



# SAFETY DATA SHEET

This Safety Data Sheet was compiled in accordance with regulation 30105 dated 23 June 2017  
"Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (KKDIK)"

Revision Date 08-Apr-2024  
Issue Date 03-Jan-2012

Version 1.2

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

### 1.1. Product identifier

Product Code(s) 2962266  
Product Name Respirometric BOD Nutrient Buffer Pillows  
Safety data sheet number M02681  
Pure substance/mixture Mixture

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

Recommended Use Determination of biochemical oxygen demand Water Analysis  
Uses advised against Consumer use

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

#### Supplier

HACH UK  
Laser House  
Ground Floor, Suite B  
Waterfront Quay, Salford Quays  
GB - Manchester, M50 3XW  
Tel. +44 (0) 161 872 1487  
info-uk@hach.com

HACH Ireland  
Unit 34 GB Business Park  
Little Island  
IRL-Co. Cork  
T45 H681  
Tel. +353 (0)146 02 522  
info-ie@hach.com

### 1.4. Emergency telephone number

Emergency telephone number National Poison Information Center (UZEM) - Turkey: 114  
Emergency Medical Services - Turkey: 112

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Turkish CLP (28848), as amended

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This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

## 2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

## **Hazard statements**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].  
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

## 2.3. Other hazards

No information available.

**PBT and vPvB assessment** The components in this formulation do not meet the criteria for classification as PBT or vPvB.

## **SECTION 3: Composition/information on ingredients**

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Chemical nature** Mixture of inorganic salts.

Chemical name	CAS No. EC No. Index No.	Weight-%	Classification according to Turkish CLP (28848), as amended	Specific concentration limit (SCL)	KKDIK registration number
Magnesium sulfate	7487-88-9 231-298-2 -	1 - 5%			Not available
Ammonium chloride	12125-02-9 235-186-4 (017-014-00-8) 017-014-00-8	<1%	Acute Tox. 4 - H302 Eye Irrit. 2 - H319		Not available

Full text of H- and EUH-phrases: see section 16

## **SECTION 4: First aid measures**

### 4.1. Description of first aid measures

**General advice** Show this safety data sheet to the doctor in attendance.

**Inhalation** Remove to fresh air.

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<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.
<b>Skin contact</b>	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.
<b>Ingestion</b>	Rinse mouth.
<b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. 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**

<b>Symptoms</b>	May cause allergic skin reaction.
<b>Effects of Exposure</b>	No information available.

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

<b>Note to doctors</b>	Treat symptomatically.
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### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

**Suitable extinguishing media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Product itself does not burn.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

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

**Specific hazards arising from the chemical** Thermal decomposition can lead to release of irritating and toxic gases and vapours.

**Hazardous combustion products** This material will not burn.

#### **5.3. Advice for firefighters**

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

### **SECTION 6: Accidental release measures**

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

**Personal precautions** Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information.

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**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

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

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust/fume/gas/mist/vapours/spray.

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

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place.

### 7.3. Specific end use(s)

**Specific use(s)** Analytical reagent.

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## **SECTION 8: Exposure controls/personal protection**

### 8.1. Control parameters

#### **Exposure Limits**

Chemical name	Türkiye	European Union	ACGIH TLV
Ammonium chloride 12125-02-9	-	-	TWA: 10 mg/m <sup>3</sup> fume STEL: 20 mg/m <sup>3</sup> fume

**Biological occupational exposure limits** 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) - Workers

Chemical name	Oral	Dermal	Inhalation
Magnesium sulfate 7487-88-9	-	21.3 mg/kg bw/day [4] [6]	37.6 mg/m <sup>3</sup> [4] [6]

### Notes

[4] Systemic health effects

[6] Long term.

### Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
Magnesium sulfate 7487-88-9	0.68 mg/L	6.8 mg/L	0.068 mg/L	-	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
Magnesium sulfate 7487-88-9	-	-	10 mg/L	-	-

## 8.2. Exposure controls

### Engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Personal protective equipment

#### Eye/face protection

Wear safety glasses with side shields (or goggles).

