

## Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

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

#### 1.1. Product identifier

Code	POTASSIUM IODIDE SOLUTION
Product name	Potassium Iodide Reagent

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

Intended use	Determination of Chlorine in Water Samples.
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#### 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: +1 7035273887 - UK, London: +44 2038073798 - CHEMTREC 24 hours/365 days
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### 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:		
Specific target organ toxicity - repeated exposure, category 1	H372	Causes damage to organs through prolonged or repeated exposure.

#### 2.2. Label elements

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

Hazard pictograms:



Signal words:	Danger
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Hazard statements:	H372	Causes damage to organs through prolonged or repeated exposure.
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Precautionary statements:	P280	Wear protective gloves.
	P312	Call a POISON CENTRE or doctor, if you feel unwell.

Contains:	POTASSIUM IODIDE
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**SECTION 2. Hazards identification**    ... / >>

2.3. Other hazards

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

The product does not contain substances with endocrine disrupting properties in concentration  $\geq$  0.1%.

**SECTION 3. Composition/information on ingredients**

3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification (EC) 1272/2008 (CLP)
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POTASSIUM IODIDE		
INDEX	$10 \leq x < 30$	STOT RE 1 H372
EC	231-659-4	
CAS	7681-11-0	
REACH Reg.	01-2119906339-35	

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

**EYES:** Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

**SKIN:** Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

**INHALATION:** Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

**INGESTION:** Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

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

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

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

Information not available

**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.

**POTASSIUM IODIDE**

Hydrogen iodide, Potassium 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

Block the leakage if there is no hazard.

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.

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

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. 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

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. 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. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

Storage class TRGS 510 (Germany): 6.1C

### 7.3. Specific end use(s)

Information not available

## SECTION 8. Exposure controls/personal protection

### 8.1. Control parameters

Regulatory References:

BGR	България	НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г. ЗА ЗАЩИТА НА РАБОТЕЩИТЕ ОТ РИСКОВЕ, СВЪРЗАНИ С ЕКСПОЗИЦИЯ НА ХИМИЧНИ АГЕНТИ ПРИ РАБОТА (изм. ДВ. бр.5 от 17 Януари 2020г.)
	TLV-ACGIH	ACGIH 2021

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

**POTASSIUM IODIDE**

Threshold Limit Value		TWA/8h		STEL/15min		Remarks / Observations			
Type	Country	mg/m3	ppm	mg/m3	ppm				
TLV	BGR	5							
TLV-ACGIH			0,01						
<b>Predicted no-effect concentration - PNEC</b>									
Normal value in fresh water						0,007	mg/l		
Normal value for fresh water sediment						0,007	mg/kg		
Normal value for water, intermittent release						0,075	mg/l		
<b>Health - Derived no-effect level - DNEL / DMEL</b>									
Route of exposure	Effects on consumers				Effects on workers				
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic	
Oral			VND	0,01 mg/kg bw/d					
Inhalation			VND	0,035 mg/m3			VND	0,07 mg/m3	
Skin			VND	1 mg/kg bw/d			VND	1 mg/kg bw/d	

**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.

**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.

Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

**HAND PROTECTION**

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

**SKIN PROTECTION**

Wear category III 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 166).

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**

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

**ENVIRONMENTAL EXPOSURE CONTROLS**

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

**SECTION 9. Physical and chemical properties**

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

Properties	Value	Information
Appearance	liquid	
Colour	colourless	



**SECTION 9. Physical and chemical properties**      ... / >>

Odour	odourless
Melting point / freezing point	not available
Initial boiling point	not available
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	8,9
Kinematic viscosity	not available
Solubility	soluble in water
Partition coefficient: n-octanol/water	not available
Vapour pressure	17,5 mmHg
Density and/or relative density	1
Relative vapour density	not available
Particle characteristics	not applicable

 Method:ASTM D1293-18  
 Temperature: 25 °C

**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)	18,23 %
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.

**10.2. Chemical stability**

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

**POTASSIUM IODIDE**

May decompose on exposure to air and moisture. Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

No hazardous reactions are foreseeable in normal conditions of use and storage.

