

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 09-Apr-2010 Revision Date 06-Oct-2023 **Revision Number** 9

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

1.1. Product identifier

**Product Description:** Tetramethylammonium hydroxide, 25% in water

420520000; 420520010; 420520050; 420520250; 420521000 Cat No.:

**Synonyms** N,N,N-Trimethylmethanaminium hydroxide.

EC No 200-882-9

**Unique Formula Identifier (UFI)** V0FH-XTTU-NW0W-TNV5

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

**Recommended Use** Laboratory chemicals.

Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

**Product category** PC21 - Laboratory chemicals

PROC15 - Use as a laboratory reagent **Process categories** 

Environmental release category ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name

Fisher Scientific UK Bishop Meadow Road,

Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name Thermo Fisher Scientific

Janssen Pharmaceuticalaan 3a, 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 CHEMTREC Tel. No. US:001-800-424-9300 / Europe:001-703-527-3887

**Poison Centre - Emergency** 

Ireland: National Poisons Information Centre (NPIC) information services

01 809 2166 (8am-10pm, 7 days a week)

Malta: +356 2395 2000 Cyprus: +357 2240 5611

### **SECTION 2: HAZARDS IDENTIFICATION**

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

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

#### Physical hazards

Based on available data, the classification criteria are not met

#### **Health hazards**

Acute oral toxicity

Acute dermal toxicity

Skin Corrosion/Irritation

Serious Eye Damage/Eye Irritation

Specific target organ toxicity - (single exposure)

Category 1 (H318)

Category 1 (H370)

Specific target organ toxicity - (repeated exposure) Category 1 (H372)

#### **Environmental hazards**

Chronic aquatic toxicity Category 2 (H411)

Full text of Hazard Statements: see section 16





Signal Word

Danger

### **Hazard Statements**

- H301 Toxic if swallowed
- H310 Fatal in contact with skin
- H314 Causes severe skin burns and eye damage
- H370 Causes damage to organs
- H372 Causes damage to organs through prolonged or repeated exposure
- H411 Toxic to aquatic life with long lasting effects

### **Precautionary Statements**

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

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

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

P310 - Immediately call a POISON CENTER or doctor/physician

P330 - Rinse mouth

P307 + P311 - IF exposed: Call a POISON CENTER or doctor/physician

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

### 2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

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

#### 3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Tetramethylammonium hydroxide	75-59-2	EEC No. 200-882-9	25	Acute Tox. 2 (H300) Acute Tox. 1 (H310) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 1 (H370) STOT RE 1 (H372) Aquatic Chronic 2 (H411)
Water	7732-18-5	231-791-2	75	-

Components	Reach Registration Number	
Tetramethylammonium hydroxide	01-2119970562-34	

Full text of Hazard Statements: see section 16

#### **SECTION 4: FIRST AID MEASURES**

#### 4.1. Description of first aid measures

General Advice Immediate medical attention is required. Show this safety data sheet to the doctor in

attendance.

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under

the eyelids, for at least 15 minutes. Do not rub affected area. Keep eye wide open while

rinsing.

**Skin Contact** Immediate medical attention is required. Wash off immediately with plenty of water for at

least 15 minutes.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately.

**Inhalation** Immediate medical attention is required. Remove to fresh air. If breathing is difficult, give

oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or

other proper respiratory medical device.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

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

Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

Notes to Physician Treat symptomatically.

### **SECTION 5: FIREFIGHTING MEASURES**

#### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

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

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

#### **Hazardous Combustion Products**

Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Ammonia, Amines, Thermal decomposition can lead to release of irritating gases and vapors, Methanol.

#### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment as required.

#### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

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

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Do not let this chemical enter the environment.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

### **SECTION 7: HANDLING AND STORAGE**

### 7.1. Precautions for safe handling

Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Handle product only in closed system or provide appropriate exhaust ventilation. Wash thoroughly after handling. Do not taste or swallow.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

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

Corrosives area. Store under an inert atmosphere. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in

A CD 42052

Class 6.1A

Tetramethylammonium hydroxide, 25% in water

Revision Date 06-Oct-2023

properly labeled containers.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)

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

Use in laboratories

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

#### 8.1. Control parameters

#### **Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Tetramethylammonium hydroxide			DNEL = 6.25µg/cm2	DNEL = 0.14mg/kg bw/dav
75-59-2 ( 25 )				,

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Tetramethylammonium				$DNEL = 0.49 mg/m^3$
hydroxide 75-59-2 ( 25 )				

#### **Predicted No Effect Concentration (PNEC)**

See values below.

	Component	Fresh water	Fresh water	Water Intermittent	Microorganisms in	Soil (Agriculture)
L			sediment		sewage treatment	
	Tetramethylammonium hydroxide 75-59-2 ( 25 )	PNEC = 0.5µg/L	PNEC = 30µg/kg sediment dw	PNEC = 30µg/L	PNEC = 5mg/L	PNEC = 5.7µg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Tetramethylammonium hydroxide 75-59-2 ( 25 )	PNEC = 0.05μg/L	PNEC = 3µg/kg sediment dw			

#### 8.2. Exposure controls

Revision Date 06-Oct-2023

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

Hand Protection Protective gloves

PVC
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Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure. Impervious

clothing. Chemical resistant apron. Boots. Impervious gloves.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to

EN14387

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure

limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN

141

When RPE is used a face piece Fit Test should be conducted

system.

#### **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

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

Physical State Liquid

Appearance
Odor
Odor
Ammonia-like
No data available
Melting Point/Range
Softening Point
No data available
No data available
No data available

Boiling Point/Range 102 °C / 215.6 °F @ 760 mmHg

Liquid

Tetramethylammonium hydroxide, 25% in water

Revision Date 06-Oct-2023

Flammability (liquid) No data available Flammability (solid,gas) Not applicable

Explosion Limits No data available

Flash Point > 95 °C / > 203 °F Method - No information available

Autoignition TemperatureNo data availableDecomposition TemperatureNo data available

**pH** > 13

Viscosity 3.13 cP (19°C)

Water Solubility Soluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

**Component log Pow** Tetramethylammonium hydroxide -1.4

Vapor Pressure 16 mmHg (25°C)

Density / Specific Gravity 1.014

Bulk DensityNot applicableLiquidVapor DensityNo data available(Air = 1.0)

Particle characteristics Not applicable (liquid)

9.2. Other information

### **SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Air sensitive.

10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.

Hazardous Reactions No information available.

10.4. Conditions to avoid

Temperatures above 100°C. Exposure to air. Incompatible products. Exposure to air or

moisture over prolonged periods.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Metals.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Ammonia. Amines. Thermal decomposition can lead to release of irritating gases and vapors. Methanol.

#### **SECTION 11: TOXICOLOGICAL INFORMATION**

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

**Product Information** 

(a) acute toxicity;

Oral Category 3
Dermal Category 2

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Tetramethylammonium hydroxide, 25% in water

Revision Date 06-Oct-2023

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

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetramethylammonium hydroxide	LD50 34 - 50 mg/kg (Rat)	25-50 mg/kg (Rabbit)	-
Water	-	-	-

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory Skin

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

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Not mutagenic in AMES Test

Based on available data, the classification criteria are not met (f) carcinogenicity;

There are no known carcinogenic chemicals in this product

Based on available data, the classification criteria are not met (g) reproductive toxicity;

(h) STOT-single exposure; Category 1

Results / Target organs Central nervous system (CNS).

Category 1 (i) STOT-repeated exposure;

Route of exposure

Dermal

**Target Organs** 

Liver, Thymus.

(j) aspiration hazard; Based on available data, the classification criteria are not met

delayed

Symptoms / effects,both acute and Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

11.2. Information on other hazards

Assess endocrine disrupting properties for human health. This product does not contain any **Endocrine Disrupting Properties** 

known or suspected endocrine disruptors.

### **SECTION 12: ECOLOGICAL INFORMATION**

12.1. Toxicity

**Ecotoxicity effects** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic

environment.

