:  
Treat symptomatically.  
High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function.  
Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

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### SECTION 5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

- 5.1 Extinguishing Media** : 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** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
- 5.3 Advice 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).

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Observe the relevant local and international regulations.

- 6.1 Personal Precautions,** : 6.1.1 For non emergency personnel: Avoid contact with skin



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<b>Protective Equipment and Emergency Procedures</b>	and eyes.
<b>6.2 Environmental Precautions</b>	6.1.2 For emergency responders: Avoid contact with skin and eyes. : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
<b>6.3 Methods and Material for Containment and Cleaning Up</b>	: Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
<b>Additional Advice</b>	: Local authorities should be advised if significant spillages cannot be contained.
<b>6.4 Reference to other sections</b>	: For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

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### SECTION 7. HANDLING AND STORAGE

<b>General Precautions</b>	: Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. 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.
<b>7.1 Precautions for Safe Handling</b>	: Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers.
<b>Product Transfer</b>	: This material has the potential to be a static accumulator. Proper grounding and bonding procedures should be used during all bulk transfer operations.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	: Store at ambient temperature.
<b>Recommended Materials</b>	Refer to section 15 for any additional specific legislation covering the packaging and storage of this product. : For containers or container linings, use mild steel or high density polyethylene.

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**Unsuitable Materials** : PVC.  
**7.3 Specific end use(s)** : Not applicable  
**Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.  
 Storage class according to TRGS 510: 10  
 Fire hazard classification: B

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

**8.1 Control Parameters****Occupational Exposure Limits**

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

**Biological Exposure Index (BEI)**

No biological limit allocated.

**PNEC related information** : Data not available

**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/>

**Safety Data Sheet**

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>

**8.2 Exposure Controls  
General Information**

: 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.

Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. 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.

**Occupational Exposure Controls****Personal Protective  
Equipment**

: The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

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- Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur. Approved to EU Standard EN166.
- Hand Protection** : 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: PVC, neoprene or nitrile rubber gloves. 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. 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 recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be 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.
- Body protection** : Skin protection not ordinarily required beyond standard issue work clothes.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. 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 suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN14387.
- Thermal Hazards** : Not applicable.

**Environmental Exposure Controls**

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**Environmental exposure control measures** : 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.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

Appearance : Amber. Liquid at room temperature.  
Odour : Slight hydrocarbon.  
Odour threshold : Data not available  
pH : Not applicable.  
Initial Boiling Point and Boiling Range : > 280 °C / 536 °F estimated value(s)  
Pour point : Typical -30 °C / -22 °F  
Flash point : Typical 218 °C / 424 °F (COC)  
Upper / lower Flammability or Explosion limits : Typical 1 - 10 %(V) (based on mineral oil)  
Auto-ignition temperature : > 320 °C / 608 °F  
Vapour pressure : < 0,5 Pa at 20 °C / 68 °F (estimated value(s))  
Relative Density : Typical 0,875 at 15 °C / 59 °F  
Density : Typical 875 kg/m<sup>3</sup> at 15 °C / 59 °F  
Water solubility : Negligible.  
Solubility in other solvents : Data not available  
  
n-octanol/water partition coefficient (log Pow) : > 6 (based on information on similar products)  
Dynamic viscosity : Data not available  
Kinematic viscosity : Typical 32 mm<sup>2</sup>/s at 40 °C / 104 °F  
Vapour density (air=1) : > 1 (estimated value(s))  
Evaporation rate (nBuAc=1) : Data not available  
Decomposition : Data not available  
Temperature  
Flammability : Data not available  
Oxidizing Properties : Data not available  
  
Explosive Properties : Not classified

#### 9.2 Other Information

Electrical conductivity : This material is not expected to be a static accumulator.  
  
Other Information : not a VOC  
Volatile organic compound : 0 %

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### 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.
- 10.3 Possibility of Hazardous Reactions** :  
: Reacts with strong oxidising agents.
- 10.4 Conditions to Avoid** : Extremes of temperature and direct sunlight.
- 10.5 Incompatible Materials** : Strong oxidising agents.
- 10.6 Hazardous Decomposition Products** : Hazardous decomposition products are not expected to form during normal storage.

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### SECTION 11. TOXICOLOGICAL INFORMATION

#### 11.1 Information on Toxicological effects

- Basis for Assessment** : Information given is based on data on the components and the toxicology of similar products.  
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
- Likely Routes of Exposure** : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
- Acute Oral Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
- Acute Dermal Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
- Acute Inhalation Toxicity** : Not considered to be an inhalation hazard under normal conditions of use.
- Skin corrosion/irritation** : Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
- Serious eye damage/irritation** : Expected to be slightly irritating.
- Respiratory Irritation** : Inhalation of vapours or mists may cause irritation.
- Respiratory or skin sensitisation** : For respiratory and skin sensitisation: Not expected to be a sensitiser.
- Aspiration Hazard** : Not considered an aspiration hazard.
- Germ cell mutagenicity** : Not considered a mutagenic hazard.
- Carcinogenicity** : Not expected to be carcinogenic. Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting

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studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

<b>Material</b>	<b>:</b>	<b>Carcinogenicity Classification</b>
Highly refined mineral oil (IP346 <3%)	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Highly refined mineral oil (IP346 <3%)	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Highly refined mineral oil (IP346 <3%)	:	GHS / CLP: No carcinogenicity classification

**Reproductive and Developmental Toxicity** : Not expected to be a hazard.

**Summary on evaluation of the CMR properties**

**Carcinogenicity** : This product does not meet the criteria for classification in categories 1A/1B.,

**Mutagenicity** : This product does not meet the criteria for classification in categories 1A/1B.

**Reproductive Toxicity (fertility)** : This product does not meet the criteria for classification in categories 1A/1B.

**Specific target organ toxicity - single exposure** : Not expected to be a hazard.

**Specific target organ toxicity - repeated exposure** : Not expected to be a hazard.

**Additional Information** : Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed. Classifications by other authorities under varying regulatory frameworks may exist.

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**SECTION 12. ECOLOGICAL INFORMATION**

**Basis for Assessment** : Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the

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- product as a whole, rather than for individual component(s).
- 12.1 Toxicity**
- Acute Toxicity** : Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract. Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
- 12.2 Persistence and degradability** : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
- 12.3 Bioaccumulative Potential** : Contains components with the potential to bioaccumulate.
- 12.4 Mobility in Soil** : Liquid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile. Floats on water.
- 12.5 Result of PBT and vPvB assesment** : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.
- 12.6 Other Adverse Effects** : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste Treatment Methods

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
- Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.



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EU Waste Disposal Code (EWC): 13 01 10 mineral based non-chlorinated hydraulic oils. Classification of waste is always the responsibility of the end user.

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### SECTION 14. TRANSPORT INFORMATION

#### Land transport (ADR/RID):

##### ADR

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

##### RID

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

#### Inland waterways transport (ADN):

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

CDNI Inland Water Waste Agreement : NST 3411 Mineral Lubricating Oils

#### Sea transport (IMDG Code):

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

#### Air transport (IATA):

This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

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

Pollution Category : Not applicable.  
Ship Type : Not applicable.  
Product Name : Not applicable.  
Special Precaution : Not applicable.

**Additional Information** : MARPOL Annex 1 rules apply for bulk shipments by sea.

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### SECTION 15. REGULATORY INFORMATION

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

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

##### Other regulatory Information

**Authorisations and/or restrictions on use** : Product is not subject to Authorisation under REACH.

**Recommended Restrictions on Use (Advice Against)** : This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.

##### Chemical Inventory Status

**EINECS** : All components listed or polymer exempt.

**TSCA** : All components listed.

##### National Legislation

**Water Pollution Class** : WGK 1 - low hazard to waters (appendix 4, VwVwS, preparations).

**Other Information** : Technische Anleitung Luft: Product not listed by name. Observe section 5.2.5 in connection with section 5.4.9

**15.2 Chemical Safety Assessment** : No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

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### SECTION 16. OTHER INFORMATION

Not classified.

##### CLP Hazard Statements

H304 May be fatal if swallowed and enters airways.

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**Additional Information** : No Exposure Scenario annex is attached to this safety data sheet. It is a non-classified mixture containing hazardous substances as detailed in Section 3; relevant information from Exposure Scenarios for the hazardous substances contained have been integrated into the core sections 1-16 of this SDS.

### Other Information

### Abbreviations and Acronyms

: Acute Tox. = Acute toxicity  
Asp. Tox. = Aspiration hazard  
Aquatic Acute = Acute hazards to the aquatic environment  
Aquatic Chronic = Hazardous to the aquatic environment - Long-term Hazard  
Eye Dam. = Serious eye damage/eye irritation  
Flam. Liq. = Flammable liquids  
Skin Corr. = Skin corrosion/irritation  
Skin Sens. = Skin sensitizer  
STOT SE = Specific target organ toxicity - single exposure  
STOT RE = Specific target organ toxicity - repeated exposure

The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ADN = European Agreement concerning the international carriage of dangerous goods by inland waterways (ADN)  
DFG = Federal Institute of Hydrology  
EG = European Community  
EN = European Norm  
IBC = Intermediate Bulk Container  
ISO = International Standards Organisation  
MAK = Maximum workplace concentration  
OECD = Organisation for economic cooperation and development  
OEL = Occupational Exposure Limits  
PSA = Personal protective equipment  
TRGS = Technical rules for hazardous substances  
VO = Regulation  
VOC = Volatile Organic Compounds  
VwVwS = Water administrative pollutants  
WGK = Water Hazard Class

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

## Safety Data Sheet

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

- SDS Distribution** : The information in this document should be made available to all who may handle the product.
- SDS Version Number** : 1.1
- SDS Effective Date** : 12.12.2012
- SDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- SDS Regulation** : Regulation 1907/2006/EC as amended by Regulation (EU) 453/2010
- Disclaimer** : 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.

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According to OSHA Hazard Communication Standard, 29 CFR  
1910.1200

Version 1.5

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Print Date: 08/28/2015

## SECTION 1. IDENTIFICATION

Product name : Shell Omala S2 G 220

Product code : 001D7837

### Manufacturer or supplier's details

Manufacturer/Supplier : **Shell Oil Products US**  
P.O. Box 4427  
Houston TX 77210-4427  
USA

SDS Request : (+1) 877-276-7285  
Customer Service :

### Emergency telephone number

Spill Information : 877-504-9351  
Health Information : 877-242-7400

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

Recommended use : Gear lubricant.

## SECTION 2. HAZARDS IDENTIFICATION

### GHS Classification

Not a hazardous substance or mixture.

### GHS Label element

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.

### Other hazards which do not result in classification

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

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Used oil may contain harmful impurities.  
Not classified as flammable but will burn.

The classification of this material is based on OSHA HCS 2012 criteria.

Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Highly refined mineral oils and additives.  
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

### Hazardous components

Chemical Name	Synonyms	CAS-No.	Concentration (%)
Amine phosphate		91745-46-9	0.1 - 0.5

## 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 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 : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

Most important symptoms and effects, both acute and delayed : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas.  
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.

Immediate medical attention, special treatment : Treat symptomatically.

## SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dio-

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xide, 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 : Hazardous combustion products may include:  
A complex mixture of airborne solid and liquid particulates and gases (smoke).  
Carbon monoxide may be evolved if incomplete combustion occurs.  
Unidentified organic and inorganic compounds.
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- 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, protective equipment and emergency procedures : Avoid contact with skin and eyes.
- Environmental precautions : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.  
  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material.  
Reclaim liquid directly or in an absorbent.  
Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
- Additional advice : For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.  
For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

## SECTION 7. HANDLING AND STORAGE

- Technical measures : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.



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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.

Precautions for safe handling : Avoid prolonged or repeated contact with skin.  
Avoid inhaling vapour and/or mists.  
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.  
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Avoidance of contact : Strong oxidising agents.

Product Transfer : This material has the potential to be a static accumulator.  
Proper grounding and bonding procedures should be used during all bulk transfer operations.

## Storage

Other data : Keep container tightly closed and in a cool, well-ventilated place.  
Use properly labeled and closable containers.

Store at ambient temperature.

Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.  
Unsuitable material: PVC.

