

# SAFETY DATA SHEET

**Shell Spirax S4 TXM**

Print Date 19.04.2025

Revision Date 18.04.2025

Version 2.0

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

### 1.1 Product identifier

Trade name : Shell Spirax S4 TXM  
Product code : 001D8246

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

Use of the Substance/Mixture : Transmission oil.  
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 : **AL JOMAIH AND SHELL LUBRICATING OIL COMPANY LIMITED**  
P. O. BOX 41467  
RIYADH 11521  
Saudi Arabia  
  
Telephone : +966 1 265 0888  
Telefax :

### 1.4 Emergency telephone number

: +966 1 265 1431

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### GHS Classification

Long-term (chronic) aquatic hazard : Category 3

### 2.2 Label elements

#### GHS-Labeling

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Hazard pictograms	: No Hazard Symbol required
Signal word	: No signal word
Hazard statements	: <b>PHYSICAL HAZARDS:</b> Not classified as a physical hazard under GHS criteria. <b>HEALTH HAZARDS:</b> Not classified as a health hazard under GHS criteria. <b>ENVIRONMENTAL HAZARDS:</b> H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	: <b>Prevention:</b> P273 Avoid release to the environment. <b>Response:</b> No precautionary phrases. <b>Storage:</b> No precautionary phrases. <b>Disposal:</b> P501 Dispose of contents/ container to an approved waste disposal plant.
Sensitising components	: Contains borated ester. Contains Triphenyl phosphite. May produce an allergic reaction.

## 2.3 Other hazards

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. Classification based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).
	: * contains one or more of the following CAS-numbers: 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-65-0, 68037-01-4, 72623-86-0, 72623-87-1, 8042-47-5, 848301-69-9, 68649-12-7, 151006-60-9, 163149-28-8, 64741-88-4, 64741-89-5.

### Hazardous components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Interchangeable low	Not Assigned	Asp. Tox.1; H304	0 - 90

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viscosity base oil ( $<20,5$ cSt @40°C) *			
Zinc dialkyldithiophosphate	4259-15-8	Eye Dam.1; H318 Aquatic Chronic2; H411	1 - 2,4
Borated ester	1471314-23-4	Skin Sens.1B; H317	0,1 - 0,9
Triphenyl phosphite	101-02-0	Acute Tox.4; H302 Skin Irrit.2; H315 Skin Sens.1A; H317 Eye Irrit.2; H319 Aquatic Acute1; H400 Aquatic Chronic1; H410 STOT RE2; H373	0,01 - 0,099
O,O,O-triphenyl phosphorothioate	597-82-0	Aquatic Chronic1; H410	0,025 - 0,099

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
- If inhaled : No treatment necessary under normal conditions of use.  
If symptoms persist, obtain medical advice.
- In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.  
If persistent irritation occurs, obtain medical attention.
- In case of eye contact : Flush eye with copious quantities of water.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
If persistent irritation occurs, obtain medical attention.
- If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

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

- Symptoms : 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

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Treatment : 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.

### 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 : Avoid contact with skin and eyes.

### 6.2 Environmental precautions

Environmental precautions : 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

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suitable material and dispose of properly.

## 6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.,  
For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

## SECTION 7: Handling and storage

General Precautions : 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

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 : Proper grounding and bonding procedures should be used during all bulk transfer operations to avoid static accumulation.

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

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.

### 7.3 Specific end use(s)

Specific use(s) : Not applicable

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

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## Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Oil mist, mineral		TWA	5 mg/m3	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.

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## Personal protective equipment

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

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

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. 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. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an

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appropriate combination of mask and filter.  
Select a filter suitable for the combination of organic gases and vapours and particles [Type A/Type P boiling point >65°C (149°F)].

Thermal hazards : Not applicable

## 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 Section 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	: amber
Odour	: Slight hydrocarbon Data not available
Odour Threshold	: Data not available
pH	: Not applicable
Pour point	: -42 °CMethod: ISO 3016
Melting / freezing point	: Data not available
Initial boiling point and boiling range	: > 280 °Cestimated value(s)
Flash point	: 220 °C Method: ISO 2592 Other information: Not classified as flammable but will burn.
Evaporation rate	: Data not available
Flammability	
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: Not classified as flammable but will burn.



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**Lower explosion limit and upper explosion limit / flammability limit**

Upper explosion limit : Typical 10 %(V)

Lower explosion limit : Typical 1 %(V)

Vapour pressure : < 0,5 Pa (20 °C)  
estimated value(s)

Relative vapour density : &gt; 1 estimated value(s)

Relative density : 0,882 (15 °C)

Density : 882 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 : log Pow: &gt; 6 (based on information on similar products)

Auto-ignition temperature : >  
320 °C

Decomposition temperature : Data not available

**Viscosity**

Viscosity, dynamic : Data not available

Viscosity, kinematic : 60 mm<sup>2</sup>/s (40,0 °C)  
Method: ISO 31049,4 mm<sup>2</sup>/s (100 °C)  
Method: ISO 3104

Explosive properties : Classification Code: Not classified

Oxidizing properties : Data not available

**9.2 Other information**

Conductivity : This material is not expected to be a static accumulator.

