# **CARADOL SC56-16S**

Version 1.6 Revision Date 25.07.2024 Print Date 01.08.2024

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CARADOL SC56-16S

Product code : U311S

Synonyms : Polyol CAS-No. : 9082-00-2

# Manufacturer or supplier's details

Supplier :

SHELL EASTERN CHEMICALS (S)

A REGISTERED BUSINESS OF SHELL EASTERN

TRADING (PTE) LTD (UEN:198902087C)

9 North Buona Vista Drive, #07-01

The Metropolis Tower 1 Singapore 138588

Singapore 1385 Singapore

Telephone : +65 6384 8269 Telefax : +65 6384 8454

Contact for Safety Data

Sheet

Emergency telephone : + (65) 6542 9595 (ALERT-SGS)

number

Recommended use of the chemical and restrictions on use

Recommended use

Use for the manufacture of polyurethane products.

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

listed in Section 1 without first seeking the advice of the

supplier.

Other information : CARADOL is a trademark owned by Shell Trademark

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

of Shell plc.

#### 2. HAZARDS IDENTIFICATION

#### **GHS Classification**

Based on available data this substance / mixture does not meet the classification criteria.

**GHS** label elements

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

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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

None known.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Polyalkylene glycol	9082-00-2		<= 100

# 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.

Remove contact lenses, if present and easy to do. Continue

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# 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Large fires should only be fought by properly trained fire

fighters.

Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small

be advisable. Records of such incidents should be maintained

fires only.

Unsuitable extinguishing

media

: Do not use water in a jet.

for future reference.

Specific hazards during

firefighting

Will only burn if enveloped in a pre-existing fire. Hazardous combustion products may include:

Carbon dioxide

Unidentified organic and inorganic compounds.

Toxic gases
Carbon monoxide.

Specific extinguishing

methods

: Standard procedure for chemical fires.

Clear fire area of all non-emergency personnel.

All storage areas should be provided with adequate fire

fighting facilities.

Keep adjacent containers cool by spraying with water.

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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.

: Avoid contact with skin, eyes and clothing.

Avoid inhaling vapour and/or mists.

Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.

Environmental precautions : Remove all possible sources of ignition in the surrounding

area

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental

contamination.

Ventilate contaminated area thoroughly.

Methods and materials for containment and cleaning up

: 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 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.

Proper disposal should be evaluated based on regulatory status of this material (refer to Section 13), potential contamination from subsequent use and spillage, and regulations governing disposal in the local area.

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

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version 1.0		Section 8 of this Safety Data She Use the information in this data sl assessment of local circumstance appropriate controls for safe hand this material. Ensure that all local regulations re storage facilities are followed.	et. heet as input to a risk es to help determine dling, storage and disposal of
Advice on safe handling	:	In accordance with good industrial precautions should be taken to ave Use local exhaust extraction over Avoid unintentional contact with is uncontrolled polymerisation. Avoid contact with skin, eyes and Air-dry contaminated clothing in a laundering.  Do not empty into drains. Handling Temperature: Ambient.  When handling product in drums, worn and proper handling equipm Extinguish any naked flames. Do sources. Avoid sparks.	roid breathing of material. r processing area. socyanates to prevent clothing. well-ventilated area before safety footwear should be nent should be used.
Avoidance of contact	:	Avoid contact with isocyanates, c zinc, strong oxidizing agents, and	
Product Transfer	:	Lines should be purged with nitro transfer. Keep containers closed	
Storage			
Conditions for safe storage	:	Refer to section 15 for any addition covering the packaging and stora	
Storage period	:	24 month(s)	
Other data	:	Prevent all contact with water and Tanks must be clean, dry and rus Prevent ingress of water.  Must be stored in a diked (bunder from sunlight, ignition sources and Nitrogen blanket recommended from 3 or higher).  Drums should be stacked to a material statement of the stacked to a material statement.	st-free. d) well- ventilated area, away d other sources of heat. or large tanks (capacity 100
		Storage Temperature: Ambient.	
		Storage should be handled at tenviscosities are less than 500 cSt; Tanks should be fitted with heatin ambient temperatures are below handling temperatures. Heating c	typically at 25-50 °C.  ng coils in areas where the the recommended product

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	not exceed 100 °C.			
Packaging material	epoxy paint, zinc silicate paint.	: Suitable material: Stainless steel., For container paints, use epoxy paint, zinc silicate paint. Unsuitable material: Copper., Copper alloys.		
Specific use(s)	: Not applicable			
	Ensure that all local regulations restorage facilities are followed.	garding handling and		

#### 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.isp

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

#### **Engineering measures**

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

#### General Information:

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

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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

: 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.

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. 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 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 nonperfumed moisturizer is recommended.

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

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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.

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

toilet.

Launder contaminated clothing before re-use.

#### **Environmental exposure controls**

General advice : Local guidelines on emission limits for volatile substances

must be observed for the discharge of exhaust air containing

vapour.

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local

environmental legislation.