**10.4. Conditions to avoid**

None in particular. However the usual precautions used for chemical products should be respected.

**POTASSIUM IODIDE**

Tin/tin oxides.

**10.5. Incompatible materials**
**POTASSIUM IODIDE**

Strong reducing agents, Nickel, Strong acids, and its alloys, Steel (all types and surface treatments), Aluminum, Alkali metals, Brass, Magnesium, Zinc, cadmium, Copper.

**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.

**SECTION 11. Toxicological information** ... / >>

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

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:	Not classified (no significant component)
ATE (Dermal) of the mixture:	Not classified (no significant component)

POTASSIUM IODIDE  
LD50 (Oral):

1000 mg/kg Mouse

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

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

Causes damage to organs

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

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

### 12.1. Toxicity

#### POTASSIUM IODIDE

Toxicity to daphnia and other aquatic invertebrates, EC50, Daphnia: 2,7 mg/l - 24 h.

#### POTASSIUM IODIDE

LC50 - for Fish

2190 mg/l/96h Oncorhynchus mykiss

### 12.2. Persistence and degradability

#### POTASSIUM IODIDE

Solubility in water

> 10000 mg/l

Rapidly degradable

### 12.3. Bioaccumulative potential

#### POTASSIUM IODIDE

Partition coefficient: n-octanol/water

-0,958

BCF

2,268

### 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  $\geq$  than 0,1%.

### 12.6. Endocrine disrupting properties

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.

#### 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

**SECTION 14. Transport information** ... / >>

## 14.2. UN proper shipping name

not applicable

## 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: NoneRestrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product	Point
	3

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors  
not applicableSubstances in Candidate List (Art. 59 REACH)On the basis of available data, the product does not contain any SVHC in percentage  $\geq$  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:

STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
H372	Causes damage to organs through prolonged or repeated exposure.

## SECTION 16. Other information ... / &gt;&gt;

## 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 as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- 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 as for REACH Regulation
- 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)
- 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.

**SECTION 16. Other information** ... / >>

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 / 08 / 09 / 11 / 12 / 15 / 16.

## Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

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

#### 1.1. Product identifier

Code STARCH  
Product name Starch Indicator

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

Intended use Indicator solution used with titration chemical test kits.

#### 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: +1 7035273887 - UK, London: +44 2038073798 - CHEMTREC 24 hours/365 days

### SECTION 2. Hazards identification

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

The product is not classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP). However, since the product contains hazardous substances in concentrations such as to be declared in section no. 3, it requires a safety data sheet with appropriate information, compliant to (EU) Regulation 2020/878.

Hazard classification and indication: --

#### 2.2. Label elements

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

Hazard pictograms: --

Signal words: --

Hazard statements:  
EUH210 Safety data sheet available on request.

Precautionary statements: --

#### 2.3. Other hazards

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

The product contains substances with endocrine disrupting properties in concentration  $\geq$  0,1%:  
SALICYLIC ACID

### SECTION 3. Composition/information on ingredients



### 3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification (EC) 1272/2008 (CLP)
SALICYLIC ACID		
INDEX	$0 \leq x < 0,5$	Repr. 2 H361d, Acute Tox. 4 H302, Eye Dam. 1 H318
EC	200-712-3	LD50 Oral: 891 mg/kg
CAS	69-72-7	

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

Not specifically necessary. Observance of good industrial hygiene is recommended.

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

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

SALICYLIC ACID

Irritant effects, gastric pain, Dizziness, impaired consciousness, Nausea, Vomiting, collapse, Convulsions, confusion.

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

Information not available

## 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.

SALICYLIC ACID

Combustible. Risk of dust explosion. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

### 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

Use breathing equipment if fumes or powders are released into the air. 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**

Confine using earth or inert material. Collect as much material as possible and eliminate the rest using jets of water. 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**

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use.

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

Keep the product in clearly labelled containers. Keep containers away from any incompatible materials, see section 10 for details.