Container Advice : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

## 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
Oil mist, mineral	Not Assigned	TWA ((inhalable fraction))	5 mg/m3	US. ACGIH Threshold Limit Values
		(Mist)	5 mg/m3	OSHA_TRANS

### 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 con-

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tact 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 ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

#### General Information:

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.

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.

#### Personal protective equipment

**Respiratory protection** : No respiratory protection is ordinarily required under normal conditions of use.  
In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.  
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 suitable, select an appropriate combination of mask and filter.  
Select a filter suitable for the combination of organic gases and vapours [Type A/Type P boiling point >65°C (149°F)].

Hand protection

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- 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. PVC, neoprene or nitrile rubber gloves. 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. 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.
- 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.

## Environmental exposure controls

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

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid at room temperature.
- Colour : brown
- Odour : Slight hydrocarbon

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Odour Threshold	: Data not available
pH	: Not applicable
pour point	: -18 °C / -0.40 °F Method: ISO 3016
Initial boiling point and boiling range	: > 280 °C / 536 °F estimated value(s)
Flash point	: 240 °C / 464 °F Method: ISO 2592
Evaporation rate	: Data not available
Flammability (solid, gas)	: Data not available
Upper explosion limit	: Typical 10 %(V)
Lower explosion limit	: Typical 1 %(V)
Vapour pressure	: < 0.5 Pa (20 °C / 68 °F) estimated value(s)
Relative vapour density	: > 1 estimated value(s)
Relative density	: 0.899 (15 °C / 59 °F)
Density	: 899 kg/m <sup>3</sup> (15.0 °C / 59.0 °F) Method: ISO 12185
Solubility(ies)	
Water solubility	: negligible
Solubility in other solvents	: Data not available
Partition coefficient: n-octanol/water	: Pow: > 6 (based on information on similar products)
Auto-ignition temperature	: > 320 °C / 608 °F
Viscosity	
Viscosity, dynamic	: Data not available
Viscosity, kinematic	: 220 mm <sup>2</sup> /s (40.0 °C / 104.0 °F) Method: ISO 3104
	19.4 mm <sup>2</sup> /s (100 °C / 212 °F) Method: ISO 3104
Conductivity	: This material is not expected to be a static accumulator.

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Decomposition temperature : Data not available

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## 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 : Stable.

Possibility of hazardous reactions : Reacts with strong oxidising agents.

Conditions to avoid : Extremes of temperature and direct sunlight.

Incompatible materials : Strong oxidising agents.

Hazardous decomposition products : Hazardous decomposition products are not expected to form during normal storage.

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## SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on data on the components and the toxicology of similar products. 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 : LD50 (rat): > 5,000 mg/kg  
Remarks: Expected to be of low toxicity:

Acute inhalation toxicity : Remarks: Not considered to be an inhalation hazard under normal conditions of use.

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Remarks: Expected to be of low toxicity:

### Skin corrosion/irritation

#### Product:

Remarks: Expected to be slightly irritating., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

### Serious eye damage/eye irritation

#### Product:

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Remarks: Expected to be slightly irritating.

## **Components:**

### **Amine phosphate:**

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

## **Respiratory or skin sensitisation**

### **Product:**

Remarks: Not expected to be a skin sensitiser.

## **Components:**

### **Amine phosphate:**

Remarks: Experimental data has shown that the concentration of potentially sensitising components present in this product does not induce skin sensitisation. May cause an allergic skin reaction in sensitive individuals.

## **Germ cell mutagenicity**

### **Product:**

: Remarks: Not considered a mutagenic hazard.

## **Carcinogenicity**

### **Product:**

Remarks: Not expected to be carcinogenic.

Remarks: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies., Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

## **Reproductive toxicity**

### **Product:**

: Remarks: Not expected to impair fertility., Not expected to be a developmental toxicant.

## **STOT - single exposure**

### **Product:**

Remarks: Not expected to be a hazard.

## **STOT - repeated exposure**

### **Product:**

Remarks: Not expected to be a hazard.

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## Aspiration toxicity

### Product:

Not considered an aspiration hazard.

## Further information

### Product:

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal., ALL used oil should be handled with caution and skin contact avoided as far as possible.

Remarks: Slightly irritating to respiratory system.

## SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.  
Information given is based 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).(LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

## Ecotoxicity

### Product:

Toxicity to fish (Acute toxicity) : Remarks: Expected to be practically non toxic:  
LL/EL/IL50 > 100 mg/l

Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) : Remarks: Expected to be practically non toxic:  
LL/EL/IL50 > 100 mg/l

Toxicity to algae (Acute toxicity) : Remarks: Expected to be practically non toxic:  
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: Data not available

Toxicity to bacteria (Acute toxicity) : Remarks: Data not available

## Persistence and degradability

### Product:

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Biodegradability : Remarks: Expected to be not readily biodegradable.  
Major constituents are expected to be inherently biodegradable, but contains components that may persist in the environment.

## Bioaccumulative potential

### Product:

Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.

## Mobility in soil

### Product:

Mobility : Remarks: Liquid under most environmental conditions.  
If it enters soil, it will adsorb to soil particles and will not be mobile.

Remarks: Floats on water.

## Other adverse effects

no data available

### Product:

Additional ecological information : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.  
Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

Poorly soluble mixture.  
May cause physical fouling of aquatic organisms.

Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.  
Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.  
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.  
Disposal should be in accordance with applicable regional, national, and local laws and regulations.



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## SECTION 14. TRANSPORT INFORMATION

### National Regulations

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

Not regulated as a dangerous good

### 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	: Not applicable
Ship type	: Not applicable
Product name	: Not applicable
Special precautions	: Not applicable

### Special precautions for user

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

**Additional Information** : MARPOL Annex 1 rules apply for bulk shipments by sea.

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## SECTION 15. REGULATORY INFORMATION

**California Prop 65** : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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

EINECS : All components listed or polymer exempt.

TSCA : All components listed.

DSL : All components listed.

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## SECTION 16. OTHER INFORMATION

### Further information

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

A vertical bar (|) in the left margin indicates an amendment from the previous version.  
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 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\_HPVS = Occupational Exposure - High Production Volume

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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 Dan-  
gerous 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

Revision Date : 08/27/2015

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.

# SAFETY DATA SHEET

Regulation 1907/2006/EC

## Shell Omala S2 G 100

Version 2.1

Revision Date 04.02.2016

Print Date 06.02.2016

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

#### 1.1 Product identifier

Trade name : Shell Omala S2 G 100  
Product code : 001D7835

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

Use of the Substance/Mixture : Gear lubricant.  
Uses advised against :  
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 Deutschland Oil GmbH**  
Suhrenkamp 71-77  
D-22335 Hamburg  
Telephone : (+49) 40 6324-6255  
Telefax : (+49) 40 6321-051  
Email Contact for Safety Data Sheet : If you have any enquiries about the content of this SDS please email [lubricantSDS@shell.com](mailto:lubricantSDS@shell.com)

#### 1.4 Emergency telephone number

: (+49) 30 3068 6790 (Giftnotruf Berlin)

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture.

#### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements :  
PHYSICAL HAZARDS:  
Not classified as a physical hazard according to CLP criteria.  
HEALTH HAZARDS:

# SAFETY DATA SHEET

Regulation 1907/2006/EC

## Shell Omala S2 G 100

Version 2.1

Revision Date 04.02.2016

Print Date 06.02.2016

Not classified as a health hazard under CLP criteria.

### ENVIRONMENTAL HAZARDS:

Not classified as environmental hazard according to CLP criteria.

Precautionary statements : **Prevention:** No precautionary phrases.  
**Response:** No precautionary phrases.  
**Storage:** No precautionary phrases.  
**Disposal:** No precautionary phrases.

Sensitising components : Contains amine phosphate.  
May produce an allergic reaction.

### 2.3 Other hazards

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Used oil may contain harmful impurities.

Not classified as flammable but will burn.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Highly refined mineral oils and additives.  
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

### Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Amine phosphate	91745-46-9 294-716-2	Acute Tox.4; H302 Skin Sens.1; H317 Eye Dam.1; H318 Aquatic Chronic2; H411	0,1 - 0,5

For explanation of abbreviations see section 16.

# SAFETY DATA SHEET

Regulation 1907/2006/EC

## Shell Omala S2 G 100

Version 2.1

Revision Date 04.02.2016

Print Date 06.02.2016

### 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. 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 : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

#### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Notes to doctor/physician:  
Treat symptomatically.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

- Suitable extinguishing media : 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 : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.

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### 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 : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : 6.1.1 For non emergency personnel:  
Avoid contact with skin and eyes.  
6.1.2 For emergency responders:  
Avoid contact with skin and eyes.

### 6.2 Environmental precautions

- Environmental precautions : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Local authorities should be advised if significant spillages cannot be contained.

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

### 6.4 Reference to other sections

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.

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## SECTION 7: Handling and storage

- General Precautions : Use local exhaust ventilation if there is risk of inhalation of

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vapours, mists or aerosols.

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.

### 7.1 Precautions for safe handling

- Advice on safe handling : Avoid prolonged or repeated contact with skin.  
Avoid inhaling vapour and/or mists.  
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.  
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
- Product Transfer : This material has the potential to be a static accumulator.  
Proper grounding and bonding procedures should be used during all bulk transfer operations.
- Fire-fighting class : Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.

### 7.2 Conditions for safe storage, including any incompatibilities

- Storage class (TRGS 510) : 10, Combustible liquids
- Other data : Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers.  
  
Store at ambient temperature.  
  
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
- Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.  
Unsuitable material: PVC.
- Container Advice : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

### 7.3 Specific end use(s)

- Specific use(s) : Not applicable

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits



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Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Oil mist, mineral		TWA	5 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values

### Biological occupational exposure limits

No biological limit allocated.

### Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods <http://www.cdc.gov/niosh/>

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/>

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances <http://www.hse.gov.uk/>

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany <http://www.dguv.de/inhalt/index.jsp>

L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

## 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.

### General Information:

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.

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.

### Personal protective equipment

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The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

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.  
Approved to EU Standard EN166.

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. PVC, neoprene or nitrile rubber gloves. 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.

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.

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 : No respiratory protection is ordinarily required under normal conditions of use.  
In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. 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 suitable, select an appropriate combination of mask and filter.  
Select a filter suitable for combined particulate/organic gases and vapours [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.

Thermal hazards : Not applicable

### Environmental exposure controls

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

---

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance : Liquid at room temperature.

Colour : brown

Odour : Slight hydrocarbon

Odour Threshold : Data not available

pH : Not applicable

pour point : -24 °C Method: ISO 3016

Initial boiling point and boiling range : > 280 °C estimated value(s)

Flash point : 240 °C  
Method: ISO 2592

Evaporation rate : Data not available

Flammability (solid, gas) : Data not available

Upper explosion limit : Typical 10 %(V)

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Lower explosion limit	: Typical 1 %(V)
Vapour pressure	: < 0,5 Pa (20 °C) estimated value(s)
Relative vapour density	: > 1 estimated value(s)
Relative density	: 0,891 (15 °C)
Density	: 891 kg/m <sup>3</sup> (15,0 °C) Method: ISO 12185
Solubility(ies)	
Water solubility	: negligible
Solubility in other solvents	: Data not available
Partition coefficient: n-octanol/water	: Pow: > 6 (based on information on similar products)
Auto-ignition temperature	: > 320 °C
Viscosity	
Viscosity, dynamic	: Data not available
Viscosity, kinematic	: 100 mm <sup>2</sup> /s (40,0 °C) Method: ISO 3104
	11,4 mm <sup>2</sup> /s (100 °C) Method: ISO 3104
Explosive properties	: Not classified
Oxidizing properties	: Data not available

### 9.2 Other information

Conductivity	: This material is not expected to be a static accumulator.
Decomposition temperature	: Data not available

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## 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.

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### 10.2 Chemical stability

Stable.

No hazardous reaction is expected when handled and stored according to provisions

### 10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

### 10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

### 10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

### 10.6 Hazardous decomposition products

Hazardous decomposition products : Hazardous decomposition products are not expected to form during normal storage.

---

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Basis for assessment : Information given is based on data on the components and the toxicology of similar products. 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 : LD50 rat: > 5.000 mg/kg  
Remarks: Expected to be of low toxicity:

Acute inhalation toxicity : Remarks: Not considered to be an inhalation hazard under normal conditions of use.

