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

Product name : NEODENE 1618 Alpha Olefin

Product code : V1152

Manufacturer or supplier's details

Manufacturer/Supplier : Shell Chemicals Europe B.V.

PO Box 2334 3000 CH Rotterdam

Netherlands

Telephone : +31 (0)10 441 5137 +31(0)10 441 5191 Telefax : +31 (0)20 716 8316/ +31 (0)20 713 9230

Emergency telephone : +44 (0) 1235 239 670 (This telephone number is available 24

number hours per day, 7 days per week)

Recommended use of the chemical and restrictions on use

Recommended use : Use as an intermediate in industrial chemicals manufacture.

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

above without first seeking the advice of the supplier.

Other information : NEODENE is a trademark owned by Shell Trademark

Management B.V. and Shell Brands Inc. and used by affiliates

of Royal Dutch Shell plc.

#### 2. HAZARDS IDENTIFICATION

Classification (REGULATION (EC) No 1272/2008)

Aspiration hazard : Category 1

Label elements

Hazard pictograms

Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:

Not classified as a physical hazard according to CLP criteria.

**HEALTH HAZARDS:** 

H304 May be fatal if swallowed and enters airways.

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**ENVIRONMENTAL HAZARDS:** 

Not classified as environmental hazard according to CLP

criteria.

Supplemental Hazard

Statements

: EUH066 Repeated exposure may cause skin

dryness or cracking.

Precautionary statements : **Prevention**:

P243 Take precautionary measures against static discharge.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON

CENTER/ doctor.

P331 Do NOT induce vomiting.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste

disposal plant.

#### Other hazards

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.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### **Hazardous components**

Chemical name	CAS-No.	Classification	Concentration
	EC-No.	(REGULATION	(% w/w)
	Registration	(EC) No	
	number	1272/2008)	
1-Hexadecene	629-73-2	Asp. Tox. 1; H304	55 - 65
		EUH066	
octadec-1-ene	112-88-9	Asp. Tox. 1; H304	35 - 45
		EUH066	

Refer to Chapter 8 for Occupational Exposure Guidelines.

For explanation of abbreviations see section 16.

### 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.

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In case of skin contact	<ul> <li>Remove contaminated clothing. large amounts of water for at lea washing with soap and water if a pain and/or blisters occur, transp facility for additional treatment.</li> </ul>	ast 15 minutes, and follow by available. If redness, swellin
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	: Call emergency number for your If swallowed, do not induce vom medical facility for additional trea spontaneously, keep head below If any of the following delayed si within the next 6 hours, transpor facility: fever greater than 101° F breath, chest congestion or cont	iting: transport to nearest atment. If vomiting occurs whips to prevent aspiration. gns and symptoms appear to the nearest medical (38.3°C), shortness of
Most important symptoms and effects, both acute and delayed	: Not considered to be an inhalatic conditions of use.  Possible respiratory irritation sig a temporary burning sensation of coughing, and/or difficulty breath Skin irritation signs and symptom sensation, redness, or swelling. No specific hazards under normal Eye irritation signs and symptom sensation, redness, swelling, and if any of the following delayed significant within the next 6 hours, transport facility: fever greater than 101° For breath, chest congestion or conton The onset of respiratory symptom several hours after exposure. If material enters lungs, signs and coughing, choking, wheezing, dicongestion, shortness of breath, Defatting dermatitis signs and syburning sensation and/or a dried	ns and symptoms may include the nose and throat, ning. Ins may include a burning all use conditions. Ins may include a burning d/or blurred vision. Ins gns and symptoms appeared to the nearest medical (38.3°C), shortness of inued coughing or wheezing ms may be delayed for and symptoms may include fficulty in breathing, chest and/or fever.
Protection of first-aiders	: When administering first aid, ens appropriate personal protective of incident, injury and surroundings	equipment according to the
Notes to physician	: Call a doctor or poison control of Potential for chemical pneumoni Treat symptomatically.	

### **5. FIRE-FIGHTING MEASURES**

### Flammable properties

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Flash point : 130 °C / 266 °F

Ignition temperature : 240 °C / 464 °F

Upper explosion limit : Data not available

Lower explosion limit : Data not available

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.

Specific hazards during

firefighting

: Clear fire area of all non-emergency personnel. Hazardous combustion products may include:

A complex mixture of airborne solid and liquid particulates and

gases (smoke). Carbon monoxide.

Unidentified organic and inorganic compounds.

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.

Will float and can be reignited on surface water.

Specific extinguishing

Further information

methods

: Standard procedure for chemical fires.