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

Information not available

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

**8.1. Control parameters**

Information not available

**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.

**HAND PROTECTION**

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

**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 166).

**RESPIRATORY PROTECTION**

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

**ENVIRONMENTAL EXPOSURE CONTROLS**

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

**SECTION 9. Physical and chemical properties**

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

Properties	Value	Information
Appearance	liquid	
Colour	opalescent	

**SECTION 9. Physical and chemical properties**     ... / >>

Odour	odourless	
Melting point / freezing point	not available	
Initial boiling point	not available	
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	2,4 - 2,6	Method:ASTM D1293-18 Temperature: 25 °C
Kinematic viscosity	not available	
Solubility	partially soluble in water	
Partition coefficient: n-octanol/water	not available	
Vapour pressure	17,5 mmHg	
Density and/or relative density	1	
Relative vapour density	not available	
Particle characteristics	not applicable	

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)	2,19 %
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.

**SALICYLIC ACID**

Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical. Risk of dust explosion.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

**SALICYLIC ACID**

Risk of ignition or formation of inflammable gases or vapours with: Fluorine, iodine, Violent reactions possible with: Strong oxidizing agents, iron/iron-containing compounds.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

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.

SECTION 11. Toxicological information ... / >>

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

SALICYLIC ACID

Acute oral toxicity, Symptoms: Irritation of mucous membranes, absorption - Acute inhalation toxicity, Symptoms: Possible damages:, mucosal irritations - Acute dermal toxicity, Skin irritation, Result: slight irritation - Eye irritation, Result: Severe irritations

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:	Not classified (no significant component)
ATE (Dermal) of the mixture:	Not classified (no significant component)

SALICYLIC ACID

LD50 (Oral): 891 mg/kg Rat

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

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

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

Based on the available data, the product contains the following endocrine disruptors in concentrations of 0.1% or greater by weight that may have endocrine disrupting effects on humans and cause adverse effects on the exposed individual or his or her progeny:

SALICYLIC ACID

## SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

### 12.1. Toxicity

SALICYLIC ACID	
EC50 - for Crustacea	870 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	> 100 mg/l/72h Desmodesmus subspicatus

### 12.2. Persistence and degradability

SALICYLIC ACID	
Solubility in water	> 2000 mg/l

### 12.3. Bioaccumulative potential

SALICYLIC ACID	
Partition coefficient: n-octanol/water	2,26 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  $\geq$  than 0,1%.

### 12.6. Endocrine disrupting properties

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. Neat product residues should be considered special non-hazardous waste.  
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.  
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  
None

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  $\geq$  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  
Information not available

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:

Repr. 2	Reproductive toxicity, category 2
Acute Tox. 4	Acute toxicity, category 4
Eye Dam. 1	Serious eye damage, category 1
H361d	Suspected of damaging the unborn child.
H302	Harmful if swallowed.
H318	Causes serious eye damage.
EUH210	Safety data sheet available on request.

SECTION 16. Other information ... / >>

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 as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- 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 as for REACH Regulation
- 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)
- 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.



[SECTION 16. Other information](#) ... / >>

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 / 05 / 08 / 09 / 10 / 11 / 12 / 15 / 16.

## Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

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

#### 1.1. Product identifier

Code	SULFAMIC
Product name	Sulfamic Acid
Chemical name and synonym	SULPHAMIC ACID
INDEX number	016-026-00-0
EC number	226-218-8
CAS number	5329-14-6
Registration Number	01-2119488633-28

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

Intended use	Determination of Chlorine in Water Samples.
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#### 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: +1 7035273887 - UK, London: +44 2038073798 - CHEMTREC 24 hours/365 days
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### 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:

Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.
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: Warning

Hazard statements:

H319	Causes serious eye irritation.
H315	Causes skin irritation.

## SECTION 2. Hazards identification ... / >>

H412 Harmful to aquatic life with long lasting effects.

### Precautionary statements:

P280 Wear protective gloves / eye protection / face protection.  
P302+P352 IF ON SKIN: Wash with plenty of water and soap.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice / attention.  
P362 Take off contaminated clothing.

Contains: SULPHAMIC ACID

INDEX 016-026-00-0

### 2.3. Other hazards

The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).

The substance does not have endocrine disrupting properties.

