# Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878

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

1.1. Product identifier

| | |
|---|---|
| Code | HI721-0 |
| Product name | Iron HR Reagent |

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

| | |
|---|---|
| Intended use | Determination of Iron in Water Samples. |

1.3. Details of the supplier of the safety data sheet

| | | | |
|---|---|---|---|
| Name | Hanna Instruments S.R.L. | | |
| Full address | str. Hanna Nr 1 | | |
| District and Country | 457260 | loc. Nusfalau | (Salaj) |
| | | Romania | |
| | Tel. | +40 260607700 | |
| | Fax | +40 260607700 | |
| e-mail address of the competent person responsible for the Safety Data Sheet | msds@hanna.ro | | |

1.4. Emergency telephone number

| | |
|---|---|
| For urgent inquiries refer to | International CHEMTREC 24 hours/365 days: +1 7035273887; UK, London: +44 2038073798 |

## SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

| | | |
|---|---|---|
| Acute toxicity, category 4 | H302 | Harmful if swallowed. |
| Serious eye damage, category 1 | H318 | Causes serious eye damage. |
| Hazardous to the aquatic environment, chronic toxicity, category 3 | H412 | Harmful to aquatic life with long lasting effects. |

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: Danger

Hazard statements:

| | |
|---|---|
| H302 | Harmful if swallowed. |
| H318 | Causes serious eye damage. |
| H412 | Harmful to aquatic life with long lasting effects. |
| EUH031 | Contact with acids liberates toxic gas. |

SECTION 2. Hazards identification ... / >>

Precautionary statements:

| | |
|---|---|
| P501 | Dispose of contents in accordance with local regulation |
| P102 | Keep out of reach of children. |
| P101 | If medical advice is needed, have product container or label at hand. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P280 | Wear eye protection / face protection. |
| P310 | Immediately call a POISON CENTER or doctor. |

Contains:
SODIUM METABISULFITE
SODIUM DITHIONITE
1,10-PHENANTHROLINE

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

## SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

| Identification | | x = Conc. % | Classification (EC) 1272/2008 (CLP) |
|---|---|---|---|
| SODIUM METABISULFITE | | | |
| INDEX | 016-063-00-2 | 20 ≤ x < 50 | Acute Tox. 4 H302, Eye Dam. 1 H318, EUH031 |
| EC | 231-673-0 | | LD50 Oral: 1540 mg/kg |
| CAS | 7681-57-4 | | |
| REACH Reg. | 01-2119531326-45 | | |
| SODIUM DITHIONITE | | | |
| INDEX | 016-028-00-1 | 10 ≤ x < 20 | Self-heat. 1 H251, Acute Tox. 4 H302, EUH031 |
| EC | 231-890-0 | | Self-heat. 1 H251: ≥ 50% |
| CAS | 7775-14-6 | | ATE Oral: 500 mg/kg |
| 1,10-PHENANTHROLINE | | | |
| INDEX | 613-092-00-8 | 0,3 ≤ x < 1 | Acute Tox. 3 H301, Aquatic Acute 1 H400 M=10, Aquatic Chronic 1 H410 M=1 |
| EC | 200-629-2 | | LD50 Oral: 132 mg/kg |
| CAS | 5144-89-8 | | |

The full wording of hazard (H) phrases is given in section 16 of the sheet.

## SECTION 4. First aid measures

4.1. Description of first aid measures

In case of doubt or in the presence of symptoms contact a doctor and show him this document.
In case of more severe symptoms, ask for immediate medical aid.
EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Take off contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice. Avoid further contact with contaminated clothing.
INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Do not give anything by mouth to an unconscious person. Get medical advice/attention.
INHALATION: Remove victim to fresh air, away from the accident scene. Get medical advice/attention.

Rescuer protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

SECTION 4. First aid measures ... / >>

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

Specific information on symptoms and effects caused by the product are unknown.

DELAYED EFFECTS: Based on the information currently available, there are no known cases of delayed effects following exposure to this product.

SODIUM METABISULFITE
Irritation and corrosion. Risk of serious damage to eyes.

SODIUM DITHIONITE
Irritant effects, Cough, respiratory paralysis, Shortness of breath, pain, Diarrhoea, Nausea, Vomiting, collapse, muscular weakness, death.