Acute dermal toxicity : LD50 Rabbit: > 5.000 mg/kg  
Remarks: Expected to be of low toxicity:

### Skin corrosion/irritation

#### Product:

Remarks: Expected to be slightly irritating., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

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### Serious eye damage/eye irritation

**Product:**

Remarks: Expected to be slightly irritating.

**Components:**

**Amine phosphate:**

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

### Respiratory or skin sensitisation

**Product:**

Remarks: For respiratory and skin sensitisation:, Not expected to be a sensitiser.

**Components:**

**Amine phosphate:**

Remarks: Experimental data has shown that the concentration of potentially sensitising components present in this product does not induce skin sensitisation., May cause an allergic skin reaction in sensitive individuals.

### Germ cell mutagenicity

**Product:**

: Remarks: Not considered a mutagenic hazard.

### Carcinogenicity

**Product:**

Remarks: Not expected to be carcinogenic.

Remarks: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies., Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Material	GHS/CLP Carcinogenicity Classification
Highly refined mineral oil	No carcinogenicity classification.

### Reproductive toxicity

**Product:**

:

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Remarks: Not expected to impair fertility., Not expected to be a developmental toxicant.

### STOT - single exposure

**Product:**

Remarks: Not expected to be a hazard.

### STOT - repeated exposure

**Product:**

Remarks: Not expected to be a hazard.

### Aspiration toxicity

**Product:**

Not considered an aspiration hazard.

### Further information

**Product:**

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal., ALL used oil should be handled with caution and skin contact avoided as far as possible.

Remarks: Slightly irritating to respiratory system.

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

#### Summary on evaluation of the CMR properties

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

---

## SECTION 12: Ecological information

### 12.1 Toxicity

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Basis for assessment : Ecotoxicological data have not been determined specifically for this product.  
Information given is based 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). (LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

### **Product:**

Toxicity to fish (Acute toxicity) : Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

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

Toxicity to algae/aquatic plants (Acute toxicity) : Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to crustacean (Chronic toxicity) : Remarks: Data not available

Toxicity to microorganisms (Acute toxicity) : Remarks: Data not available

## 12.2 Persistence and degradability

### **Product:**

Biodegradability : Remarks: Expected to be not readily biodegradable., Major constituents are expected to be inherently biodegradable, but contains components that may persist in the environment.

## 12.3 Bioaccumulative potential

### **Product:**

Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.

Partition coefficient: n-octanol/water : Pow: > 6Remarks: (based on information on similar products)

## 12.4 Mobility in soil

### **Product:**

Mobility : Remarks: Liquid under most environmental conditions., If it enters soil, it will adsorb to soil particles and will not be mobile.  
Remarks: Floats on water.



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### 12.5 Results of PBT and vPvB assessment

**Product:**

Assessment : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

### 12.6 Other adverse effects

**Product:**

Additional ecological information : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities., Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.  
Poorly soluble mixture., May cause physical fouling of aquatic organisms.  
Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.  
Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.  
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.  
Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local legislation  
Waste catalogue : EU Waste Disposal Code (EWC):

Waste Code : 13 02 05\*

Remarks : Classification of waste is always the responsibility of the end user.

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### SECTION 14: Transport information

#### 14.1 UN number

ADN : Not regulated as a dangerous good  
ADR : Not regulated as a dangerous good  
RID : 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

ADN : Not regulated as a dangerous good  
ADR : Not regulated as a dangerous good  
RID : 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

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

#### 14.4 Packing group

ADN : Not regulated as a dangerous good  
CDNI Inland Water Waste Agreement : NST 3411 Mineral Lubricating Oils  
ADR : Not regulated as a dangerous good  
RID : Not regulated as a dangerous good  
IMDG : Not regulated as a dangerous good  
IATA : Not regulated as a dangerous good

#### 14.5 Environmental hazards

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

#### 14.6 Special precautions for user

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

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

Pollution category : Not applicable  
Ship type : Not applicable  
Product name : Not applicable  
Special precautions : Not applicable

**Additional Information** : MARPOL Annex 1 rules apply for bulk shipments by sea.

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### SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV) : Product is not subject to Authorisation under REACH.

Water contaminating class (Germany) : WGK 1 slightly water endangering  
Remarks: Classification according VwVwS, Annex 4.

Volatile organic compounds : 0 %

Other regulations : Technische Anleitung Luft: Product not listed by name.  
Observe section 5.2.5 in connection with section 5.4.9

Product is subject to Vorgaben der Betriebs-Sicherheits-Verordnung (BetrSichV).

Youth Employment Law Not Applicable.

Maternity Protection Act Not Applicable

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

EINECS/ELINCS/EC : All components listed or polymer exempt.  
TSCA : All components listed.

#### 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

### SECTION 16: Other information

#### Full text of H-Statements

H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H411 Toxic to aquatic life with long lasting effects.

#### Full text of other abbreviations

Acute Tox. Acute toxicity  
Aquatic Chronic Chronic aquatic toxicity  
Eye Dam. Serious eye damage  
Skin Sens. Skin sensitisation

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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 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

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### 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

#### Other information

: No Exposure Scenario annex is attached to this safety data sheet. It is a non-classified mixture containing hazardous substances as detailed in Section 3; relevant information from Exposure Scenarios for the hazardous substances contained have been integrated into the core sections 1-16 of this SDS.

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

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.

## Safety Data Sheet

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

<b>Material Name</b>	: Diesel (ULSD/Gasoil)
<b>Recommended Use / Restrictions of Use</b>	: Fuel for on-road diesel-powered engines. Fuel for use in off-road diesel engines, boilers, gas turbines and other combustion equipment.
<b>Supplier</b>	: Shell Eastern Trading (PTE) Ltd 9 North Buona Vista Drive, #07-01, Tower 1, The Metropolis Singapore 138588 Singapore
<b>Telephone</b>	: +65-6384 8000
<b>Emergency Telephone Number</b>	: +44 (0) 151 350 4595

### 2. HAZARDS IDENTIFICATION

<b>GHS Classification</b>	: Flammable liquids, Category 3 Aspiration hazard, Category 1 Acute toxicity, Category 4, Inhalation Skin corrosion/irritation, Category 2 Carcinogenicity, Category 2 Specific target organ toxicity - repeated exposure, Category 2, Blood., Thymus., Liver Hazardous to the aquatic environment - Long-term Hazard, Category 2 Acute hazards to the aquatic environment, Category 2
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<b>GHS Label Elements Symbol(s)</b>	:
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<b>Signal Words</b>	: Danger
<b>Hazard Statement</b>	: PHYSICAL HAZARDS: H226: Flammable liquid and vapour.  HEALTH HAZARDS:

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H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H332: Harmful if inhaled.  
H351: Suspected of causing cancer.  
H373: May cause damage to organs or organ systems through prolonged or repeated exposure.

### ENVIRONMENTAL HAZARDS:

H411: Toxic to aquatic life with long lasting effects.

H401: Toxic to aquatic life.

### GHS Precautionary Statements

- Prevention** : P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.
- Response** : P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P331: Do NOT induce vomiting.
- 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** : Vapour in the headspace of tanks and containers may ignite and explode at temperatures exceeding auto-ignition temperature, where vapour concentrations are within the flammability range.  
May ignite on surfaces at temperatures above auto-ignition temperature.  
This material is a static accumulator. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.
- Additional Information** : This product is intended for use in closed systems only.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

- Mixture Description** : Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon

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numbers predominantly in the C9 to C25 range. May also contain several additives at <0.1% v/v each. May contain cetane improver (Ethyl Hexyl Nitrate) at <0.2% v/v.

May contain catalytically cracked oils in which polycyclic aromatic compounds, mainly 3-ring but some 4- to 6-ring species are present.

### Classification of components according to GHS

Chemical Identity	Synonyms	CAS	Hazard Class (category)	Hazard Statement	Conc.
Fuels, diesel	Fuels, diesel	68334-30-5	Flam. Liq., 3; Asp. Tox., 1; Acute Tox., 4; Skin Corr., 2; Carc., 2; STOT RE, 2; Aquatic Chronic, 2; Aquatic Acute, 2;	H226; H304; H332; H315; H351; H373; H411; H401;	60.00 - 100.00 %
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	848301-67-7	Asp. Tox., 1; Flam. Liq., 4;	H304; H227;	0.00 - 30.00 %
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	848301-66-6	Asp. Tox., 1; Flam. Liq., 3;	H304; H226;	0.00 - 10.00 %

**Additional Information** : Dyes and markers can be used to indicate tax status and prevent fraud. Contains Cumene, CAS# 98-82-8 Contains Naphthalene, CAS # 91-20-3.

Refer to Ch 16 for full text of H phrases.

#### 4. FIRST-AID MEASURES

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

**Skin Contact** : Remove contaminated clothing. Immediately flush skin with



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<b>Eye Contact</b>	: large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
<b>Ingestion</b>	: Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
<b>Most Important Symptoms/Effects, Acute &amp; Delayed</b>	: 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. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing. Give nothing by mouth.
<b>Immediate medical attention, special treatment</b>	: If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
	: Treat symptomatically.

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### 5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

<b>Specific hazards arising from Chemicals</b>	: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Oxides of sulphur. Unidentified organic and inorganic compounds. Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. Flammable vapours may be present even at temperatures below the flash point. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
<b>Suitable Extinguishing Media</b>	: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
<b>Unsuitable Extinguishing Media</b>	: Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

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- Protective Equipment & Precautions for Fire Fighters** : 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).
- Additional Advice** : Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

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### 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. Take precautionary measures against static discharges.

- Personal Precautions, Protective Equipment and Emergency Procedures** : Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter.
- Environmental Precautions** : Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Methods and Material for Containment and Cleaning Up** : Take precautionary measures against static discharges. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, 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

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- absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.
- Additional Advice** : 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. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

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### 7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or 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 Material 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. Air-dry contaminated clothing in a well-ventilated area before laundering. Prevent spillages. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Never siphon by mouth. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse.  
Maintenance and Fuelling Activities - Avoid inhalation of vapours and contact with skin.
- Precautions for Safe Handling** : Avoid inhaling vapour and/or mists. Avoid prolonged or repeated contact with skin. When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Earth all equipment. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
- Conditions for Safe Storage** : Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Vapours from tanks should not be released to

## Safety Data Sheet

atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Keep container tightly closed and in a cool, well-ventilated place. Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product. Keep in a bunded area with a sealed (low permeability) floor, to provide containment against spillage. Prevent ingress of water.

### Product Transfer

: Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Contamination resulting from product transfer may give rise to light hydrocarbon vapour in the headspace of tanks that have previously contained gasoline. This vapour may explode if there is a source of ignition. Partly filled containers present a greater hazard than those that are full, therefore handling, transfer and sampling activities need special care. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge ( $\leq 1$  m/s until fill pipe submerged to twice its diameter, then  $\leq 7$  m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.

### Recommended Materials

: For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE) and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use

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- amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
- Unsuitable Materials** : Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
- 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.
- Other Advice** : Ensure that all local regulations regarding handling and storage facilities are followed. See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity). CENELEC CLC/TR 50404 (Electrostatics – Code of practice for the avoidance of hazards due to static electricity).

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

### Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Naphthalene	ACGIH	TWA	10 ppm		
	ACGIH	STEL	15 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	10 ppm	52 mg/m3	
	SG OEL	STEL	15 ppm	79 mg/m3	

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Fuels, diesel	ACGIH	SKIN_DES(Inhalable fraction and vapor.)			Can be absorbed through the skin.as total hydrocarbons
	ACGIH	TWA(Inhalable fraction and vapor.)		100 mg/m3	as total hydrocarbons
Cumene	ACGIH	TWA	50 ppm		
	SG OEL	TWA	50 ppm	246 mg/m3	

**Additional Information** : Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

**Biological Exposure Index (BEI)**

Material	Determinant	Sampling Time	BEI	Reference
Naphthalene	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis	Sampling time: End of shift.		ACGIH BEL (02 2013)

**Appropriate Engineering Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping. Define procedures for safe handling and maintenance of controls.