## SECTION 3. Composition/information on ingredients

### 3.1. Substances

#### Contains:

Identification	Conc. %	Classification (EC) 1272/2008 (CLP)
SULPHAMIC ACID		
INDEX 016-026-00-0	100	Eye Irrit. 2 H319, Skin Irrit. 2 H315, Aquatic Chronic 3 H412
EC 226-218-8		
CAS 5329-14-6		
REACH Reg. 01-2119488633-28		

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

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.  
SKIN: Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.  
INHALATION: Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.  
INGESTION: Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

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

Irritant effects, Cough, Shortness of breath, Pain, shock.

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

Information not available

## 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.

## SECTION 5. Firefighting measures ... / >>

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

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE  
Do not breathe combustion products.

### 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.

### 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

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. 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. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

### 7.3. Specific end use(s)

Information not available

## SECTION 8. Exposure controls/personal protection

### 8.1. Control parameters

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

SULPHAMIC ACID

Predicted no-effect concentration - PNEC

Normal value in fresh water	1,8	mg/l
Normal value in marine water	0,18	mg/l
Normal value for fresh water sediment	8,36	mg/kg/d
Normal value for marine water sediment	0,84	mg/kg/d
Normal value for water, intermittent release	0,48	mg/l
Normal value of STP microorganisms	20	mg/l
Normal value for the terrestrial compartment	5	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Effects on workers					
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral			VND	5 mg/kg bw/d				
Inhalation			VND	17,4 mg/m3			VND	70,5 mg/m3
Skin			VND	5 mg/kg bw/d			VND	10 mg/kg bw/d

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.

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.

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 II 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 166).

RESPIRATORY PROTECTION

None required, unless indicated otherwise in the chemical risk assessment.

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	white	
Odour	odourless	
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	0.8 - 1.1	Method:ASTM D1293-18 Concentration: 3.1 % Temperature: 25 °C
Kinematic viscosity	not available	
Solubility	soluble in water	

SECTION 9. Physical and chemical properties ... / >>

Partition coefficient: n-octanol/water	not available
Vapour pressure	not available
Density and/or relative density	2,2
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

Molecular weight g/mol	97,090
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.

Decomposes at 205°C/401°F.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

Risk of explosion on contact with chlorine. Reacts dangerously with metal nitrites and nitrates.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

10.5. Incompatible materials

Chlorine, nitric acid, sodium nitrites and nitrates, potassium.

10.6. Hazardous decomposition products

Sulphur oxides and nitric oxides.

SECTION 11. Toxicological information

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

Acute oral toxicity, Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract., Pain, Possible damages:, shock - Acute inhalation toxicity, Symptoms: Cough, Shortness of breath, Irritation symptoms in the respiratory tract - Skin irritation, Result: Irritations, Causes skin irritation - Eye irritation, rabbit, Result: Severe irritations, Causes serious eye irritation.

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

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

Information not available

### ACUTE TOXICITY

#### SULPHAMIC ACID

LD50 (Dermal):

> 2000 mg/kg Rat

LD50 (Oral):

1050 mg/kg Guinea pig

### SKIN CORROSION / IRRITATION

Causes skin irritation

### SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

### 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 substance is not 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 have negative effects on aquatic environment.

#### 12.1. Toxicity

##### SULPHAMIC ACID

LC50 - for Fish

70,3 mg/l/96h Pimephales promelas

#### 12.2. Persistence and degradability

##### SULPHAMIC ACID

Solubility in water

> 10000 mg/l

Degradability: information not available

#### 12.3. Bioaccumulative potential

SULPHAMIC ACID



**SECTION 12. Ecological information** ... / >>

Partition coefficient: n-octanol/water 0,1 Log Kow

**12.4. Mobility in soil**

Information not available

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

The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).

**12.6. Endocrine disrupting properties**

Biological effects: Harmful effect due to pH shift. Further information on ecology, Discharge into the environment must be avoided.