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

Immediately call a POISON CENTER or doctor.

Means to have available in the workplace for specific and immediate treatment

Running water for skin and eye wash.

## SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products. The product is combustible and, when the powder is released into the air in sufficient concentrations and in the presence of a source of ignition, it can create explosive mixtures with air. Fires may start or get worse by leakage of the solid product from the container, when it reaches high temperatures or through contact with sources of ignition.

SODIUM METABISULFITE
Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Sulphur oxides.

1,10-PHENANTHROLINE
Combustible. Development of hazardous combustion gases or vapours possible in the event of fire. Fire may cause evolution of: nitrogen oxides.

SODIUM DITHIONITE
Combustible material, danger of spontaneous combustion! Risk of dust explosion. Development of hazardous combustion gases or vapours possible in the event of fire. Fire may cause evolution of: Sulphur oxides.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

## SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

If there are no contraindications, spray powder with water to prevent the formation of dust.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

SECTION 6. Accidental release measures ... / >>

6.3. Methods and material for containment and cleaning up

Collect the leaked product and place it in containers for recovery or disposal. If there are no contraindications, use jets of water to eliminate product residues.
Make sure the leakage site is well aired. Evaluate the compatibility of the container to be used, by checking section 10. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

## SECTION 7. Handling and storage

7.1. Precautions for safe handling

Ensure that there is an adequate earthing system for the equipment and personnel. In order to avoid the risk of fires and explosions, never use compressed air when handling. Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Avoid leakage of the product into the environment. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Keep the product in clearly labelled containers. Keep containers well sealed. Store in a ventilated and dry place, far away from sources of ignition. Avoid violent blows. Avoid overheating. Avoid contact with water.

Storage class TRGS 510 (Germany): 11

7.3. Specific end use(s)

Information not available

## SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory references:

| | | |
|---|---|---|
| ESP | España | Límites de exposición profesional para agentes químicos en España 2023 |
| FRA | France | Valeurs limites d'exposition professionnelle aux agents chimiques en FranceDécret n° 2021-1849 du 28 décembre 2021 |
| GRC | Ελλάδα | Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020) Εναρμόνιση της ελληνικής νομοθεσίας προς τις διατάξεις των οδηγιών 2017/2398/ΕΕ, 2019/130/ΕΕ και 2019/983/ΕΕ «για την τροποποίηση της οδηγίας 2004/37/ΕΚ ''σχετικά με την προστασία των εργαζομένων από τους κινδύνους που συνδέονται με την έκθεση σε καρκινογόνους ή μεταλλαξιγόνους παράγοντες κατά την εργασία''» |
| HRV | Hrvatska | Pravilnik o izmjenama i dopunama Pravilnika o zaštiti radnika od izloženosti opasnimkemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021) |
| NLD | Nederland | Arbeidsomstandighedenregeling. Lijst van wettelijke grenswaarden op grond van de artikelen 4.3, eerste lid, en 4.16, eerste lid, van het Arbeidsomstandighedenbesluit |
| GBR | United Kingdom | EH40/2005 Workplace exposure limits (Fourth Edition 2020) |
| | TLV-ACGIH | ACGIH 2023 |

SECTION 8. Exposure controls/personal protection ... / >>

SODIUM METABISULFITE

| Threshold Limit Value | | | | | | |
|---|---|---|---|---|---|---|
| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations |
| | | mg/m3 | ppm | mg/m3 | ppm | |
| VLA | ESP | 5 | | | | |
| VLEP | FRA | 5 | | | | |
| TLV | GRC | 5 | | | | |
| GVI/KGVI | HRV | 5 | | | | |
| TGG | NLD | 5 | | | | |
| WEL | GBR | 5 | | | | |
| TLV-ACGIH | | 5 | | | | |

| Predicted no-effect concentration - PNEC | | |
|---|---|---|
| Normal value in fresh water | 1 | mg/l |
| Normal value in marine water | 0,1 | mg/l |
| Normal value of STP microorganisms | 75,4 | mg/l |

| Health - Derived no-effect level - DNEL / DMEL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Effects on consumers | | | | Effects on workers | | | |
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | VND | 8,6 mg/kg bw/d | | | | |
| Inhalation | | | VND | 66 mg/m3 | | | VND | 225 mg/m3 |