#### Hand protection

Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374-1:2016 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III acco.

#### Skin and body protection

Avoid contact with eyes, skin and clothing.

#### Respiratory protection

Ensure adequate ventilation.

#### General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust/fume/gas/mist/vapours/spray.

#### Environmental exposure controls

Do not allow into any sewer, on the ground or into any body of water.

## SECTION 9: Physical and chemical properties

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

Physical state	Liquid
Appearance	Turbid solution
Colour	yellow
Odour	Odourless.
Odour threshold	Not applicable

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	Not applicable	
pH	6.8 - 7.2	@ 20 °C
Melting point / freezing point	~ -13 °C / 8.6 °F	
Initial boiling point and boiling range	~ 104 °C / 219.2 °F	
Evaporation rate	0.82 (water = 1)	
Vapour pressure	16.727 mm Hg / 2.23 kPa at 20 °C / 68 °F	
Relative vapor density	0.63	
Partition coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
<u>Viscosity</u>		
Dynamic viscosity	Not applicable	
Kinematic viscosity	Not applicable	
Relative density	1.0 g/mL	@ 20 °C

### Solubility(ies)

#### Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

#### Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Acid	Violent reaction will occur	No data available	No information available

#### Metal Corrosivity

Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available

#### Explosive properties

Upper explosion limit	Not applicable
Lower explosion limit	Not applicable

#### Flammable properties

Flash point	No data available
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#### Flammability

**Upper flammability limit:** No data available  
**Lower flammability limit** No data available

**Oxidising properties** No data available.

**Bulk density** No data available

### **9.2. Other information**

No information available.

## **SECTION 10: Stability and reactivity**

### **10.1. Reactivity**

**Reactivity** No information available.

### **10.2. Chemical stability**

**Stability** Stable under normal conditions.

### **Explosion data**

**Sensitivity to mechanical impact** No information available.

**Sensitivity to static discharge** No information available.

### **10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

### **10.4. Conditions to avoid**

**Conditions to avoid** Extremes of temperature and direct sunlight.

### **10.5. Incompatible materials**

**Incompatible materials** Acids.

### **10.6. Hazardous decomposition products**

**Hazardous Decomposition Products** None known based on information supplied.

## **SECTION 11: Toxicological information**

### **11.1. Information on toxicological effects**

#### **Acute toxicity**

Based on available data, the classification criteria are not met

Mixture No data available.

Substance Test data reported below.

#### **Oral Exposure Route:**

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Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Dipotassium phosphate	Rat LD <sub>50</sub>	> 2000 mg/kg	None reported	None reported	ECHA
Phosphoric acid, potassium salt (1:1)	LD <sub>50</sub> Rat	3200 mg/kg	None reported	None reported	LOLI
Calcium chloride	Rat LD <sub>50</sub>	1000 mg/kg	None reported	None reported	LOLI
Ammonium chloride	Rat LD <sub>50</sub>	1650 mg/kg	None reported	None reported	IUCLID
Iron trichloride	Rat LD <sub>50</sub>	450 mg/kg	None reported	None reported	LOLI

**Dermal Exposure Route:**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride	LD <sub>50</sub> Rabbit	> 5000 mg/kg	None reported	None reported	LOLI

**Acute Toxicity Estimate (ATE)** Not applicable

<b>ATEmix (oral)</b>	85,470.10 mg/kg
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**Unknown acute toxicity**

0 % of the mixture consists of ingredient(s) of unknown toxicity.

**Skin corrosion/irritation**

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

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Dipotassium phosphate	Draize Test	Rabbit	300 mg/kg	24 hours	Not corrosive or irritating to skin	ECHA
Ammonium chloride	Existing human experience	Human	None reported	None reported	Mild skin irritant	RTECS

**Serious eye damage/eye irritation**

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

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
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Dipotassium phosphate	Draize Test	Rabbit	0.1 mL	24 hours	Not corrosive or irritating to eyes	ECHA
Calcium chloride	Existing human experience	Human	None reported	None reported	Eye irritant	ChemADVISOR

#### **Respiratory or skin sensitisation**

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

Mixture No data available.