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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. Firewater monitors and deluge systems are recommended. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

- Individual Protection Measures** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
- Hand Protection** : 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. 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. 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 recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be 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. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough

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	time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable.
<b>Eye Protection</b>	: Chemical splash goggles (chemical monogoggles). If a local risk assessment deems it so, then chemical splash goggles may not be required and safety glasses may provide adequate eye protection.
<b>Protective Clothing</b>	: Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
<b>Thermal Hazards</b>	: Not applicable.
<b>Monitoring Methods</b>	: 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 <a href="http://www.cdc.gov/niosh/">http://www.cdc.gov/niosh/</a> Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <a href="http://www.osha.gov/">http://www.osha.gov/</a>
<b>Environmental Exposure Controls</b>	: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Information on accidental release measures are to be found in section 6. Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	: Colourless to yellowish. Liquid.
<b>Odour</b>	: May contain a reodorant
<b>Odour threshold</b>	: Data not available
<b>pH</b>	: Not applicable
<b>Initial Boiling Point and Boiling Range</b>	: 170 - 390 °C / 338 - 734 °F
<b>Pour point</b>	: ≤ 6 °C / 43 °F
<b>Flash point</b>	: > 55 °C / 131 °F
<b>Upper / lower Flammability or</b>	: 1 - 6 %(V)



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### Explosion limits

<b>Auto-ignition temperature</b>	: > 220 °C / 428 °F
<b>Vapour pressure</b>	: 1 hPa at 20 °C / 68 °F
<b>Relative Density</b>	: Data not available
<b>Density</b>	: 0.8 - 0.89 g/cm <sup>3</sup> at 15 °C / 59 °F
<b>Water solubility</b>	: Data not available
<b>Solubility in other solvents</b>	: Data not available

**n-octanol/water partition coefficient (log Pow)** : 3 - 6

**Dynamic viscosity** : Data not available

**Kinematic viscosity** : 1.5 - 6 mm<sup>2</sup>/s at 40 °C / 104 °F

**Vapour density (air=1)** : Data not available

**Electrical conductivity** : Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.

**Evaporation rate (nBuAc=1)** : Data not available

**Decomposition Temperature** : Data not available

**Flammability** : Not applicable.

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## 10. STABILITY AND REACTIVITY

**Chemical stability** : Stable under normal use conditions.

**Possibility of Hazardous Reactions** : No hazardous reaction is expected when handled and stored according to provisions.

**Conditions to Avoid** : Avoid heat, sparks, open flames and other ignition sources.

**Incompatible Materials** : Strong oxidising agents.

**Hazardous Decomposition Products** : Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

**Sensitivity to Static Discharge** : Yes, in certain circumstances product can ignite due to static electricity.

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### 11. TOXICOLOGICAL INFORMATION

#### Information on Toxicological effects

- Basis for Assessment** : Information given is based on product data, a knowledge of the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
- Likely Routes of Exposure** : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
- Acute Oral Toxicity** : Low toxicity: LD50 > 5000 mg/kg , Rat
- Acute Dermal Toxicity** : Low toxicity: LD50 >2000 mg/kg , Rabbit
- Acute Inhalation Toxicity** : Harmful if inhaled. LC50 > 1.0 - <= 5.0 mg/l , 4 h, Rat  
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
- Skin corrosion/irritation** : Irritating to skin.
- Serious eye damage/irritation** : Expected to be slightly irritating.
- Respiratory Irritation** : Inhalation of vapours or mists may cause irritation to the respiratory system.
- Respiratory or skin sensitisation** : Not expected to be a sensitiser.
- Aspiration Hazard** : Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
- Germ cell mutagenicity** : Positive in in-vitro, but negative in in-vivo mutagenicity assays.
- Carcinogenicity** : Limited evidence of carcinogenic effect.  
Repeated skin contact has resulted in irritation and skin cancer in animals.

Material	:	Carcinogenicity Classification
Naphthalene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Naphthalene	:	NTP: Reasonably Anticipated to be a Human Carcinogen.
Naphthalene	:	IARC 2B: Possibly carcinogenic to humans.
Naphthalene	:	GHS / CLP: Carcinogenicity Category 2

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Fuels, diesel	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Fuels, diesel	:	GHS / CLP: Carcinogenicity Category 2
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	:	GHS / CLP: No carcinogenicity classification
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	:	GHS / CLP: No carcinogenicity classification
Cumene	:	IARC 2B: Possibly carcinogenic to humans.
Cumene	:	GHS / CLP: No carcinogenicity classification

<b>Reproductive and Developmental Toxicity</b>	:	Not expected to impair fertility. Not expected to be a developmental toxicant.
<b>Specific target organ toxicity - single exposure</b>	:	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	:	May cause damage to organs or organ systems through prolonged or repeated exposure. Blood. Thymus. Liver.
<b>Additional Information</b>	:	Classifications by other authorities under varying regulatory frameworks may exist.

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## 12. ECOLOGICAL INFORMATION

<b>Basis for Assessment</b>	:	Information given is based on a knowledge of the components and the ecotoxicology of similar products. Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
<b>Acute Toxicity</b>	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.
<b>Fish</b>	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
<b>Aquatic crustacea</b>	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
<b>Algae/aquatic plants</b>	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
<b>Microorganisms</b>	:	Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l
<b>Chronic Toxicity</b>	:	
<b>Fish</b>	:	NOEC/NOEL expected to be > 0.01 - <= 0.1 mg/l (based on

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<b>Aquatic crustacea</b>	: modeled data)
<b>Mobility</b>	: NOEC/NOEL expected to be > 0.1 - <= 1.0 mg/l (based on modeled data)
<b>Persistence/degradability</b>	: Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. If product enters soil, one or more constituents will be mobile and may contaminate groundwater. Large volumes may penetrate soil and could contaminate groundwater. Floats on water.
<b>Bioaccumulative Potential</b>	: Major constituents are inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.
<b>Other Adverse Effects</b>	: Contains constituents with the potential to bioaccumulate. Log Kow > =4
	: Films formed on water may affect oxygen transfer and damage organisms.

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### 13. DISPOSAL CONSIDERATIONS

<b>Material Disposal</b>	: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination. 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.
<b>Container Disposal</b>	: Send to drum recoverer or metal reclaimer. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Do not pollute the soil, water or environment with the waste container. Comply with any local recovery or waste disposal regulations.
<b>Local Legislation</b>	: 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 in compliance.

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### 14. TRANSPORT INFORMATION

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### Land (as per ADR classification): Regulated

Class : 3  
Packing group : III  
Hazard identification no. : 30  
UN number : 1202  
Danger label (primary risk) : 3  
Proper shipping name : DIESEL FUEL  
Environmentally Hazardous : Yes

### IMDG

Identification number : UN 1202  
Proper shipping name : DIESEL FUEL  
Class / Division : 3  
Packing group : III  
Environmental hazards: Yes

### IATA (Country variations may apply)

UN number : 1202  
Proper shipping name : Diesel fuel  
Class / Division : 3  
Packing group : III

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

Pollution Category : Not applicable.  
Ship Type : Not applicable.  
Product Name : Not applicable.  
Special Precaution : Not applicable.  
**Additional Information** : MARPOL Annex 1 rules apply for bulk shipments by sea.

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## 15. REGULATORY INFORMATION

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

### Local Regulations

Workplace Safety and Health Act & Workplace Safety and Health (General Provision) Regulations : This product is subject to the requirement in the Act/Regulations.  
Environmental Protection and Management Act and Environmental Protection and Management : This product is subject to the requirement in the Act/Regulations.

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(Hazardous Substances)

Regulations

Maritime and Port Authority : This product is subject to the requirement in the Act/  
of Singapore (Dangerous Regulations.

Goods, Petroleum and  
Explosives) Regulations

Fire Safety Act and Fire : This product is subject to the requirement in the Act/  
Safety (Petroleum & Regulations.

Flammable Materials)

Regulations

**Classification triggering components** : Contains fuels, diesel.

**Other Information** : IARC has classified diesel exhaust emissions as a Class 1  
carcinogen - carcinogenic to humans. Steps should be taken  
to prevent personal exposure to diesel exhaust emissions.

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### 16. OTHER INFORMATION

#### Hazard Statement

H226 Flammable liquid and vapour.

H227 Combustible liquid.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H332 Harmful if inhaled.

H351 Suspected of causing cancer.

H373 May cause damage to organs or organ systems through prolonged or repeated  
exposure.

H401 Toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

**Additional Information** : This document contains important information to ensure the  
safe storage, handling and use of this product. The information  
in this document should be brought to the attention of the  
person in your organisation responsible for advising on safety  
matters.

**SDS Version Number** : 1.1

**SDS Effective Date** : 10.03.2014

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

**Uses and Restrictions** : This product must not be used in applications other than those  
recommended in Section 1, without first seeking the advice of  
the supplier.  
This product is not to be used as a solvent or cleaning agent;

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for lighting or brightening fires; as a skin cleanser.

**SDS Distribution** : The information in this document should be made available to all who may handle the product.

**Key/Legend to Abbreviations used in this SDS** : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

Flam. Liq.	Flammable liquids
Asp. Tox.	Aspiration hazard
Acute Tox.	Acute toxicity
Skin Corr.	Skin corrosion/irritation
Carc.	Carcinogenicity
STOT RE	Specific target organ toxicity - repeated exposure

**Key Literature References** : 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).

**Disclaimer** : 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.

## Safety Data Sheet Hydrochloric Acid 15% H15

### 1. Identification of the substance/preparation and of the Company/undertaking

#### 1.1 Product identifier

Product name Hydrochloric Acid 15% H15  
Product code H015

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

Recommended use Used as an acidizing additive in oilfield applications

Uses advised against None known.

#### 1.3 Details of the supplier of the safety data sheet

Supplier identification  
Schlumberger Oilfield UK PLC  
Victory House, Churchill Court  
Manor Royal, Crawley  
West Sussex RH10 9LU  
SDS@slb.com

#### 1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, MiddleEastand Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
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### 2. Hazards Identification

#### 2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

##### Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3

Environmental hazards Not classified

##### Physical Hazards

Substances/mixtures corrosive to metal	Category 1
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## 2.2 Label Elements



### Signal word

DANGER

### Hazard statements

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H290 - May be corrosive to metals

### Precautionary Statements - EU ( 28, 1272/2008)

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P280 - Wear protective gloves/protective clothing and eye/face protection

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P501 - Dispose of contents/container to an approved waste disposal plant

### Supplementary precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P310 - Immediately call a POISON CENTER or doctor/ physician

P321 - Specific treatment (see supplemental first aid instructions on this label)

P337 + P313 - If eye irritation persists: Get medical advice/attention

P363 - Wash contaminated clothing before reuse

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P405 - Store locked up

### Indication of danger

Xi - Irritant

### R-code(s)

Xi;R36/37/38

### Contains

Hydrochloric acid

### Classification according to EU Directives 67/548/EEC or 1999/45/EC

*For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.*

## 2.3 Other data

Not classified as PBT/vPvB by current EU criteria

## 3. Composition/information on Ingredients

### 3.1 Substances

### 3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Hydrochloric acid	231-595-7	7647-01-0	15	C;R34-37	Acute Tox. 3 (H331) Skin Corr. 1A (H314) Skin Corr. 1B (H314) STOT SE 3 (H335) Met. Corr.1 (H290)	No data available

### **Comment**

The product contains other ingredients which does not contribute to the overall classification.

## 4. First aid measures

### 4.1 Description of first-aid measures

<b>Inhalation</b>	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
<b>Ingestion</b>	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
<b>Eye contact</b>	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

### 4.2 Most important symptoms and effects, both acute and delayed

**General advice** The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms developas described the casualty should be transferred to hospital as soon as possible.

### **Main symptoms**

<b>Inhalation</b>	Please see Section 11. Toxicological Information for further information.
<b>Ingestion</b>	Please see Section 11. Toxicological Information for further information.
<b>Skin contact</b>	Please see Section 11. Toxicological Information for further information.
<b>Eye contact</b>	Please see Section 11. Toxicological Information for further information.

### 4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician** Treat symptomatically.

## 5. Fire-fighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media**

The product itself does not burn, Use extinguishing media appropriate for surrounding material.

**Extinguishing media which shall not be used for safety reasons**

None known.