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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

Stable.

### 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 : No decomposition if stored and applied as directed.

## 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: Low toxicity  
Based on available data, the classification criteria are not met.

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

Acute dermal toxicity : LD50 Rabbit: > 5.000 mg/kg

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

## Skin corrosion/irritation

### Product:

Remarks: Slightly irritating to skin., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis., Based on available data, the classification criteria are not met.

## Serious eye damage/eye irritation

### Product:

Remarks: Slightly irritating to the eye., Based on available data, the classification criteria are not met.

### Components:

#### **Zinc dialkyldithiophosphate:**

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

## Respiratory or skin sensitisation

### Product:

Remarks: Not a skin sensitiser., Based on available data, the classification criteria are not met.

### Components:

#### **Borated ester:**

Remarks: May cause an allergic skin reaction in sensitive individuals.

#### **Triphenyl phosphite:**

Remarks: May cause an allergic skin reaction in sensitive individuals.

## Germ cell mutagenicity

### Product:

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

## Carcinogenicity

### Product:

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

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

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International Agency for Research on Cancer (IARC).

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

## Reproductive toxicity

### Product:

Remarks: Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

## STOT - single exposure

### Product:

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

## STOT - repeated exposure

### Product:

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

## Aspiration toxicity

### Product:

Not 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.

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## SECTION 12: Ecological information

### 12.1 Toxicity

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).

#### Product:

Toxicity to fish (Acute toxicity) : Remarks: LL/EL/IL50 10-100 mg/l Harmful

Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) : Remarks: LL/EL/IL50 10-100 mg/l Harmful

Toxicity to algae (Acute toxicity) : Remarks: LL/EL/IL50 10-100 mg/l Harmful

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

#### Components:

##### **Triphenyl phosphite :**

M-Factor (Short-term (acute) aquatic hazard) : 1

M-Factor (Long-term (chronic) aquatic hazard) : 1

##### **O,O,O-triphenyl phosphorothioate :**

M-Factor (Short-term (acute) aquatic hazard) : 1

M-Factor (Long-term (chronic) aquatic hazard) : 10

### 12.2 Persistence and degradability

#### Product:

Biodegradability : Remarks: Not readily biodegradable., Major constituents are inherently biodegradable, but contains components that may persist in the environment.

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No data available

## 12.3 Bioaccumulative potential

### Product:

- Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.
- Partition coefficient: n-octanol/water : log Pow: > 6Remarks: (based on information on similar products)

## 12.4 Mobility in soil

### Product:

- Mobility : Remarks: Liquid under most environmental conditions., Adsorbs to soil and has low mobility  
Remarks: Floats on water.

## 12.5 Results of PBT and vPvB assessment

No data available

## 12.6 Other adverse effects

### Product:

- Additional ecological information : Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential., Product is a mixture of non-volatile components, which will not be released to air in any significant quantities under normal conditions of use.  
Poorly soluble mixture., Causes physical fouling of aquatic organisms.  
Mineral oil does not cause chronic toxicity to aquatic organisms at concentrations less than 1 mg/l.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

- Product : Recover or recycle if possible.  
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.  
Do not dispose into the environment, in drains or in water courses.
- 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.  
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations,

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preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

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

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

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

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

## SECTION 14: Transport information

### 14.1 UN number

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

### 14.2 Proper shipping name

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

### 14.3 Transport hazard class

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

### 14.4 Packing group

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

### 14.5 Environmental hazards

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

### 14.6 Special precautions for user

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

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## 14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

## SECTION 15: Regulatory information

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

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

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

TSCA : All components listed.

## SECTION 16: Other information

### Full text of H-Statements

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

### Full text of other abbreviations

Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation
STOT RE	Specific target organ toxicity - repeated exposure

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



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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 Substances  
PNEC = Predicted No Effect Concentration  
REACH = Registration Evaluation And Authorisation Of Chemicals  
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail

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SKIN\_DES = Skin Designation  
STEL = Short term exposure limit  
TRA = Targeted Risk Assessment  
TSCA = US Toxic Substances Control Act  
TWA = Time-Weighted Average  
vPvB = very Persistent and very Bioaccumulative

## Further information

- Training advice : Provide adequate information, instruction and training for operators.
- Other information : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- Sources of key data used to compile the Safety Data Sheet : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

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