Substance Test data reported below.

#### **Skin Sensitization Exposure Route:**

Chemical name	Test method	Species	Results	Key literature references and sources for data
Dipotassium phosphate	Local Lymph Node Assay	Mouse	No sensitisation responses were observed.	ECHA
Ammonium chloride	OECD Test No. 406: Skin Sensitisation	Guinea pig	No sensitisation responses were observed.	OECD 429: Skin Sensitization: Local Lymph Node Assay

#### **STOT - single exposure**

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

Mixture No data available.

Substance Test data reported below.

#### **Oral Exposure Route:**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium chloride	Domestic mammal - Not specified LD <sub>Lo</sub>	1500 mg/kg	None reported	None reported	RTECS
Iron trichloride	Woman LD <sub>Lo</sub>	4 mg/kg	None reported	<b>Lungs, Thorax, or Respiration</b> Dyspnea <b>Gastrointestinal</b> Nausea or vomiting <b>Nutritional and Gross Metabolic</b> Metabolic acidosis	RTECS

#### **STOT - repeated exposure**

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

Mixture No data available.

Substance Test data reported below.

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**Oral Exposure Route:**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride	Rat TD <sub>Lo</sub>	2016 mg/kg	30 days	<b>Blood</b> <b>Brain and Coverings</b> Recordings from specific areas of CNS <b>Cardiac</b> Pulse rate decrease with fall in BP	RTECS
Ammonium chloride	Rat TD <sub>Lo</sub>	3500 mg/kg	7 days	No toxicological effects observed	RTECS
Iron trichloride	Rat TD <sub>Lo</sub>	7728 mg/kg	210 days	<b>Behavioral</b> Fluid intake <b>Biochemical</b> Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase) <b>Blood</b> Changes in blood leukocyte count	RTECS

**Inhalation (Dust/Mist) Exposure Route:**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride	Mammal - not specified TC <sub>Lo</sub>	0.043 mg/L	119 days	<b>Biochemical</b> Enzyme inhibition, induction, or change in blood or tissue levels (catalases) <b>Blood</b> Changes in serum composition (e.g. TP, bilirubin, cholesterol)	RTECS

**Germ cell mutagenicity**

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

Mixture invitro **Data** No data available.

Substance invitro **Data** Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Dipotassium phosphate	OECD 471	<i>Salmonella typhimurium</i>	5 mg/plate	None reported	Negative	ECHA
Calcium chloride	Cytogenetic analysis	Rat ascites tumor	3500 mg/kg	None reported	Positive test result for mutagenicity	RTECS

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Ammonium chloride	OECD 471	<i>Salmonella typhimurium</i>	5 mg/plate	72 hours	Negative	RTECS
Iron trichloride	DNA inhibition	Human lymphocyte	4800 mmol/L	None reported	Positive test result for mutagenicity	RTECS

Mixture **invivo Data** No data available.

Substance **invivo Data** No data available.

### **Carcinogenicity**

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

Mixture No data available.

Substance Test data reported below.

### **Oral Exposure Route:**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride	Rat	112000 mg/kg	20 weeks	Endocrine Thyroid tumors	RTECS

### **Reproductive toxicity**

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

Mixture No data available.

Substance Test data reported below.

### **Oral Exposure Route:**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Dipotassium phosphate	Rat NOAEL	1000 mg/kg	Single generation	No reproductive or developmental toxic effects observed	ECHA
Ammonium chloride	Rat NOAEL	1500 mg/kg	16 days	None reported	ECHA

### **Aspiration hazard**

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

### **11.2. Information on other hazards**

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

## **SECTION 12: Ecological information**

### **12.1. Toxicity**

#### **Ecotoxicity**

The environmental impact of this product has not been fully investigated.