### 5.2 Special hazards arising from the substance or mixture

**Precautions against fire and explosion**

Contact with metals may evolve flammable hydrogen gas.

**Hazardous combustion products**

Fire or high temperatures create:, Hydrogen chloride gas.

### 5.3 Advice for firefighters

**Special protective equipment for fire-fighters**

As in any fire, wear self-contained breathing apparatus and full protective gear.

**Special Fire-Fighting Procedures**

Containers close to fire should be removed immediately or cooled with water.

## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

### 6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

**Environmental exposure controls**

Avoid release to the environment.

### 6.3 Methods and materials for containment and cleaning up

**Methods for Containment**

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up**

Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. After cleaning, flush away traces with water.

### 6.4 Reference to other sections

See section 13 for more information.

## 7. Handling and Storage

---

## 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product.

## 7.2 Conditions for safe storage, including any incompatibilities

**Technical measures/precautions** Use only in area provided with appropriate exhaust ventilation. Keep airborne concentrations below exposure limits. Keep away from heat.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store and transport with oxidizers. Strong alkalis.

**Storage class** Chemical storage.

**Packaging material** Use specially constructed containers only

## 7.3 Specific end uses

See also Section 1.2.

# 8. Exposure Controls/Personal Protection

## 8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Hydrochloric acid	5 ppm TWA; 8 mg/m <sup>3</sup> TWA	Not determined	Not determined	Not determined

Component	Finland	France	Germany	Hungary
Hydrochloric acid	Not determined	Not determined	Not determined	Not determined

Component	Ireland	Italy	Netherlands	Norway
Hydrochloric acid	Not determined	Not determined	8 mg/m <sup>3</sup> GW	Not determined

Component	Poland	Portugal	Romania	Russia
Hydrochloric acid	10 mg/m <sup>3</sup> STEL 5 mg/m <sup>3</sup> TWA	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Hydrochloric acid	10 ppm VLA-EC 15 mg/m <sup>3</sup> VLA-EC 5 ppm VLA-ED indicative limit value 7.6 mg/m <sup>3</sup> VLA-ED indicative limit value	4 ppm STEL 6 mg/m <sup>3</sup> STEL 2 ppm MAK 3.0 mg/m <sup>3</sup> MAK	10 ppm STEL 15 mg/m <sup>3</sup> STEL 5 ppm TWA 8 mg/m <sup>3</sup> TWA	5 ppm STEL aerosol mist and gas 8 mg/m <sup>3</sup> STEL aerosol mist and gas 1 ppm TWA aerosol mist and gas 2 mg/m <sup>3</sup> TWA aerosol mist and gas

## Component Information

## Derived No Effect Level (DNEL)

**Hydrochloric acid**  
Inhalation 15 mg/m<sup>3</sup>

### Long term exposure local effects

**Hydrochloric acid**  
Inhalation 8 mg/m<sup>3</sup>

### Predicted No Effect Concentration (PNEC)

**Hydrochloric acid**  
Fresh Water 36 µg/L  
Sea Water 36 µg/L  
Intermittent release 45 µg/L

## 8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

### Engineering measures to reduce exposure

Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment.

### Personal protective equipment

- Eye protection** It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
- Hand protection** Wear chemical resistant gloves such as nitrile or neoprene, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
- Respiratory protection** No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Use respirator with inorganic vapor/acid gas protection (E, yellow).
- Skin and body protection** Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.

**Hygiene measures** Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product.



## 9. Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

**Physical state** Liquid  
**Appearance** aqueous solution  
**Odour** pungent  
**Colour** Colourless  
**Odor threshold** No information available

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH	< 2	
pH regulating agent	No information available	
Melting/freezing point	< 0 °C	
Boiling point/range	~100 °C	
Flash Point	not applicable	
Evaporation rate	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	No information available	
Lower flammability limit	No information available	
Vapor pressure	31.33 hPa (@ 20°C)	
Vapor density	1.267	
Specific gravity	No information available	
bulk density	No information available	
Relative density	1.161 - 1.19 g/cm <sup>3</sup>	(@ 20°C).
Water solubility	Miscible with water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Viscosity, dynamic	1 mPa.s (@ 20 °C)	
Log Pow	Not determined	
Explosive properties	Not Applicable	
Oxidizing properties	None known.	

## 9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

## 10. Stability and Reactivity

### 10.1 Reactivity

Gives off hydrogen by reaction with metals.

### 10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

### 10.3 Possibility of Hazardous Reactions

#### **Hazardous polymerization**

Hazardous polymerisation does not occur.

### 10.4 Conditions to avoid

Heat.

### 10.5 Incompatible materials

Strong oxidising agents. Alkali metals.

## 10.6 Hazardous decomposition products

Fire or high temperatures create: Hydrogen chloride.

## 11. Toxicological Information

### 11.1 Information on toxicological effects

#### Acute toxicity

#### Product information

#### Inhalation

May cause irritation of respiratory tract.

#### Eye contact

Causes serious eye irritation.

#### Skin contact

Causes skin irritation.

#### Ingestion

Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

#### Acute toxicity

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Hydrochloric acid	= 700 mg/kg ( Rat )	> 5010 mg/kg ( Rabbit )	= 3124 ppm ( Rat ) 1 h

#### Sensitisation

This product does not contain any components suspected to be sensitizing.

#### Mutagenic effects

Not known to cause heritable genetic damage.

#### carcinogenicity

None known.

#### Reproductive toxicity

This product does not contain any known or suspected reproductive hazards.

#### Routes of exposure

Skin contact. Eye contact. Respiratory system.

#### Routes of entry

No route of entry noted.

#### Specific target organ toxicity (single exposure)

respiratory system.

#### Specific target organ toxicity (repeated exposure)

No information available.

#### Aspiration hazard

No hazard from product as supplied.

## 12. Ecological Information

### 12.1 Toxicity

**Ecotoxicity effects**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Toxicity to algae**

See component information below.

**Toxicity to fish**

See component information below.

**Toxicity to daphnia and other aquatic invertebrates**

See component information below.

Component	Freshwater fish species data	Freshwater fish species data	Water flea data
Hydrochloric acid 7647-01-0 ( 15 )	282 mg/L LC50 (Gambusia affinis) = 96 h	No information available	No information available

**12.2 Persistence and degradability**

No product level data available.

**12.3 Bioaccumulative potential**

There is no data available for this product.

**12.4 Mobility in soil**

**Mobility**

The product is miscible with water. May spread in water systems.

**12.5 Results of PBT and vPvB assessment**

Not classified as PBT/vPvB by current EU criteria.

**12.6 Other adverse effects.**

None known.

## 13. Disposal Considerations

**13.1 Waste treatment methods**

**Waste from residues / unused products**

Dispose of as hazardous waste in compliance with local and national regulations.

**Contaminated packaging**

Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

**EWC waste disposal No.**

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 16 10 01, 16 03 03



## 14. Transport Information

### 14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG) UN 1789  
UN/ID no UN 1789  
UN No. (ICAO) UN 1789

### 14.2 Proper shipping name

HYDROCHLORIC ACID SOLUTION 15%

### 14.3. Hazard class(es)

Hazard class 8  
IMDG Page 8  
ICAO = International Civil Aviation Organization 8

### 14.4 Packing group

Packing group II  
Packing group II  
ICAO Packing group II

### 14.5 Environmental hazard

Marine pollutant No

### 14.6 Special precautions

Hazard ID 80  
EmS F-A, S-B

### 14.7 Transport in bulk according to MARPOL 73/78 and IBC Code

Not Applicable Please contact SDS@slb.com for info regarding transport in Bulk.

## 15. Regulatory Information

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

Germany, Water Endangering Classes (VwVwS) Hazardous to water/Class 1

#### Australian Standard for the Uniform Scheduling of Drugs and Poisons

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Hydrochloric acid  
Schedule 6  
Schedule 5

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

**International inventories**

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Component	SARA 302 / TPQs	SARA 313	CERCLA RQ
Hydrochloric acid	500 lb TPQ	1.0 %	5000 lb final RQ 2270 kg final RQ

**15.2 Chemical Safety Report**

No information available

**16. Other Information**

**Prepared by** Global Chemical Regulatory Compliance (GCRC)

**Supercedes date**

**Revision date** 06/Jan/2014

**Version** 1

**HMIS classification**

**Health** 1  
**Flammability** 1  
**Physical** 0

**Text of R phrases mentioned in Section 3**

R36/37/38 - Irritating to eyes, respiratory system and skin

**Full text of H-Statements referred to under sections 2 and 3**

H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation

H290 - May be corrosive to metals

N/A - Not Applicable, N/D - Not Determined.

**Disclaimer**

The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this MSDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.



**SAFETY DATA SHEET  
POTASSIUM CHLORIDE**

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1. Product identifier**

**Product name** POTASSIUM CHLORIDE

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

**Identified uses** Oil well drilling fluid additive. Oil well completion fluid additive.

**1.3. Details of the supplier of the safety data sheet**

**Supplier** M-I SWACO  
A Schlumberger Company  
Woodlands Drive  
Kirkhill Industrial Estate  
Dyce, Aberdeen AB21 0GW  
Scotland UK  
T=+44(0)1224-246600  
F=+11(0)1224-246699  
Email - MISDS@slb.com

**1.4. Emergency telephone number**

(24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600.

**National Emergency Telephone Number**

+31 (0)30-2748888 Only for the purpose of informing medical personnel in cases of acute intoxications in the Netherlands.

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1. Classification of the substance or mixture**

**Classification (EC 1272/2008)**

Physical and Chemical Hazards	Not classified.
Human health	Not classified.
Environment	Not classified.

**Classification (67/548/EEC)**

Not classified.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**2.2. Label elements**

**Label In Accordance With (EC) No. 1272/2008**

No pictogram required.

**Australian statement of hazardous/dangerous nature**

Classified as Non-Hazardous according to the criteria of NOHSC.  
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

**2.3. Other hazards**

Not Classified as PBT/vPvB by current EU criteria.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1. Substances**

**POTASSIUM CHLORIDE**

POTASSIUM CHLORIDE		60-100%
CAS-No.: 7447-40-7	EC No.: 231-211-8	
Classification (EC 1272/2008) Not classified.	Classification (67/548/EEC) Not classified.	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**Composition Comments**

The data shown is in accordance with the latest EC Directives.

**SECTION 4: FIRST AID MEASURES****4.1. Description of first aid measures****Inhalation**

Move the exposed person to fresh air at once. If respiratory problems, artificial respiration/oxygen. Get medical attention if any discomfort continues.

**Ingestion**

Immediately give a couple of glasses of water or milk, provided the victim is fully conscious. Get medical attention if any discomfort continues.

**Skin contact**

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.

**Eye contact**

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

**4.2. Most important symptoms and effects, both acute and delayed****General information**

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop as described the casualty should be transferred to hospital as soon as possible. For further information, please refer to section 11.

**4.3. Indication of any immediate medical attention and special treatment needed**

Treat Symptomatically.

**SECTION 5: FIREFIGHTING MEASURES****5.1. Extinguishing media****Extinguishing media**

Water spray, foam, dry powder or carbon dioxide.

**5.2. Special hazards arising from the substance or mixture****Hazardous combustion products**

Fire or high temperatures create: Vapours/gases/fumes of: Chlorides.

**Unusual Fire & Explosion Hazards**

High concentrations of dust may form explosive mixture with air.

**5.3. Advice for firefighters****Special Fire Fighting Procedures**

Containers close to fire should be removed immediately or cooled with water.

**Protective equipment for fire-fighters**

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures**

Wear protective clothing as described in Section 8 of this safety data sheet.

**6.2. Environmental precautions**

Do not allow to enter drains, sewers or watercourses.

**POTASSIUM CHLORIDE**

**6.3. Methods and material for containment and cleaning up**

Avoid generation and spreading of dust. Shovel into dry containers. Cover and move the containers. Flush the area with water.

**6.4. Reference to other sections**

For waste disposal, see section 13.

**SECTION 7: HANDLING AND STORAGE**

**7.1. Precautions for safe handling**

Avoid inhalation of dust and contact with skin and eyes. Avoid handling which leads to dust formation. Provide good ventilation. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Remove contaminated clothing. Do not eat, drink or smoke when using the product.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in tightly closed original container in a dry, cool and well-ventilated place.