: Keep adjacent containers cool by spraying with water.

Special protective equipment

for firefighters

: Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained

Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to

relevant Standards (e.g. Europe: EN469).

#### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Observe all relevant local and international regulations. Notify authorities if any exposure to the general public or the

environment occurs or is likely to occur.

Local authorities should be advised if significant spillages

cannot be contained.

: Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or

unprotected personnel.
Do not breathe fumes, vapour.
Do not operate electrical equipment.

**Environmental precautions** 

: Shut off leaks, if possible without personal risks. Remove all

possible sources of ignition in the surrounding area. Use

appropriate containment to avoid environmental

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> contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour 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 indicator.

Methods and materials for containment and cleaning up For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely

Ventilate contaminated area thoroughly.

If contamination of site occurs remediation may require

specialist advice.

Additional advice

: For guidance on selection of personal protective equipment

see Section 8 of this Safety Data Sheet.

For guidance on disposal of spilled material see Section 13 of

this Safety Data Sheet.

### 7. HANDLING AND STORAGE

**General Precautions** 

: Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see

Section 8 of this Safety Data Sheet.

Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of

this material.

Ensure that all local regulations regarding handling and

storage facilities are followed.

Advice on safe handling

: Avoid inhaling vapour and/or mists.

Avoid contact with skin, eyes and clothing.

Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.

Use local exhaust ventilation if there is risk of inhalation of

vapours, mists or aerosols.

Bulk storage tanks should be diked (bunded).

When using do not eat or drink.

The vapour is heavier than air, spreads along the ground and

distant ignition is possible.

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Avoidance of contact : Strong oxidising agents.

Product Transfer : 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 (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or

handling operations.

Refer to guidance under Handling section.

Storage

Conditions for safe storage : Refer to section 15 for any additional specific legislation

covering the packaging and storage of this product.

Other data : Storage Temperature:

Ambient.

Bulk storage tanks should be diked (bunded).

Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of

strict procedures and precautions.

Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat. Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not

harmful or toxic to man or to the environment.

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.

Packaging material : Suitable material: For containers, or container linings use mild

steel, stainless steel., For container paints, use epoxy paint,

zinc silicate paint.

Unsuitable material: Avoid prolonged contact with natural,

butyl or nitrile rubbers.

Container Advice : Do not cut, drill, grind, weld or perform similar operations on or

near containers.

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Specific use(s) : Not applicable

> 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).

IEC/TS 60079-32-1: Electrostatic hazards, guidance

#### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

#### Components with workplace control parameters

#### Biological occupational exposure limits

No biological limit allocated.

#### **Monitoring Methods**

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

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

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

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

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

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

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

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

#### **Engineering measures** : 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.

Firewater monitors and deluge systems are recommended.

Eye washes and showers for emergency use.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated. The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances.

Appropriate measures include:

General Information:

Always observe good personal hygiene measures, such as

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> washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

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

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

#### Personal protective equipment

#### **Protective 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 unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an

appropriate combination of mask and filter.

If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A

boiling point >65°C (149°F)].

Hand protection Remarks

: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Nitrile rubber gloves. Incidental contact/Splash protection: PVC, neoprene or nitrile rubber gloves For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be

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> typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye protection If material is handled such that it could be splashed into eyes,

protective eyewear is recommended.

Skin and body protection : Skin protection is not required under normal conditions of use.

For prolonged or repeated exposures use impervious clothing

over parts of the body subject to exposure.

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Standard,

and provide employee skin care programmes.

Wear antistatic and flame-retardant clothing, if a local risk

assessment deems it so.

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

toilet.

Launder contaminated clothing before re-use.

Do not ingest. If swallowed, then seek immediate medical

assistance.

#### **Environmental exposure controls**

General advice : Local guidelines on emission limits for volatile substances

must be observed for the discharge of exhaust air containing

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.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

: Liquid at room temperature. Appearance

Colour : Clear colourless Odour Mild hydrocarbon Odour Threshold Data not available Hq : Not applicable

Melting / freezing point : 12,2 °C / 54,0 °F

Boiling point/boiling range : 270 - 324 °C / 518 - 615 °F

Flash point : 130 °C / 266 °F

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Evaporation rate : Data not available

Flammability (liquids) : Not classified as supporting combustion according to the

transport regulations.