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**Unknown aquatic toxicity** Contains 0 % of components with unknown hazards to the aquatic environment.

**Mixture**

**Acute aquatic toxicity:** No data available.

**Aquatic Chronic Toxicity:** No data available.

**Substance**

**Acute aquatic toxicity:** Test data reported below.

Fish:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Magnesium sulfate	96 hours	<i>Gambusia affinis</i>	LC <sub>50</sub>	15500 mg/L	IUCLID
Calcium chloride	96 hours	<i>Pimephales promelas</i>	LC <sub>50</sub>	4630 mg/L	PEEN
Ammonium chloride	96 hours	<i>Oncorhynchus mykiss</i>	LC <sub>50</sub>	42.91 mg/L	ECHA

Crustacea:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Calcium chloride	48 Hours	<i>Daphnia magna</i>	EC <sub>50</sub>	1062 mg/L	PEEN
Ammonium chloride	48 Hours	<i>Daphnia magna</i>	LC <sub>50</sub>	161 mg/L	IUCLID

Algae:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Magnesium sulfate	72 Hours	<i>Scenedesmus subspicatus</i>	EC <sub>50</sub>	2700 mg/L	IUCLID
Calcium chloride	72 Hours	<i>Selenastrum capricornutum</i>	EC <sub>50</sub>	2900 mg/L	PEEN
Iron trichloride	96 hours	<i>Chlorella vulgaris</i>	EC <sub>50</sub>	1421.3 mg/L	IUCLID

**Aquatic Chronic Toxicity:** No data available.

**12.2. Persistence and degradability**

**Mixture:** No data available.

**12.3. Bioaccumulative potential**

**Mixture:** No data available.  
Partition coefficient: Not applicable

**12.4. Mobility in soil**

Soil Organic Carbon-Water Partition Not applicable  
Coefficient:

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

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

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Chemical name	PBT and vPvB assessment
Magnesium sulfate	The substance is not PBT / vPvB
Ammonium chloride	The substance is not PBT / vPvB

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

Ozone: Not applicable

Ozone depletion potential (ODP): No information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

### SECTION 14: Transport information

**Note:** No special precautions necessary.

#### IMDG

14.1 UN number or ID number Not regulated  
14.2 UN proper shipping name Not regulated  
14.3 Transport hazard class(es) Not regulated  
14.4 Packing Group Not regulated  
14.5 Environmental hazards Not applicable  
14.6 Special precautions for user  
Special Provisions None  
14.7 Maritime transport in bulk according to IMO instruments No information available

#### ADR

14.1 UN number or ID number Not regulated  
14.2 UN proper shipping name Not regulated  
14.3 Transport hazard class(es) Not regulated  
14.4 Packing Group Not regulated  
14.5 Environmental hazards Not applicable  
14.6 Special precautions for user  
Special Provisions None

#### IATA

14.1 UN number or ID number Not regulated  
14.2 UN proper shipping name Not regulated  
14.3 Transport hazard class(es) Not regulated  
14.4 Packing group Not regulated  
14.5 Environmental hazards Not applicable  
14.6 Special precautions for user  
Special Provisions None

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**Additional information**

If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

## SECTION 15: Regulatory information

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

#### National regulations

This Safety Data Sheet was compiled in accordance with regulation 30105 dated 23 June 2017 "Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (KKDIK)"

This product is classified in accordance with 28848 dated 11 December 2013 "The Ministry of Environment and Urbanisation of the Republic of Türkiye Regulation on Classification, Labelling and Packaging (CLP) of Dangerous Substances and Preparations" As amended by regulation 31330 dated 10 December 2020 "Regulation on Classification, Labelling and Packaging of Substances and Mixtures"

Please refer to the following regulations or other national measures that are related.