**7.3. Specific end use(s)**

The identified uses for this product are detailed in Section 1.2.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters**

**Ingredient Comments**

NUI = Nuisance dust, WEL TWA 4mg/m3 Respirable Dust, 10 mg/m3 Total Dust.  
No biological limit allocated.

**POTASSIUM CHLORIDE (CAS: 7447-40-7)**

<b>DNEL</b>					
Industry	Dermal	Short Term	Systemic Effects	910 mg/kg/day	
Industry	Inhalation.	Short Term	Systemic Effects	5320 mg/m3	
Industry	Dermal	Long Term	Systemic Effects	303 mg/kg/day	
Industry	Inhalation.	Long Term	Systemic Effects	1064 mg/m3	
<b>PNEC</b>					
Freshwater	0.1	mg/l			
Marinewater	0.1	mg/l			
Intermittent release	1	mg/l			
STP	10	mg/l			

**8.2. Exposure controls**

**Protective equipment**



**Process conditions**

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

**Engineering measures**

Provide adequate ventilation. Observe occupational exposure limits and minimize the risk of inhalation of dust.

**Respiratory equipment**

If ventilation is insufficient, suitable respiratory protection must be provided. Use respiratory equipment with particle filter, type P2.

**Hand protection**

For prolonged or repeated skin contact use suitable protective gloves. Rubber gloves are recommended.

**Eye protection**

Wear dust resistant safety goggles where there is danger of eye contact.

**Other Protection**

Wear appropriate clothing to prevent any possibility of skin contact. Provide eyewash station.

## POTASSIUM CHLORIDE

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**9.1. Information on basic physical and chemical properties**

<b>Appearance</b>	Powder, dust
<b>Colour</b>	White to Pale Pink.
<b>Odour</b>	Odourless.
<b>Solubility</b>	Soluble in water.
<b>Initial boiling point and boiling range (°C)</b>	1406-1413°C
<b>Melting point (°C)</b>	768-773°C
<b>Relative density</b>	1.98 @ 20°C
<b>pH-Value, Diluted Solution</b>	~ 7 @ 1%
<b>Solubility Value (G/100G H<sub>2</sub>O@20°C)</b>	37
<b>Partition Coefficient (N-Octanol/Water)</b>	-3.0

**9.2. Other information**

Not relevant

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity**

There are no known reactivity hazards associated with this product.

**10.2. Chemical stability**

Stable under normal temperature conditions and recommended use.

**10.3. Possibility of hazardous reactions**

Not known.

**10.4. Conditions to avoid**

Avoid wet and humid conditions.

**10.5. Incompatible materials****Materials To Avoid**

Avoid contact with: Strong oxidising substances. Strong acids. Strong alkalis.

**10.6. Hazardous decomposition products**

Fire or high temperatures create: Vapours/gases/fumes of: Chlorides.

## SECTION 11: TOXICOLOGICAL INFORMATION

**11.1. Information on toxicological effects****Acute toxicity:****Acute Toxicity (Oral LD<sub>50</sub>)**

2600 mg/kg Rat

**Aspiration hazard:**

Not anticipated to present an aspiration hazard based on chemical structure.

**Inhalation**

Dust may irritate respiratory system or lungs.

**Ingestion**

May cause discomfort if swallowed. Gastrointestinal symptoms, including upset stomach.

**Skin contact**

Prolonged and frequent contact may cause redness and irritation.

**POTASSIUM CHLORIDE****Eye contact**

Particles in the eyes may cause irritation and smarting.

**Route of entry**

No route of entry noted.

**Target Organs**

No specific target organs noted

**SECTION 12: ECOLOGICAL INFORMATION****Ecotoxicity**

Contact M-I SWACO's QHSE Department for ecological information at env@miswaco.slb.com. OSPAR have defined this chemical as PLONOR. This is a naturally occurring mineral.

**12.1. Toxicity****Acute Toxicity - Fish**

LC50 96 hours 1060 mg/l *Lepomis macrochirus* (Bluegill)

**Acute Toxicity - Aquatic Invertebrates**

EC50 48 hours 825 mg/l *Daphnia magna*

**Acute Toxicity - Aquatic Plants**

EC50 72 hours 2500 mg/l

**12.2. Persistence and degradability****Degradability**

There are no data on the degradability of this product.

**12.3. Bioaccumulative potential****Bioaccumulative potential**

No data available on bioaccumulation.

**Partition coefficient** -3.0

**12.4. Mobility in soil****Mobility:**

The product is soluble in water.

**12.5. Results of PBT and vPvB assessment**

Not Classified as PBT/vPvB by current EU criteria.

**12.6. Other adverse effects**

None known.

**SECTION 13: DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods**

Recover and reclaim or recycle, if practical. Dispose of waste and residues in accordance with local authority requirements.

**Waste Class**

EWC-code: 06 03 14 Waste number: 7091 Inorganic salts and other solids.

**SECTION 14: TRANSPORT INFORMATION****General**

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID). and (ADG).

**14.1. UN number**

Not applicable.

**14.2. UN proper shipping name**

Not applicable.

**14.3. Transport hazard class(es)**



**POTASSIUM CHLORIDE**

Not applicable.

**14.4. Packing group**

Not applicable.

**14.5. Environmental hazards****Environmentally Hazardous Substance/Marine Pollutant**

No.

**14.6. Special precautions for user**

Not applicable.

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable. Please contact MISDS@slb.com for info regarding transport in Bulk.

**SECTION 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Uk Regulatory References**

Chemicals (Hazard Information & Packaging) Regulations. Control of Substances Hazardous to Health Regulations 2002 (as amended) Workplace Exposure Limits EH40.

**EU Legislation**

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

**National Regulations**

In accordance with Dutch Mining Regulation 9.2 and ARBO regulation Chapter 4.

**Water hazard classification**

WGK 1

**Australian Standard for the Uniform Scheduling of Drugs and Poisons**

No Poisons Schedule number allocated.

**New Zealand Hazard Classification and HSNO Approval No.**

HSR003261

**Name of Group Standard and Information on Conditions of Group Standard**

Information such as HSNO number and group standard have been added to fulfill the requirements for NZ regulations. As this product conforms to current EU regulations, it contains the required information to comply with the conditions of the stated group standard.

**Australian Regulations**

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)]. National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition]. National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)]. Safe Work Australia. Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP). ADG Code – Australian Dangerous Goods Code.

**15.2. Chemical Safety Assessment****International Chemical Inventories**

This product is exempt from REACH registration according to EC Regulation 1907/2006 Article 2 § 7 b and Annex V, point 7. Contact REACH@miswaco.slb.com for REACH information. Complies with the following national/regional chemical inventory requirements: Australia (AICS), Canada (DSL / NDSL), China (IECSC), Europe (EINECS / ELINCS), Japan (METI / ENCS), Korea (TCCL / ECL), New Zealand (NZIoC), Phillipines (PICCS), United States (TSCA).

**SECTION 16: OTHER INFORMATION****General information**

HMIS Health -1 HMIS Flammability - 0 HMIS Physical Hazard - 0 E - Safety glasses, Gloves, Dust Respirator

**Information Sources**

Product information provided by the commercial vendor(s). Material Safety Data Sheet, Misc. manufacturers. LOLI. European Chemicals Bureau -ESIS (European Chemical Substances Information).

**Revision Comments**

General revision.

**Issued By**

Sandra McWilliam

**Revision Date**

26-Feb-13

**POTASSIUM CHLORIDE**

<b><u>Revision</u></b>	4
<b><u>Supersedes date</u></b>	06-Apr-11
<b><u>SDS No.</u></b>	10857
<b><u>Safety Data Sheet Status</u></b>	Approved.
<b><u>Date</u></b>	26-Feb-13
<b><u>Signature</u></b>	Sarah Malone
<b><u>Signature 2</u></b>	Nina Øvrehus
<b><u>Risk Phrases In Full</u></b>	
NC	Not classified.

## Disclaimer

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to the product or to the data herein is made or incurred hereunder.

## Safety data sheet Nitrogen, compressed.

Creation date : 28.01.2005  
Revision date : 06.02.2012

Version : 2.1

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SDS No. : 8347  
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### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

**Product name**

Nitrogen, compressed.  
**EC No (from EINECS):** 231-783-9  
**CAS No:** 7727-37-9

**Index-Nr. -**
**Chemical formula** N<sub>2</sub>
**REACH Registration number:**

Listed in Annex IV/V of Regulation (EC) No 1907/2006 (REACH), exempted from registration.

**Known uses**

Not known.

**Company identification**

Linde AG, Linde Gas Division, Seitnerstraße 70, D-82049 Pullach  
**E-Mail Address** Info@de.linde-gas.com  
**Emergency phone numbers (24h):** 089-7446-0

### 2 HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

**Classification acc. to Regulation (EC) No 1272/2008/EC (CLP/GHS)**

Press. Gas (Compressed gas) - Contains gas under pressure; may explode if heated.

**Classification acc. to Directive 67/548/EEC & 1999/45/EC:**

Proposed by the industry  
Not classified as dangerous substance.  
Asphyxiant in high concentrations.

**Risk advice to man and the environment**

Compressed gas.

**Label Elements**
**- Labelling Pictograms**

**- Signal word**

Warning

**- Hazard Statements**

H280 Contains gas under pressure; may explode if heated.  
EIGA-As Asphyxiant in high concentrations.

**- Precautionary Statements**

**Precautionary Statement Prevention**  
None.

**Precautionary Statement Response**  
None.

**Precautionary Statement Storage**  
P403 Store in a well-ventilated place.

**Precautionary Statement Disposal**  
None.

### 3 COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/Preparation:** Substance.

**Components/Impurities**

Nitrogen, compressed.

**CAS No:** 7727-37-9

**Index-Nr.:** -

**EC No (from EINECS):** 231-783-9

**REACH Registration number:**

Listed in Annex IV/V of Regulation (EC) No 1907/2006 (REACH), exempted from registration.

Contains no other components or impurities which will influence the classification of the product.

### 4 FIRST AID MEASURES

**Inhalation**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

**Ingestion**

Ingestion is not considered a potential route of exposure.

### 5 FIRE FIGHTING MEASURES

**Specific hazards**

Exposure to fire may cause containers to rupture/explode. Non flammable.

**Hazardous combustion products**

None.

**Suitable extinguishing media**

All known extinguishants can be used.

**Specific methods**

If possible, stop flow of product. Move container away or cool with water from a protected position.

**Special protective equipment for fire-fighters**

In confined space use self-contained breathing apparatus.

### 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

**Environmental precautions**

Try to stop release.

**Clean up methods**

Ventilate area.

### 7 HANDLING AND STORAGE

**Handling**

Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Refer to supplier's handling instructions. Only experienced and properly instructed persons should handle gases under pressure. Protect containers from physical damage; do not drag, roll, slide or drop. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate

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equipment eg. trolley, hand truck, fork truck etc. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Ensure the complete gas system has been (or is regularly) checked for leaks before use. If user experiences any difficulty operating container valve discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminants particularly oil and water. Never attempt to transfer gases from one container to another. Do not smoke while handling product. The substance must be handled in accordance with good industrial hygiene and safety procedures.

### Storage

Secure cylinders to prevent them from falling. Keep container below 50°C in a well ventilated place. Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Cylinders should be stored in the vertical position and properly secured to prevent falling over. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from ignition sources (including static discharges). Keep away from combustible materials. Observe "Technische Regeln Druckgase (TRG) 280 Ziffer 5"

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure limit value

Value type	value	Note

### Respiratory protection

Not required

### Hand protection

#### Advice

Wear working gloves and safety shoes while handling containers.

### Personal protection

Ensure adequate ventilation. Wear working gloves and safety shoes while handling containers.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### General information

**Appearance/Colour:** Colourless gas.

**Odour:** None.

### Important information on environment, health and safety

**Molecular weight:** 28 g/mol

**Melting point:** -210 °C

**Boiling point:** -196 °C

**Critical temperature:** -147 °C

**Flash point:** Not applicable for gases and gas mixtures.

**Autoignition temperature:** Not applicable.

**Flammability range:** Non flammable.

**Relative density, gas (Air=1):** 0,97

**Relative density, liquid (Water=1):** 0,8

**Vapour Pressure 20 °C:** Not applicable.

**Solubility in water:** 20 mg/l

**Maximum filling pressure (bar):** 300 bar

### Other data

None.