Information on accidental release measures are to be found in

section 6.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Colour : Clear colourless

Odour : odourless

Odour Threshold : Data not available

pH : ca. 7

Melting / freezing point :  $< 20 \, ^{\circ}\text{C} / < 68 \, ^{\circ}\text{F}$ 

Data not available

Boiling point/boiling range :  $> 285 \, ^{\circ}\text{C} \, / > 545 \, ^{\circ}\text{F}$ Flash point :  $> 200 \, ^{\circ}\text{C} \, / > 392 \, ^{\circ}\text{F}$ 

Method: ASTM D93 (PMCC)

Method. ASTM D93 (FINCE

Evaporation rate : Data not available

Flammability (solid, gas) : Not applicable

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

Vapour pressure : < 10 hPa

Relative vapour density : Data not available

Relative density : 1.02Method: ASTM D4052

Density : Typical 1,017 kg/m3 (20 °C / 68 °F)

Method: ASTM D4052

Solubility(ies)

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Water solubility : Data not available

Partition coefficient: n-

octanol/water

: log Pow: 1.1 - 4.8

Auto-ignition temperature : Data not available

Decomposition temperature : Data not available

Viscosity

Viscosity, dynamic : Typical 600 mPa.s (25 °C / 77 °F)

Method: ASTM D445

Viscosity, kinematic : 260 mm2/s (40 °C / 104 °F)

Method: ASTM D445

Particle characteristics

Particle size : Data not available

Data not available

Explosive properties : Not applicable

Oxidizing properties : Data not available

Surface tension : Data not available

Conductivity: > 10,000 pS/m

A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be

a static accumulator.

Molecular weight : 3,000 g/mol

#### 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 Hygroscopic.

Possibility of hazardous

reactions

: Polymerises exothermically with di-isocyanates at ambient

temperatures.

The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of reaction partners is good or is supported by stirring or by the presence

of solvents.

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Reacts with strong oxidising agents.

Conditions to avoid : Heat, flames, and sparks.

Product cannot ignite due to static electricity.

Incompatible materials : Avoid contact with isocyanates, copper and copper alloys,

zinc, strong oxidizing agents, and water.

Hazardous decomposition

products

: Unknown toxic products may be formed.

#### 11. TOXICOLOGICAL INFORMATION

: Information given is based on data obtained from similar Basis for assessment

substances.

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for

individual component(s).

exposure

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

skin or eye contact, and accidental ingestion.

#### **Acute toxicity**

**Product:** 

Acute oral toxicity : LD 50 : > 2,000 mg/kg

Remarks: Based on available data, the classification criteria

are not met.

: Remarks: Based on available data, the classification criteria Acute inhalation toxicity

are not met.

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

Remarks: Low toxicity

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

# Skin corrosion/irritation

# **Product:**

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

#### Serious eye damage/eye irritation

#### Product:

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

# Respiratory or skin sensitisation

#### **Product:**

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

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# Germ cell mutagenicity

**Product:** 

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

# Carcinogenicity

#### **Product:**

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

Material	GHS/CLP Carcinogenicity Classification
Polyalkylene glycol	No carcinogenicity classification.

# Reproductive toxicity

**Product:** 

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

# 12. ECOLOGICAL INFORMATION

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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.

Unless indicated otherwise, the data presented is

representative of the product as a whole, rather than for

individual component(s).

**Ecotoxicity** 

Product:

Toxicity to fish (Acute

toxicity)

: LC50 : > 100 mg/l

Remarks: Based on available data, the classification criteria

are not met.

Practically non toxic:

Toxicity to crustacean (Acute

toxicity)

: EC50 : > 100 mg/l

Remarks: Based on available data, the classification criteria

are not met.

Practically non toxic:

Toxicity to algae/aquatic

plants (Acute toxicity)

: EC50: > 100 mg/l

Remarks: Practically non toxic:

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

Toxicity to fish (Chronic

toxicity)

: Remarks: Data not available

Toxicity to crustacean

(Chronic toxicity)

: Remarks: Data not available

Toxicity to microorganisms

(Acute toxicity)

: IC50: > 100 mg/l

Remarks: Based on available data, the classification criteria

are not met.

Practically non toxic:

Persistence and degradability

**Product:** 

Biodegradability : Remarks: Readily biodegradable.

**Bioaccumulative potential** 

**Product:** 

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

Partition coefficient: n-

octanol/water

: log Pow: 1.1 - 4.8

Mobility in soil

**Product:** 

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

will or may be mobile and may contaminate groundwater.

Other adverse effects

no data available

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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.

Do not dispose into the environment, in drains or in water

courses.

Waste product should not be allowed to contaminate soil or

water.

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 Drain container thoroughly.

After draining, vent in a safe place away from sparks and fire.

Send to drum recoverer or metal reclaimer.

Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

### 14. TRANSPORT INFORMATION

# **International Regulations**

# **ADR**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

**IMDG-Code** 

Not regulated as a dangerous good

# Maritime transport in bulk according to IMO instruments

Pollution category : Z Ship type

Product name : Glycerol, propoxylated and ethoxylated

Special precautions for user

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

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

needs to comply with in connection with transport.

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Additional Information	: This product may be transported to Nitrogen is an odourless and invision nitrogen enriched atmospheres diswhich may cause asphyxiation or observe strict safety precautions to confined space entry.	ible gas. Exposure to splaces available oxygen death. Personnel must

# 15. REGULATORY INFORMATION

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

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

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

Government regulation of the Republic of Indonesia No. 74 year 2001, concerning the management of hazardous and toxic materials, the President of the Republic of Indonesia. Minister of Manpower Decree of the Republic of Indonesia No. 187 Year 1999 concerning managing of hazardous chemicals.

Republic of Indonesia Minister of Industry Regulation, Number 87/M-IND/PER-9/2009, concerning global harmonization system and labels on chemicals.

#### Other international regulations

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

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

#### 16. OTHER INFORMATION

#### **Abbreviations and Acronyms**

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory

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concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 -Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC -New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG -Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

#### **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).

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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