Based on the available data, the substance is not 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.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

**SECTION 14. Transport information**

**14.1. UN number or ID number**

ADR / RID, IMDG, IATA: 2967

**14.2. UN proper shipping name**

ADR / RID: SULPHAMIC ACID  
 IMDG: SULPHAMIC ACID  
 IATA: SULPHAMIC ACID

**14.3. Transport hazard class(es)**

ADR / RID: Class: 8 Label: 8



IMDG: Class: 8 Label: 8



IATA: Class: 8 Label: 8



**14.4. Packing group**

ADR / RID, IMDG, IATA: III

**14.5. Environmental hazards**

ADR / RID: NO  
 IMDG: NO  
 IATA: NO

SECTION 14. Transport information ... / >>

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 80 Special provision: -	Limited Quantities: 5 kg	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 5 kg	
IATA:	Cargo: Pass.: Special provision:	Maximum quantity: 100 Kg Maximum quantity: 25 Kg A803	Packaging instructions: 864 Packaging instructions: 860

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  $\geq$  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

Self assessment based on Annex 3

15.2. Chemical safety assessment

Has not been performed / is not yet available a chemical safety assessment for the substance.

SECTION 16. Other information

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

Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H412	Harmful to aquatic life with long lasting effects.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number

### SECTION 16. Other information ... / >>

- 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 as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- 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 as for REACH Regulation
- 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)

- 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.

[SECTION 16. Other information](#) ... / >>

**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:

01 / 03 / 08 / 09 / 12.

## Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

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

#### 1.1. Product identifier

Code Thiosulfate Reagent  
Product name Thiosulfate Reagent

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

Intended use Determination of Chlorine 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: +1 7035273887 - UK, London: +44 2038073798 - CHEMTREC 24 hours/365 days

### SECTION 2. Hazards identification

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

The product is not classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP). However, since the product contains hazardous substances in concentrations such as to be declared in section no. 3, it requires a safety data sheet with appropriate information, compliant to (EU) Regulation 2020/878.

Hazard classification and indication: --

#### 2.2. Label elements

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

Hazard pictograms: --

Signal words: --

Hazard statements:  
EUH210 Safety data sheet available on request.

Precautionary statements: --

#### 2.3. Other hazards

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

The product does not contain substances with endocrine disrupting properties in concentration  $\geq$  0.1%.

### SECTION 3. Composition/information on ingredients

**SECTION 3. Composition/information on ingredients**      ... / >>

**3.2. Mixtures**

Contains:

Identification	x = Conc. %	Classification (EC) 1272/2008 (CLP)
<b>CHLOROFORM</b>		
INDEX	602-006-00-4      0 ≤ x < 0,5	Carc. 2 H351, Repr. 2 H361d, Acute Tox. 3 H331, Acute Tox. 4 H302, STOT RE 1 H372, Eye Irrit. 2 H319, Skin Irrit. 2 H315
EC	200-663-8	STOT RE 2 H373: ≥ 5%
CAS	67-66-3	LD50 Oral: 695 mg/kg, STA Inhalation vapours: 3 mg/l
REACH Reg.	01-2119486657-20	

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**

Not specifically necessary. Observance of good industrial hygiene is recommended.

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

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

**CHLOROFORM**

Irritant effects, Cough, Shortness of breath, respiratory arrest, Dizziness, narcosis, agitation, spasms, inebriation, Nausea, Vomiting, Stomach/intestinal disorders, cardiovascular disorders, Headache, ataxia (impaired locomotor coordination). Drying-out effect resulting in rough and chapped skin.

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

Information not available

**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.

**CHLOROFORM**

Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Hydrogen chloride gas, Phosgene.

**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**

Use breathing equipment if fumes or powders are released into the air. These indications apply for both processing staff and those involved in emergency procedures.

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

### 6.2. Environmental precautions

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

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

Confine using earth or inert material. Collect as much material as possible and eliminate the rest using jets of water. 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

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use.

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

Keep the product in clearly labelled containers. Keep containers away from any incompatible materials, see section 10 for details.