#### **Authorisations and/or restrictions on use:**

This product does not contain substances subject to authorisation

This product does not contain substances subject to restriction

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Ammonium chloride 12125-02-9	65	-

#### **Health and Safety Measures Involving Chemical Substances at Workplaces - Prohibited Substances**

None

#### **Dangerous substance category per Regulation on prevention of major industrial accidents and lessening their adverse impacts (30702)**

Non-controlled

#### **Ozone-depleting substances (ODS)**

Not applicable

#### **The Rotterdam Convention**

Not applicable

#### **The Stockholm Convention on Persistent Organic Pollutants**

Not applicable

#### **The Montreal Protocol on Substances that Deplete the Ozone Layer**

Not applicable

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#### International Inventories

<b>KKDIK</b>	Contact supplier for inventory compliance status
<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL</b>	Complies
<b>PICCS</b>	Complies
<b>AICS</b>	Complies
<b>NZIoC</b>	-

**KKDIK** - Turkish Inventory and Control of Chemicals

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

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

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

#### 15.2. Chemical safety assessment

**Chemical Safety Report** No information available

### **SECTION 16: Other information**

**Issue Date** 11-Mar-2024

**Revision Date** 08-Apr-2024

#### Key or legend to abbreviations and acronyms used in the safety data sheet

##### **Legend**

**	Hazard Designation
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieure
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service Number
Ceiling	Maximum limit value
CLP	Classification, Labelling and Packaging of substances and mixtures [Regulation (EC) No. 1272/2008]
DNEL	Derived No Effect Level (DNEL)
EC	European Community
ECHA	ECHA (The European Chemicals Agency)
EC50	Effective Concentration to 50% of a test population
EEC	European Economic Community
EN	European Standard
IMDG	International Maritime Dangerous Goods (IMDG)

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IATA	International Air Transport Association (IATA)
IATA-DGR	International Air Transport Association - Dangerous Goods Regulations
ICAO	International Civil Aviation Organization
ICAO-TI	International Civil Aviation Organization - Technical Instructions
IUCLID	IUCLID (The International Uniform Chemical Information Database)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LOAEL	Lowest observed adverse effect level
LOAEC	Lowest observed adverse effect concentration
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
MAK	Maximale Arbeitsplatz-Konzentration, a German expression corresponding to threshold limit value, which relates to safe daily exposure levels to chemical substances
NOAEL	NOAEL (No observed adverse effect level)
NOAEC	No observed adverse effect concentration
OSHA	OSHA (Occupational Safety and Health Administration of the US Department of Labour)
PEC	Predicted Effect Concentration
PNEC	Predicted No Effect Concentration (PNEC)
PBT	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals [Regulation (EC) No. 1907/2006]
RTECS	RTECS (Registry of Toxic Effects of Chemical Substances)
SEA	Regulation on Classification, Labeling and Packaging of Substances and Mixtures (Official Gazette: 28848 (repeated), 11.12.2013)
SKN*	Skin designation
SKN+	Skin sensitisation
STEL	STEL (Short Term Exposure Limit)
STOT	Specific Target Organ Toxicity
STOT RE	Specific target organ toxicity — repeated exposure
STOT SE	Specific target organ toxicity — single exposure
SVHC	Substances of Very High Concern
TLV	Threshold Limit Value
TRGS	Technical rules for hazardous substances, Germany
TSCA	Toxic Substances Control Act
TWA	TWA (time-weighted average)
UN	United Nations
vPvB	very persistent and very bioaccumulative
VOC	Volatile organic compounds
AwSV	Administrative regulation of water polluting substances, Germany

**Key literature references and sources for data** See Section 11: TOXICOLOGICAL INFORMATION  
See Section 12: ECOLOGICAL INFORMATION

**Full text of H-Statements referred to under section 3**

H319 - Causes serious eye irritation

**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	SKN*	Skin designation

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method



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Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration toxicity	Calculation method
Ozone	Calculation method

#### Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 Environmental Protection Agency  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 National Institute of Technology and Evaluation (NITE)  
 Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 U.S. National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
 Organisation for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

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**Restrictions on use** None

#### Disclaimer

**USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.**

**The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.**

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**End of Safety Data Sheet**