## 10 STABILITY AND REACTIVITY

### Stability and reactivity

Stable under normal conditions.

### Hazardous decomposition products

#### Statements on decomposition

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 TOXICOLOGICAL INFORMATION

### General

No known toxicological effects from this product.

### Acute toxicity

## 12 ECOLOGICAL INFORMATION

### General

No ecological damage caused by this product.

## 13 DISPOSAL CONSIDERATIONS

### General

Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well ventilated place. Contact supplier if guidance is required.

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## 14 TRANSPORT INFORMATION

### ADR/RID

Class	2	Classification Code	1A
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### UN number and proper shipping name

UN 1066 Nitrogen, compressed

UN 1066 Nitrogen, compressed

Labels	2.2	Hazard number	20
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Packing Instruction	P200
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### IMDG

Class	2.2
-------	-----

### UN number and proper shipping name

UN 1066 Nitrogen, compressed

Labels 2.2

Packing Instruction P200

EmS F-C

### IATA

Class	2.2
-------	-----

### UN number and proper shipping name

UN 1066 Nitrogen, compressed

Labels 2.2

Packing Instruction P200

### Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the container valve is closed and not leaking. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

## Safety data sheet Nitrogen, compressed.

Creation date : 28.01.2005  
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### 15 REGULATORY INFORMATION

#### Water pollution class

Not polluting to waters according to VwVwS from 17.05.99.

#### TA-Luft

Not classified according to TA-Luft.

### 16 OTHER INFORMATION

Ensure all national/local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

#### Advice

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.

#### Further information

Hommel: Handbook of dangerous goods

Linde safety advice

No. 3           Oxygen deficiency  
No. 7           Safe handling of gas cylinders and cylinder bundles  
No. 11          Transport of gas receptacles in vehicles

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End of document

## Safety data sheet

### Carbon dioxide, refrigerated liquid.

Creation date : 27.01.2005  
Revision date : 20.12.2010

Version : 2.0

DE / E

SDS No. : 9451  
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#### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

##### Product name

Carbon dioxide, refrigerated liquid.

##### Trade name

Carbon dioxide liquified

EC No (from EINECS): 204-696-9

CAS No.: 124-38-9

Index-Nr. -

##### Chemical formula

 CO<sub>2</sub>

##### REACH Registration number:

Listed in Annex IV/V of Regulation (EC) No 1907/2006 (REACH), exempted from registration.

##### Known uses

Not known.

##### Company identification

Linde AG, Linde Gas Division, Seitnerstraße 70, D-82049 Pullach

##### E-Mail Address

 Info@de.linde-gas.com

##### Emergency phone numbers (24h):

 089-7446-0

#### 2 HAZARDS IDENTIFICATION

##### Classification of the substance or mixture

##### Classification acc. to Regulation (EC) No 1272/2008/EC (CLP/GHS)

Press. Gas - Contains refrigerated gas; may cause cryogenic burns or injury.

##### Classification acc. to Directive 67/548/EEC & 1999/45/EC

Not classified as hazardous to health.

Asphyxiant in high concentrations.

##### Risk advice to man and the environment

Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite.

##### Label Elements

##### - Labelling Pictograms



##### - Signal word

Warning

##### - Hazard Statements

H281 Contains refrigerated gas; may cause cryogenic burns or injury.

EIGA-As Asphyxiant in high concentrations.

##### - Precautionary Statements

##### Precautionary Statement Prevention

P282 Wear cold insulating gloves/face shield/eye protection.

##### Precautionary Statement Reaction

P336+P315 Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

##### Precautionary Statement Storage

P403

Store in a well-ventilated place.

##### Precautionary Statement Disposal

#### 3 COMPOSITION/INFORMATION ON INGREDIENTS

##### Substance/Preparation:

 Substance.

##### Components/Impurities

Carbon dioxide, refrigerated liquid.

##### CAS No.:

 124-38-9

##### Index-Nr.:

 -

##### EC No (from EINECS):

 204-696-9

##### REACH Registration number:

Listed in Annex IV/V of Regulation (EC) No 1907/2006 (REACH), exempted from registration.

Contains no other components or impurities which will influence the classification of the product.

#### 4 FIRST AID MEASURES

##### Inhalation

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO<sub>2</sub> cause increased respiration and headache. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

##### Skin/eye contact

Immediately flush eyes thoroughly with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

##### Ingestion

Ingestion is not considered a potential route of exposure.

#### 5 FIRE FIGHTING MEASURES

##### Specific hazards

Exposure to fire may cause containers to rupture/explode. Non flammable.

##### Hazardous combustion products

None.

##### Suitable extinguishing media

All known extinguishants can be used.

##### Specific methods

If possible, stop flow of product. Move container away or cool with water from a protected position.

##### Special protective equipment for fire fighters

In confined space use self-contained breathing apparatus.

#### 6 ACCIDENTAL RELEASE MEASURES

##### Personal precautions

Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.

##### Environmental precautions

Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

##### Clean up methods

Ventilate area.

#### 7 HANDLING AND STORAGE

##### Handling

Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified

## Safety data sheet

### Carbon dioxide, refrigerated liquid.

Creation date : 27.01.2005  
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equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Check regularly tightness of the plant. Refer to supplier's handling instructions.

**Storage**

Secure cylinders to prevent them falling. Keep container below 50°C in a well ventilated place. Observe "Technische Regeln Druckgase (TRG) 280 Ziffer 5"

**8 EXPOSURE CONTROLS/PERSONAL PROTECTION****Exposure limit value**

Value type	value	Note
Germany - AGW	5.000 ppm	TRGS 900

**Personal protection**

Ensure adequate ventilation.

**9 PHYSICAL AND CHEMICAL PROPERTIES****General information**

**Appearance/Colour:** Colourless liquid.

**Important information on environment, health and safety**

**Molecular weight:** 44 g/mol

**Melting point:** -56,6 °C

**Sublimation point:** -78,5 °C

**Critical temperature:** 31 °C

**Autoignition temperature:** Not applicable.

**Flammability range:** Not applicable.

**Relative density, gas:** 1,52

**Relative density, liquid:** 0,82

**Solubility mg/l water:** 2000 mg/l

**Other data**

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

**10 STABILITY AND REACTIVITY****Stability and reactivity**

Stable under normal conditions.

**11 TOXICOLOGICAL INFORMATION****General**

No known toxicological effects from this product.

**12 ECOLOGICAL INFORMATION****General**

When discharged in large quantities may contribute to the greenhouse effect.

**Global Warming Potential GWP**

1

**13 DISPOSAL CONSIDERATIONS****General**

Do not discharge into any place where its accumulation could be dangerous. To atmosphere in a well ventilated place. Discharge to atmosphere in large quantities should be avoided. Contact supplier if guidance is required.

**EWC Nr. 16 05 05**

**14 TRANSPORT INFORMATION****ADR/RID**

Class 2 Classification Code 3A

**UN number and proper shipping name**

UN 2187 Carbon dioxide, refrigerated, liquid

UN 2187 Carbon dioxide, refrigerated, liquid

Labels 2.2 Hazard number 22

Packing Instruction P203

**IMDG**

Class 2.2

**UN number and proper shipping name**

UN 2187 Carbon dioxide, refrigerated, liquid

Labels 2.2

Packing Instruction P203

EmS FC; SV

**IATA**

Class 2.2

**UN number and proper shipping name**

UN 2187 Carbon dioxide, refrigerated, liquid

Labels 2.2

Packing Instruction P202

**Other transport information**

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Ensure adequate ventilation. Avoid transport on vehicles where the load space is not separated from the driver's compartment. Before transporting product containers ensure that they are firmly secured. Ensure compliance with applicable regulations.

**15 REGULATORY INFORMATION****Further national regulations**

Pressure Vessel Regulation  
Regulations for the prevention of industrial accidents

**Water pollution class**

Not polluting to waters according to VwVwS from 27.07.2005.

**TA-Luft**

Not classified according to TA-Luft.

**16 OTHER INFORMATION**

Ensure all national/local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

**Advice**

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.

**Further information**

Linde safety advice

No. 1 Handling of refrigerated liquid gases

No. 3 Oxygen deficiency

No. 11 Transport of gas receptacles in vehicles

No. 12 Handling of carbon dioxide CO<sub>2</sub>

**End of document**

**Safety data sheet**  
**Carbon dioxide, refrigerated liquid.**

Creation date : 27.01.2005  
Revision date : 20.12.2010

Version : 2.0

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SDS No. : 9451  
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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance  
 Substance name : Methanol  
 CAS No : 67-56-1  
 Product code : VT430  
 Formula : CH4O  
 Synonyms : acetone alcohol / alcohol C1 / alcohol, methyl / carbinol / colonial spirits / columbian spirits / green wood spirits / manhattan spirits / methyl alcohol / methyl hydrate / methyl hydroxide / methylen / methylol / monohydroxymethane / pyroligneous spirit / pyroxylic spirit / wood alcohol / wood naphtha

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

Use of the substance/mixture : Solvent

#### 1.3. Details of the supplier of the safety data sheet

Val Tech Diagnostics, A Division of LabChem Inc  
 Jackson's Pointe Commerce Park Building 1000  
 1010 Jackson's Pointe Court  
 Zelienople, PA 16063  
 T 412-826-5230  
 F 724-473-0647

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Flam. Liq. 2 H225  
 Acute Tox. 3 (Oral) H301  
 Acute Tox. 3 (Dermal) H311  
 Acute Tox. 3 (Inhalation) H331  
 STOT SE 1 H370

#### 2.2. Label elements

##### GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H225 - Highly flammable liquid and vapour  
 H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled  
 H370 - Causes damage to organs (liver, kidneys, central nervous system, optic nerve) (Dermal, oral)

Precautionary statements (GHS-US) :

P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking  
 P233 - Keep container tightly closed  
 P240 - Ground/bond container and receiving equipment  
 P241 - Use explosion-proof electrical, ventilating, lighting equipment  
 P242 - Use only non-sparking tools  
 P243 - Take precautionary measures against static discharge  
 P260 - Do not breathe mist, vapours, spray  
 P264 - Wash exposed skin thoroughly after handling  
 P270 - Do not eat, drink or smoke when using this product  
 P271 - Use only outdoors or in a well-ventilated area  
 P280 - Wear protective gloves, protective clothing, eye protection, face protection

# Methanol

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P301 + P310 - IF SWALLOWED: immediately call a POISON CENTER or doctor/physician  
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304 + P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing  
P330 - If swallowed, rinse mouth  
P363 - Wash contaminated clothing before reuse  
P370 + P378 - In case of fire: Use carbon dioxide (CO<sub>2</sub>), powder, alcohol-resistant foam for extinction  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P235 - Keep cool  
P405 - Store locked up  
P501 - Dispose of contents/container to comply with local, state and federal regulations

### 2.3. Other hazards

Other hazards not contributing to the classification : None.

### 2.4. Unknown acute toxicity (GHS-US)

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Substance type : Mono-constituent  
Name : Methanol  
CAS No : 67-56-1  
EC no : 200-659-6  
EC index no : 603-001-00-X

Name	Product identifier	%	GHS-US classification
Methanol (Main constituent)	(CAS No) 67-56-1	100	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 STOT SE 1, H370

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Never give alcohol to drink.

First-aid measures after inhalation : Remove the victim into fresh air. Immediately consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Consult a doctor/medical service.

First-aid measures after eye contact : Rinse with water. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Give nothing to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Information Centre ([www.big.be/antigif.htm](http://www.big.be/antigif.htm)). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Doctor: administration of chemical antidote. Doctor: gastric lavage.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Slight irritation. EXPOSURE TO HIGH CONCENTRATIONS: Coughing. Symptoms similar to those listed under ingestion.

Symptoms/injuries after skin contact : Symptoms similar to those listed under ingestion. Slight irritation.

Symptoms/injuries after eye contact : Redness of the eye tissue. Lacrimation.