### 7.3. Specific end use(s)

Information not available

## SECTION 8. Exposure controls/personal protection

### 8.1. Control parameters

#### Regulatory References:

AUS	Österreich	Gesamte Rechtsvorschrift für Grenzwerteverordnung 2021 , Fassung vom 17.06.2021
BEL	Belgique	Liste de valeurs limites d'exposition aux agents chimiques, livre VI du code du bien-être au travail
CHE	Suisse / Schweiz	Valeurs limites d'exposition aux postes de travail: VME/VLE (SUVA). Grenzwerte am Arbeitsplatz: MAK (SUVA)
DEU	Deutschland	Technischen Regeln für Gefahrstoffe (TRGS 900) - Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte, MAK- und BAT-Werte-Liste 2020, Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Mitteilung 56
DNK	Danmark	Bekendtgørelse om grænseværdier for stoffer og materialer - BEK nr 1458 af 13/12/2019
ESP	España	Límites de exposición profesional para agentes químicos en España 2021
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
FIN	Suomi	HTP-VÄRDEN 2020. Koncentrationer som befunnits skadliga. SOCIAL - OCH HÄLSOVÄRDSMINISTERIETS PUBLIKATIONER 2020:25
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
IRL	Éire	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
POL	Polska	Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy
ROU	România	Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006
SWE	Sverige	Hygieniska gränsvärden, Arbetsmiljöverkets föreskrifter och allmänna råd om hygieniska gränsvärden (AFS 2018:1)
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2021



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

**CHLOROFORM**

Threshold Limit Value						
Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
MAK	AUS	10	2			
VLEP	BEL	10	2			
MAK	CHE	2,5	0,5	5	1	
MAK	DEU	2,5	0,5			
TLV	DNK	10	2	20	4	
VLA	ESP	10	2			
VLEP	FRA	10	2	250	50	
HTP	FIN	10	2	20	4	
AK	HUN	10				
OELV	IRL	9,8	2			
NDS/NDSch	POL	8				
TLV	ROU	10	2			
NGV/KGV	SWE	10	2			
WEL	GBR	9,9	2			
OEL	EU	10	2			
TLV-ACGIH			10			

**Predicted no-effect concentration - PNEC**

Normal value in fresh water	0,146	mg/l
Normal value in marine water	0,015	mg/l
Normal value for fresh water sediment	0,45	mg/kg/d
Normal value for marine water sediment	0,09	mg/kg/d
Normal value for water, intermittent release	0,133	mg/l
Normal value of STP microorganisms	0,048	mg/l
Normal value for the terrestrial compartment	0,56	mg/kg/d

**Health - Derived no-effect level - DNEL / DMEL**

Route of exposure	Effects on consumers				Effects on workers			
	Acute		Chronic		Acute		Chronic	
	local	systemic	local	systemic	local	systemic	local	systemic
Inhalation			VND	0,18 mg/m3			2,5 mg/m3	2,5 mg/m3
Skin							0,94 mg/kg bw/d	VND

**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.

**CHLOROFORM**

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms UNI EN 482 and UNI EN 689.

**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.

**HAND PROTECTION**

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

**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 166).

**RESPIRATORY PROTECTION**

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing

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

apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.  
ENVIRONMENTAL EXPOSURE CONTROLS  
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

**SECTION 9. Physical and chemical properties**

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	liquid	
Colour	colourless	
Odour	odourless	
Melting point / freezing point	not available	
Initial boiling point	not available	
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	7	Method:ASTM D1293-18 Temperature: 25 °C
Kinematic viscosity	not available	
Solubility	not available	
Partition coefficient: n-octanol/water	not available	
Vapour pressure	17,52 mmHg	
Density and/or relative density	1,00	
Relative vapour density	not available	
Particle characteristics	not applicable	

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)	0,12 %		
VOC (Directive 2010/75/EU)	0,09 %	- 0,90	g/litre
VOC (volatile carbon)	0,09 %	- 0,90	g/litre

**SECTION 10. Stability and reactivity**

10.1. Reactivity

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

10.2. Chemical stability

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

CHLOROFORM

Heat-sensitive. Sensitivity to light. Stabilizer ethanol.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

CHLOROFORM

Risk of explosion with: Ammonia, Amines, nitrogen oxides, bases, Oxygen, alkali amides, organic nitro compounds, Alcohols, alkali hydroxides, strong alkalis, Fluorine, peroxi compounds, Alkaline earth metals, Alkali metals, Powdered metals, Methanol with alcoholates, Methanol with strong alkalis, Iron in powder form, various alloys sensitive to shock, Methanol with Sodium hydroxide, magnesium in powder form, Oxygen with alkali compounds, Aluminium in powder form, Acetone with alkali compounds, Potassium sensitive to shock, sodium sensitive to shock. Violent reactions possible with: phosphines, bis(dimethylamino)dimethyl tin, nonmetallic hydrogen compounds, Powdered metals, Light metals, Ketones, mineral acids, Strong oxidizing agents, semimetallic hydrogen compounds.