Upper explosion limit : Data not available Lower explosion limit : Data not available

Vapour pressure : < 6,9 Pa

Relative vapour density : > 1

Relative density : ca. 0,78 (20 °C / 68 °F)

Method: ASTM D4052

Density : ca. 788 kg/m3 (16 °C / 61 °F)

Method: ASTM D4052

Solubility(ies)

Water solubility :  $< 0.01 \text{ mg/l} (16 \,^{\circ}\text{C} / 61 \,^{\circ}\text{F})$ 

Partition coefficient: n-

octanol/water

: log Pow: 8,1 - 9

Auto-ignition temperature : 240 °C / 464 °F

Decomposition temperature : Data not available

Viscosity

Viscosity, dynamic : 2,58 mPa.s (38 °C / 100 °F)

Method: ASTM D445

Viscosity, dynamic 3,62 mPa.s (20 °C / 68 °F)

Method: ASTM D445

Viscosity, kinematic : 3 - 3,3 mm2/s (20 °C / 68 °F)

Method: ASTM D445

Explosive properties : Not applicable

Oxidizing properties : Data not available

Surface tension : Data not available

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 semiconductive, the precautions are

the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static

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additives can greatly influence the conductivity of a liquid

: Data not available Particle size

Molecular weight : Data not available

#### 10. STABILITY AND REACTIVITY

Reactivity : The product does not pose any further reactivity hazards in

addition to those listed in the following sub-paragraph.

Chemical stability : No hazardous reaction is expected when handled and stored

according to provisions Stable under normal conditions of use.

Possibility of hazardous

reactions

: Reacts with strong oxidising agents.

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

In certain circumstances product can ignite due to static

electricity.

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, sulphur oxides and unidentified organic compounds will be evolved when this

material undergoes combustion or thermal or oxidative

degradation.

#### 11. TOXICOLOGICAL INFORMATION

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

products, and/or components.

exposure

Information on likely routes of : Exposure may occur via inhalation, ingestion, skin absorption,

skin or eye contact, and accidental ingestion.

**Acute toxicity** 

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

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no data available

#### Germ cell mutagenicity

no data available

#### Carcinogenicity

no data available

Material	GHS/CLP Carcinogenicity Classification
1-Hexadecene	No carcinogenicity classification.
octadec-1-ene	No carcinogenicity classification.

#### Reproductive toxicity

no data available

STOT - single exposure

no data available

STOT - repeated exposure

no data available

**Aspiration toxicity** 

no data available

### 12. ECOLOGICAL INFORMATION

Basis for assessment : Incomplete ecotoxicological data are available for this product.

The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products.

**Ecotoxicity** 

no data available

Persistence and degradability

no data available

Bioaccumulative potential

**Product:** 

Partition coefficient: n-

octanol/water

: log Pow: 8,1 - 9

Mobility in soil

no data available

Other adverse effects

no data available

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#### 13. DISPOSAL CONSIDERATIONS

#### Disposal methods

Waste from residues

: Recover or recycle if possible.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. 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.

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.

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

: Drain container thoroughly.

After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums.

Send to drum recoverer or metal reclaimer.

Comply with any local recovery or waste disposal regulations.

#### 14. TRANSPORT INFORMATION

#### **International Regulations**

Not regulated as a dangerous good

#### **IATA-DGR**

Not regulated as a dangerous good

#### **IMDG-Code**

Not regulated as a dangerous good

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#### Maritime transport in bulk according to IMO instruments

Pollution category : Y Ship type : 2

Product name : Olefins, (C13+, all isomers)

Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage,

for special precautions which a user needs to be aware of or

needs to comply with in connection with transport.

**Additional Information**: This product may be transported under nitrogen blanketing.

Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a

confined space entry.

#### 15. REGULATORY INFORMATION

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

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

#### Other international regulations

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

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

#### **16. OTHER INFORMATION**

#### **Full text of H-Statements**

EUH066 Repeated exposure may cause skin dryness or cracking.

H304 May be fatal if swallowed and enters airways.

#### Full text of other abbreviations

Asp. Tox. Aspiration hazard

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.

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SDS Regulation : 1. GN 2.2.5.1313-03 "Maximum permissible

concentration of harmful substance in the working zone

area"

2. GOST 12.1.007-76 "Harmful agents. Classification and

safety requirements."

3. GOST 12.1.005-88 "General hygiene requirements to

the working zone area".

4. GN 2.1.5.1315-03 "Reservoir water maximum

permissible concentration".

5. GOST 19433-88 "Dangerous goods. Classification and

marking".

6. Rail transportation safety rules and dangerous goods

accidents liquidation procedure.

7. GOST 30333-2007 Chemical product safety data

sheet. General requirements. Regulation 1907/2006/EC

**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.