# Methanol

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Symptoms/injuries after ingestion	: Nausea. Vomiting. AFTER ABSORPTION OF HIGH QUANTITIES: FOLLOWING SYMPTOMS MAY APPEAR LATER: Change in the haemogramme/blood composition. Headache. Feeling of weakness. Abdominal pain. Muscular pain. Central nervous system depression. Dizziness. Mental confusion. Drunkenness. Coordination disorders. Disturbed motor response. Disturbances of consciousness. Visual disturbances. Blindness. Respiratory difficulties. Cramps/uncontrolled muscular contractions.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Dry skin. Skin rash/inflammation. Headache. Disturbed tactile sensibility. Visual disturbances. Sleeplessness. Gastrointestinal complaints. Cardiac and blood circulation effects.

### 4.3. Indication of any immediate medical attention and special treatment needed

Hospitalize at once. Until victim can be cared for by specialized staff:

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Preferably: alcohol resistant foam. Water spray. BC powder. Carbon dioxide.
Unsuitable extinguishing media	: Solid water jet ineffective as extinguishing medium.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Highly flammable. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks.
Explosion hazard	: DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".
Reactivity	: On heating: release of toxic/corrosive/combustible gases/vapours (formaldehyde). Upon combustion: CO and CO2 are formed. Violent to explosive reaction with (some) metal powders and with (strong) oxidizers. Violent exothermic reaction with (some) acids and with (some) halogens compounds.

### 5.3. Advice for firefighters

Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Protective equipment	: Gas-tight suit.
Emergency procedures	: Keep upwind. Mark the danger area. Consider evacuation. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes.

#### 6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Stop leak if safe to do so. Ventilate area.

### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

### 6.3. Methods and material for containment and cleaning up

For containment	: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute combustible/toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
Methods for cleaning up	: Take up liquid spill into a non combustible material e.g.: sand, earth, vermiculite slaked lime or soda ash. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

### 6.4. Reference to other sections

No additional information available

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation.
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Incompatible products : Strong oxidizers. Strong bases. Strong acids. Acid anhydrides. Acid chlorides.
- Incompatible materials : Direct sunlight. Heat sources. Sources of ignition.
- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) acids. (strong) bases. halogens. amines. water/moisture.
- Storage area : Store at room temperature. Keep out of direct sunlight. Store in a dry area. Keep container in a well-ventilated place. Fireproof storeroom. Keep locked up. Provide for a tub to collect spills. Provide the tank with earthing. Unauthorized persons are not admitted. Aboveground. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: steel. stainless steel. iron. glass. MATERIAL TO AVOID: lead. aluminium. zinc. polyethylene. PVC.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Methanol (67-56-1)		
USA ACGIH	ACGIH TWA (ppm)	200 ppm
USA ACGIH	ACGIH STEL (ppm)	200 ppm
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	260 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm

#### 8.2. Exposure controls

- Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Keep concentrations well below lower explosion limits.
- Personal protective equipment : Safety glasses. Protective clothing. Gloves. Full protective flameproof clothing. Face shield.



- Materials for protective clothing : GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: polyethylene/ethylenevinylalcohol. styrene-butadiene rubber. viton. GIVE LESS RESISTANCE: chloroprene rubber. chlorinated polyethylene. natural rubber. nitrile rubber/PVC. GIVE POOR RESISTANCE: leather. neoprene. nitrile rubber. polyethylene. PVA. PVC. polyurethane.
- Hand protection : Gloves.
- Eye protection : Combined eye and respiratory protection. Safety glasses.
- Skin and body protection : Head/neck protection. Protective clothing.
- Respiratory protection : Gas mask with filter type AX at conc. in air > exposure limit. Wear gas mask with filter type A if conc. in air > exposure limit. High vapour/gas concentration: self-contained respirator.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

- Physical state : Liquid

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Appearance	: Liquid.
Molecular mass	: 32.04 g/mol
Colour	: Colourless.
Odour	: Characteristic odour. Mild odour. Pleasant odour. Alcohol odour. Commercial/unpurified substance: Irritating/pungent odour.
Odour threshold	: 2000 - 8800 ppm 2620 - 11528 mg/m <sup>3</sup>
pH	: No data available
Relative evaporation rate (butylacetate=1)	: 4.1
Relative evaporation rate (ether=1)	: 6.3
Melting point	: -98 °C
Freezing point	: No data available
Boiling point	: 65 °C
Flash point	: 11 °C
Critical temperature	: 240 °C
Self ignition temperature	: 455 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 128 hPa
Vapour pressure at 50 °C	: 552 hPa
Critical pressure	: 79547 hPa
Relative vapour density at 20 °C	: 1.1
Relative density	: 0.79
Relative density of saturated gas/air mixture	: 1.0
Density	: 792 kg/m <sup>3</sup>
Solubility	: Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in chloroform. Water: Complete Ethanol: Complete Ether: Complete Acetone: Complete
Log Pow	: -0.77 (Experimental value; Other, Experimental value; Other)
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.6 mPa.s (20 °C)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 5.5 - 36.5 vol %

### 9.2. Other information

Minimum ignition energy	: 0.14 mJ
Saturation concentration	: 166 g/m <sup>3</sup>
VOC content	: 100 %
Other properties	: Clear. Hygroscopic. Volatile. Substance has neutral reaction.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

On heating: release of toxic/corrosive/combustible gases/vapours (formaldehyde). Upon combustion: CO and CO<sub>2</sub> are formed. Violent to explosive reaction with (some) metal powders and with (strong) oxidizers. Violent exothermic reaction with (some) acids and with (some) halogens compounds.

### 10.2. Chemical stability

Hygroscopic.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Direct sunlight. High temperature. Incompatible materials. Open flame. Sparks. Overheating.

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### 10.5. Incompatible materials

Strong oxidizers. Strong bases. Strong acids. Peroxides. Acid anhydrides. Acid chlorides.

### 10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.

Methanol ( V )67-56-1	
LD50 oral rat	> 5000 mg/kg (1187-2769 mg/kg bodyweight; Rat; Rat)
LD50 dermal rabbit	15800 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	85 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	64000 ppm/4h (Rat)

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Causes damage to organs (liver, kidneys, central nervous system, optic nerve) (Dermal, oral).
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: Slight irritation. EXPOSURE TO HIGH CONCENTRATIONS: Coughing. Symptoms similar to those listed under ingestion.
Symptoms/injuries after skin contact	: Symptoms similar to those listed under ingestion. Slight irritation.
Symptoms/injuries after eye contact	: Redness of the eye tissue. Lacrimation.
Symptoms/injuries after ingestion	: Nausea. Vomiting. AFTER ABSORPTION OF HIGH QUANTITIES: FOLLOWING SYMPTOMS MAY APPEAR LATER: Change in the haemogramme/blood composition. Headache. Feeling of weakness. Abdominal pain. Muscular pain. Central nervous system depression. Dizziness. Mental confusion. Drunkenness. Coordination disorders. Disturbed motor response. Disturbances of consciousness. Visual disturbances. Blindness. Respiratory difficulties. Cramps/uncontrolled muscular contractions.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Dry skin. Skin rash/inflammation. Headache. Disturbed tactile sensibility. Visual disturbances. Sleeplessness. Gastrointestinal complaints. Cardiac and blood circulation effects.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: Classification concerning the environment: not applicable.
Ecology - air	: TA-Luft Klasse 5.2.5/l.
Ecology - water	: Not harmful to fishes (LC50(96h) >1000 mg/l). Not harmful to invertebrates (Daphnia) (EC50 (48h) > 1000 mg/l). Not harmful to algae (EC50 (72h) >1000 mg/l). Slightly harmful to bacteria (EC50: 100 - 1000 mg/l). Inhibition of activated sludge.

Methanol (67-56-1)	
LC50 fishes 1	15400 mg/l (96 h; Lepomis macrochirus; Lethal)
EC50 Daphnia 1	> 10000 mg/l (48 h; Daphnia magna; Lethal)
LC50 fish 2	10800 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)
EC50 Daphnia 2	24500 mg/l (48 h; Daphnia magna)
Threshold limit other aquatic organisms 1	6600 mg/l (16 h; Pseudomonas putida)
Threshold limit algae 1	530 mg/l (192 h; Microcystis aeruginosa)
Threshold limit algae 2	8000 mg/l (168 h; Scenedesmus quadricauda)

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### 12.2. Persistence and degradability

Methanol (67-56-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil.
Biochemical oxygen demand (BOD)	0.6 - 1.12 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.42 g O <sub>2</sub> /g substance
ThOD	1.5 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.8 % ThOD

### 12.3. Bioaccumulative potential

Methanol (67-56-1)	
BCF fish 1	< 10 (Leuciscus idus)
Log Pow	-0.77 (Experimental value; Other, Experimental value; Other)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

### 12.4. Mobility in soil

Methanol (67-56-1)	
Surface tension	0.023 N/m (20 °C)

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

- Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Incinerate under surveillance with energy recovery. Do not discharge into drains or the environment. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.
- Additional information : LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.

## SECTION 14: Transport information

- In accordance with DOT
- Transport document description : UN1230 Methanol, 3, II
- UN-No.(DOT) : 1230
- DOT NA no. : UN1230
- DOT Proper Shipping Name : Methanol
- Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
- Hazard labels (DOT) : 3 - Flammable liquid



- DOT Symbols : D - Proper shipping name for domestic use only, or to and from Canada
- Packing group (DOT) : II - Medium Danger

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DOT Special Provisions (49 CFR 172.102)	: IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"

### Additional information

Other information	: No supplementary information available.
State during transport (ADR-RID)	: as liquid.

### ADR

Transport document description	: UN 1230 Methanol, 3 (6.1), II, (D/E)
Packing group (ADR)	: II
Class (ADR)	: 3 - Flammable liquid
Hazard identification number (Kemler No.)	: 336
Classification code (ADR)	: FT1
Danger labels (ADR)	: 3 - Flammable liquids 6.1 - Toxic substances



Orange plates	:
---------------	---

Tunnel restriction code	: D/E
-------------------------	-------

### Transport by sea

UN-No. (IMDG)	: 1230
Class (IMDG)	: 3 - Flammable liquids
Subsidiary risk (IMDG)	: 6.1
EmS-No. (1)	: F-E
MFAG-No	: 19
EmS-No. (2)	: S-D

### Air transport

UN-No.(IATA)	: 1230
Class (IATA)	: 3 - Flammable Liquids



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Packing group (IATA) : II - Medium Danger

Subsidiary risk (IATA) : 6.1

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Methanol (67-56-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on SARA Section 313 (Specific toxic chemical listings)

RQ (Reportable quantity, section 304 of EPA's List of Lists) : 5000 lb

SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard  
Fire hazard

#### 15.2. International regulations

##### CANADA

##### Methanol (67-56-1)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification : Class B Division 2 - Flammable Liquid  
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

##### EU-Regulations

No additional information available

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2 H225  
Acute Tox. 3 (Inhalation) H331  
Acute Tox. 3 (Dermal) H311  
Acute Tox. 3 (Oral) H301  
STOT SE 1 H370  
STOT SE 1 H370  
STOT SE 1 H370

Full text of H-phrases: see section 16

##### Classification according to Directive 67/548/EEC or 1999/45/EC

F; R11  
T; R23/24/25  
T; R39/23/24/25

Full text of R-phrases: see section 16

##### 15.2.2. National regulations

##### Methanol (67-56-1)

Listed on the Canadian Ingredient Disclosure List

#### 15.3. US State regulations

##### Methanol(67-56-1)

U.S. - California - Proposition 65 - Developmental Toxicity : Yes

No significance risk level (NSRL) : 23000 µg/day

### SECTION 16: Other information

Full text of H-phrases: see section 16:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3

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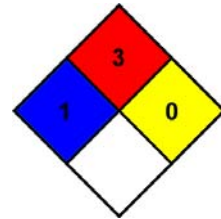
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Flam. Liq. 2	Flammable liquids, Category 2
STOT SE 1	Specific target organ toxicity — single exposure, Category 1
H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin
H331	Toxic if inhaled
H370	Causes damage to organs

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



### HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard

Physical : 0 Minimal Hazard

Personal Protection : H

SDS US ValTech

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