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

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

10.5. Incompatible materials

CHLOROFORM  
Rubber, various plastics.

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

CHLOROFORM

Acute oral toxicity, Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting, Aspiration may cause pulmonary oedema and pneumonitis. absorption - Acute inhalation toxicity, Acute toxicity estimate: 0.5 mg/l; aerosol, Symptoms: Cough, Shortness of breath, Possible damages: mucosal irritations, absorption - Acute dermal toxicity: Skin irritation, Rabbit, Result: slight irritation. Drying-out effect resulting in rough and chapped skin. Causes skin irritation. Eye irritation. Causes serious eye irritation - CMR effects, Carcinogenicity: Suspected of causing cancer - Teratogenicity: Suspected of damaging the unborn child - Specific target organ toxicity, repeated exposure, Target Organs: Liver, Kidney, Causes damage to organs through prolonged or repeated exposure.

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:	Not classified (no significant component)
ATE (Dermal) of the mixture:	Not classified (no significant component)

CHLOROFORM

LD50 (Dermal):	> 3980 mg/kg Rabbit
LD50 (Oral):	695 mg/kg Rat
LC50 (Inhalation vapours):	47,7 mg/l/4h Rat

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

**SECTION 11. Toxicological information** ... / >>

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**

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

CHLOROFORM

Toxicity to daphnia and other aquatic invertebrates, EC50 *E. sulcatum*: > 6,560 mg/l; 72 h (maximum permissible toxic concentration) - Toxicity to algae, IC50 *Scenedesmus quadricauda* (Green algae): 1,100 mg/l; 8 d (maximum permissible toxic concentration) - Toxicity to bacteria, EC50 *Pseudomonas putida*: 125 mg/l; 16 h (maximum permissible toxic concentration), EC50 activated sludge: 1,010 mg/l; 3 h .

CHLOROFORM

LC50 - for Fish 18 mg/l/96h *Lepomis macrochirus*  
EC50 - for Crustacea 79 mg/l/48h *Daphnia magna*

12.2. Persistence and degradability

CHLOROFORM

Biodegradability 0 %; 14 d. Not readily biodegradable.

CHLOROFORM

Solubility in water 8 mg/l

12.3. Bioaccumulative potential

CHLOROFORM

Partition coefficient: n-octanol/water, log Pow: 2 (25 °C), (experimental). Bioaccumulation is not expected.

CHLOROFORM

Partition coefficient: n-octanol/water 2 Log Kow

12.4. Mobility in soil

CHLOROFORM

Distribution among environmental compartments, Adsorption/Soil log Koc: 1.72, (experimental). Mobile in soils.

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

### 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  $\geq$  than 0,1%.

### 12.6. Endocrine disrupting properties

#### CHLOROFORM

Henry constant 14084 Pa\*m<sup>3</sup>/mol, Method: (experimental), Distribution preferentially in air. Discharge into the environment must be avoided.

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. Neat product residues should be considered special non-hazardous waste.  
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

**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

### 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

<u>Contained substance</u>		
Point	32-75	CHLOROFORM

SECTION 15. Regulatory information ... / >>

REACH Reg.: 01-2119486657-20

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  $\geq$  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

Information not available

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:

Carc. 2	Carcinogenicity, category 2
Repr. 2	Reproductive toxicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H372	Causes damage to organs through prolonged or repeated exposure.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
EUH210	Safety data sheet available on request.

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 as REACH Regulation

SECTION 16. Other information ... / >>

- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- 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 as for REACH Regulation
- 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)

- 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.