Revision Date 06-Oct-2023

12.2. Persistence and degradability Readily biodegradable

**Persistence** Soluble in water, Persistence is unlikely, based on information available.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste

water treatment plants.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Tetramethylammonium hydroxide	-1.4	No data available

**12.4. Mobility in soil** The product is water soluble, and may spread in water systems . Will likely be mobile in the

environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB

assessment

No data available for assessment.

12.6. Endocrine disrupting

properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected substance This product does not contain any known or suspected substance

### **SECTION 13: DISPOSAL CONSIDERATIONS**

### 13.1. Waste treatment methods

Waste from Residues/Unused

**Products** 

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with high pH-value must be neutralized

before discharge. Do not let this chemical enter the environment.

### **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

**14.1. UN number** UN1835

14.2. UN proper shipping name TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es) 8
14.4. Packing group II

Tetramethylammonium hydroxide, 25% in water

#### ADR

**14.1. UN number** UN1835

14.2. UN proper shipping name TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es) 8
14.4. Packing group 8

#### IATA

**14.1. UN number** UN1835

14.2. UN proper shipping name TETRAMETHYLAMMONIUM HYDROXIDE, SOLUTION

14.3. Transport hazard class(es) 8 14.4. Packing group

14.5. Environmental hazards Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

#### **SECTION 15: REGULATORY INFORMATION**

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

#### **International Inventories**

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Tetramethylammonium hydroxide	75-59-2	200-882-9	ı	-	X	X	KE-33550	X	X
Water	7732-18-5	231-791-2	ı	-	X	X	KE-35400	Х	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Tetramethylammonium hydroxide	75-59-2	X	ACTIVE	X	-	X	Х	X
Water	7732-18-5	Χ	ACTIVE	Χ	-	Χ	Х	Х

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

#### Authorisation/Restrictions according to EU REACH Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Tetramethylammonium hydroxide	75-59-2	-	-	-
Water	7732-18-5	-	-	-

#### Seveso III Directive (2012/18/EC)

Component	CAS No Seveso III Directive (2012/18/EC) -		Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	Requirements

Revision Date 06-Oct-2023

#### Tetramethylammonium hydroxide, 25% in water

Revision Date 06-Oct-2023

Tetramethylammonium hvdroxide	75-59-2	Not applicable	Not applicable
Water	7732-18-5	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

#### **National Regulations**

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

**WGK Classification** 

Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Tetramethylammonium	WGK1	
hydroxide		

#### 15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

### **SECTION 16: OTHER INFORMATION**

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

H300 - Fatal if swallowed

H301 - Toxic if swallowed

H310 - Fatal in contact with skin

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H370 - Causes damage to organs

H372 - Causes damage to organs through prolonged or repeated exposure

H411 - Toxic to aquatic life with long lasting effects

#### Legend

CAS - Chemical Abstracts Service TSCA - United States Toxic Substances Control Act Section 8(b)

Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic

Substances/EU List of Notified Chemical Substances Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

AICS - Australian Inventory of Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

NZIOC - New Zealand Inventory of Chemical Substances

TWA - Time Weighted Average

EC50 - Effective Concentration 50%

LD50 - Lethal Dose 50%

**Transport Association** 

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

IARC - International Agency for Research on Cancer

ICAO/IATA - International Civil Aviation Organization/International Air

MARPOL - International Convention for the Prevention of Pollution from

Predicted No Effect Concentration (PNEC)

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

#### Tetramethylammonium hydroxide, 25% in water

Revision Date 06-Oct-2023

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Ships

Physical hazards On basis of test data **Health Hazards** Calculation method **Environmental hazards** Calculation method

**Training Advice** 

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

First aid for chemical exposure, including the use of eye wash and safety showers.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

Chemical incident response training.

**Creation Date** 09-Apr-2010 **Revision Date** 06-Oct-2023 **Revision Summary** Not applicable.

### This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

#### **Disclaimer**

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

## **End of Safety Data Sheet**