SODIUM DITHIONITE

| Predicted no-effect concentration - PNEC | | |
|---|---|---|
| Normal value in fresh water | 1 | mg/l |
| Normal value in marine water | 0,1 | mg/l |
| Normal value of STP microorganisms | 8,98 | mg/l |

| Health - Derived no-effect level - DNEL / DMEL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Effects on consumers | | | | Effects on workers | | | |
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | VND | 7,9 mg/kg bw/d | | | | |
| Inhalation | | | VND | 61 mg/m3 | | | VND | 206 mg/m3 |

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

During the risk assessment process, it is essential to take into consideration the ACGIH occupational exposure levels for particulate not otherwise classified (PNOC respirable fraction: 3 mg/m3; PNOC inhalable fraction: 10 mg/m3). For values above these limits, use a P type filter, whose class (1, 2 or 3) must be chosen according to the outcome of risk assessment. The above values are not TLVs, but guide values, to be used for particles that do not have their own TLV and that are insoluble or poorly soluble in water and have low toxicity.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.
Provide an emergency shower with face and eye wash station.
If the product may or must come into contact or react with acids, suitable technical and/or organisational measures should be taken to prevent the development of toxic and/or inflammable gases.
HAND PROTECTION
In the case of prolonged contact with the product, protect the hands with penetration-resistant work gloves (see standard EN 374).
Work glove material must be chosen according to the use process and the products that may form. Latex gloves may cause sensitivity reactions.
SKIN PROTECTION
Wear category I professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear airtight protective goggles (see standard EN ISO 16321).
In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.
RESPIRATORY PROTECTION

SECTION 8. Exposure controls/personal protection ... / >>

Use a type P filtering facemask, whose class (1, 2 or 3) and effective need, must be defined according to the outcome of risk assessment (see standard EN 149).
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.
Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

## SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Information |
|---|---|---|
| Appearance | powder | |
| Colour | ivory | |
| Odour | pungent | |
| Melting point / freezing point | not available | |
| Initial boiling point | not applicable | |
| Flammability | not available | |
| Lower explosive limit | not available | |
| Upper explosive limit | not available | |
| Flash point | not applicable | |
| Auto-ignition temperature | not available | |
| Decomposition temperature | not available | |
| pH | 5.5 - 6.0 | Method:ASTM D1293-18<br>Concentration: 1.7 %<br>Temperature: 25 °C |
| Kinematic viscosity | not available | |
| Solubility | soluble in water | |
| Partition coefficient: n-octanol/water | not available | |
| Vapour pressure | not available | |
| Density and/or relative density | 2 | |
| Relative vapour density | not available | |
| Particle characteristics | not available | |

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

| | |
|---|---|
| Total solids (250°C / 482°F) | 100,00 % |
| Explosive properties | not applicable |
| Oxidising properties | not applicable |

## SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

SODIUM DITHIONITE
Danger of spontaneous combustion! Self-ignition possible due to air moisture. Risk of dust explosion.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

1,10-PHENANTHROLINE
Sensitivity to light.

SODIUM DITHIONITE
In case of decomposition in closed containers and tubes risk of bursting due to buildup of overpressure.

SECTION 10. Stability and reactivity ... / >>

10.3. Possibility of hazardous reactions

The powders are potentially explosive when mixed with air.

SODIUM METABISULFITE
Generates dangerous gases or fumes in contact with: acids. Exothermic reaction with: Oxidizing agents, nitrites, nitrates, Sulphides.

1,10-PHENANTHROLINE
Violent reactions possible with: Oxidizing agents, acids.

SODIUM DITHIONITE
A risk of explosion and/or of toxic gas formation exists with the following substances: acids, Violent reactions possible with: Oxidizing agents, Water, salts of oxyhalogenic acids.

10.4. Conditions to avoid

Avoid environmental dust build-up.

SODIUM DITHIONITE
Exposure to moisture. Heating (decomposition). Caution! Temperatures > 50°C cause evolution of gas in closed containers. Overpressure produces a risk of bursting.

10.5. Incompatible materials

Information not available

10.6. Hazardous decomposition products

Information not available

## SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

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

SODIUM METABISULFITE
Eye irritation, Rabbit, Result: Eye irritation, Causes serious eye damage.

SODIUM DITHIONITE
Acute inhalation toxicity, Symptoms: Irritation symptoms in the respiratory tract, Cough, Shortness of breath - Skin irritation rabbit, Result: No irritation - Eye irritation, Possible damages: slight irritation - Sensitisation, May produce an allergic reaction.

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

| | |
|---|---|
| ATE (Inhalation) of the mixture: | Not classified (no significant component) |
| ATE (Oral) of the mixture: | 1249,32 mg/kg |
| ATE (Dermal) of the mixture: | Not classified (no significant component) |

## SECTION 11. Toxicological information ... / >>

SODIUM METABISULFITE
LD50 (Dermal): > 2000 mg/kg Rat
LD50 (Oral): 1540 mg/kg Rat

1,10-PHENANTHROLINE
LD50 (Oral): 132 mg/kg Rat

SODIUM DITHIONITE
LD50 (Oral): 2500 mg/kg Rat
ATE (Oral): 500 mg/kg estimate from table 3.1.2 of Annex I of the CLP
(figure used for calculation of the acute toxicity estimate of the mixture)
LC50 (Inhalation mists/powders): > 5,5 mg/l/4h Rat

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

## SECTION 12. Ecological information

This product is dangerous for the environment and the aquatic organisms. In the long term, it has negative effects on the aquatic environment.

12.1. Toxicity

SODIUM METABISULFITE
EC50 - for Crustacea 89 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants 48 mg/l/72h Desmodesmus subspicatus

SODIUM DITHIONITE
LC50 - for Fish 46 mg/l/96h Leuciscus idus
EC50 - for Crustacea 98 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants 206 mg/l/72h Green algae

## SECTION 12. Ecological information ... / >>

12.2. Persistence and degradability

SODIUM METABISULFITE
Solubility in water > 10000 mg/l
Degradability: information not available

SODIUM DITHIONITE
Solubility in water > 10000 mg/l
Degradability: information not available

12.3. Bioaccumulative potential

SODIUM METABISULFITE
Partition coefficient: n-octanol/water -3,7 Log Kow

1,10-PHENANTHROLINE
Partition coefficient: n-octanol/water 1,78 Log Kow

SODIUM DITHIONITE
Partition coefficient: n-octanol/water < -4,7 Log Kow

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

12.6. Endocrine disrupting properties

SODIUM DITHIONITE
Biological effects: Reacts with water to form toxic decomposition products.

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

## SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
The management of waste arising from the use or dispersal of this product must be organised in accordance with occupational safety regulations. See section 8 for possible need for PPE.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

## SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number or ID number

not applicable

14.2. UN proper shipping name

not applicable

SECTION 14. Transport information ... / >>

14.3. Transport hazard class(es)

not applicable

14.4. Packing group

not applicable

14.5. Environmental hazards

not applicable

14.6. Special precautions for user

not applicable

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

## SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EU: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006
Contained substance
Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
not applicable

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)
WGK 1: Low hazard to waters

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

## SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

| | |
|---|---|
| Self-heat. 1 | Self-heating substance or mixture, category 1 |
| Acute Tox. 3 | Acute toxicity, category 3 |
| Acute Tox. 4 | Acute toxicity, category 4 |
| Eye Dam. 1 | Serious eye damage, category 1 |
| Aquatic Acute 1 | Hazardous to the aquatic environment, acute toxicity, category 1 |
| Aquatic Chronic 1 | Hazardous to the aquatic environment, chronic toxicity, category 1 |

SECTION 16. Other information ... / >>

| | |
|---|---|
| Aquatic Chronic 3 | Hazardous to the aquatic environment, chronic toxicity, category 3 |
| H251 | Self-heating: may catch fire. |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H318 | Causes serious eye damage. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |
| EUH031 | Contact with acids liberates toxic gas. |

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY
1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2019/521 (XII Atp. CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
23. Delegated Regulation (UE) 2023/707
24. Delegated Regulation (UE) 2023/1434 (XIX Atp. CLP)

SECTION 16. Other information ... / >>

25. Delegated Regulation (UE) 2023/1435 (XX Atp. CLP)
26. Delegated Regulation (UE) 2024/197 (XXI Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION
Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:
The following sections were modified:
02 / 03 / 04 / 09 / 11.