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

Item code	pH 9,21
Product name	Buffer pH 9.21 blue

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

Intended use
Standard process verification and control solution. Applies to codes 51100073, 51100173, 51100273, EE51100073, EE51100173, EE51100273

Identified uses
Standard solution for the verification and quality control of pH measurement systems – Industrial uses
Standard solution for the verification and quality control of pH measurement systems – Professional uses

1.3 Details of the supplier of the safety data sheet

Company name	GIORGIO BORMAC srl
Full address	via della meccanica, 25
Town	Carpi
Postal code	41012
Province	MO
Country	Italy
Phone number	+39 059 653274
e-mail address of the competent person responsible for the Safety Data Sheet	sds@giorgiobormac.com

1.4 Emergency telephone number

For urgent inquiries refer to	+1 352-323-3500

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		
Reproductive toxicity, category 1B	H360FD	May damage fertility. May damage the unborn child.
Specific target organ toxicity - repeated exposure, category 2	H373	May cause 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 word
Danger

Hazard statements	
H360FD	May damage fertility. May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements	
P260	Do not breathe spray, vapours.
P201	Obtain special instructions before use.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P308+P313	IF exposed or concerned: Get medical advice / attention.
P202	Do not handle until all safety precautions have been read and understood.
P405	Store locked up.

Restricted to professional users.

Contains
BORIC ACID
Mercury iodide

2.3 Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.
The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

Section 3 Composition/information on ingredients

3.2 Mixtures

INERT

Concentration	98 %

BORIC ACID

Concentration	0.5 %
CAS number	10043-35-3
EC number	233-139-2
INDEX number	005-007-00-2
Registration Number	01-2119486683-25
Hazard classification	▪ Repr. 1B; H360FD
Classification note according to Annex VI to the CLP Regulation:	11

SODIUM HYDROXIDE

Concentration	0.4 %
CAS number	1310-73-2
EC number	215-185-5

INDEX number	011-002-00-6
Hazard classification	▪ Met. Corr. 1; H290 ▪ Skin Corr. 1A; H314 ▪ Eye Dam. 1; H318
Specific concentration limits	▪ Skin Irrit. 2; H315: 0.5 ≤ x < 2 % ▪ Skin Corr. 1B; H314: ≥ 2 % ▪ Eye Irrit. 2; H319: 0.5 ≤ x < 2 % ▪ Eye Dam. 1; H318: ≥ 2 %

Mercury iodide

Concentration	0.1 %
CAS number	7774-29-0
EC number	231-873-8
INDEX number	080-002-00-6
Hazard classification	▪ Acute Tox. 2; H300 ▪ Acute Tox. 1; H310 ▪ Acute Tox. 2; H330 ▪ STOT RE 2; H373 ▪ Aquatic Acute 1; H400 ▪ Aquatic Chronic 1; H410
M Factor (acute)	1
M Factor (chronic)	1
Specific concentration limits	▪ STOT RE 2; H373: ≥ 0.1 %
Classification note according to Annex VI to the CLP Regulation:	1 – A
LD50 (Oral):	18 mg/kg
ATE (Dermal)	5 mg/kg
ATE (Inhalation - mists / powders)	0.05 mg/l
LC50 (Inhalation vapours):	1 mg/l (4h)
Substance with a community workplace exposure limit.	

POTASSIUM IODIDE

Concentration	0.01 %
CAS number	7681-11-0
EC number	231-659-4
Registration Number	01-2119966161-40-XXXX
Hazard classification	▪ STOT RE 1; H372

Acid blue

Concentration	0.01 %

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

Section 4 First aid measures

4.1 Description of first aid measures

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

medical advice/attention.
INHALATION: Remove victim to fresh air, away from the accident scene. Get medical advice/attention.

Rescuers protection

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

4.2 Most important symptoms and effects, both acute and delayed

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

Delivery effects: can harm fertility and fetus.

4.3 Indication of any immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice / attention.

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

Running water for skin and eye wash.

Section 5 Firefighting measures

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture

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

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)
None

7.3 Specific end use(s)

Information not available.

Section 8 Exposure controls/personal protection

8.1 Control parameters

Regulatory references	
ACGIH	ACGIH 2025
European Union-OEL	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.
Ireland-OELV	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)

SODIUM HYDROXIDE

	TWA		STEL		CEILING		Remarks	
	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm		
ACGIH					2		--	
Ireland-OELV			2				--	

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Workers, long-term, inhalation	1 mg/m³	

BORIC ACID

	TWA		STEL		CEILING		Remarks	
	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm		
ACGIH	2		6				Inhalation	

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	10 mg/l
Normal value in fresh water	2.9 mg/l
Normal value in marine water	2.9 mg/l
Normal value for the terrestrial compartment	5.7 mg/kg
Normal value for water, intermittent release	137 mg/l

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, oral		0.98 mg/kg bw/d
Consumers, long-term, dermal		196 mg/kg bw/d
Consumers, long-term, inhalation		4.15 mg/m³
Consumers, long-term, oral		0.98 mg/kg/d
Workers, long-term, dermal		392 mg/kg bw/d
Workers, long-term, inhalation		8.3 mg/m³

POTASSIUM IODIDE

	TWA		STEL		CEILING		Remarks	
	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm		
ACGIH		0.01					Inhalation	I

Predicted no-effect concentration - PNEC	
Normal value in fresh water	0.007 mg/l
Normal value for fresh water sediment	0.007 mg/kg/d

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Workers, long-term, dermal		1 mg/kg bw/d
Workers, long-term, inhalation		0.07 mg/m³

Mercury iodide

	TWA		STEL		CEILING		Remarks	
	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm		
ACGIH	0.025						Skin	A4, IBE
European Union-OEL	0.02						--	(come Hg)

Sampling method: https://amcaw.ifa.dguv.de/amcaw/substances/methods/d82f1d81-fbee2-b751-6c13f13f07c (Mercury);
Ibe Elementary Mercury: 20ug/G Creatine
Mercury, inorganic and elementary forms:
Notations: skin, a4, beautiful
Critical effects: damage to the central nervous system, damage to the kidneys.

Acid blue

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	111.5 mg/l
Normal value in fresh water	0.046 mg/l
Normal value for fresh water sediment	5,506 mg/kg
Normal value in marine water	0.005 mg/l
Normal value for marine water sediment	550.6 mg/kg

Predicted no-effect concentration - PNEC	
Normal value for the terrestrial compartment	2,639 mg/kg

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Workers, long-term, dermal		7.689 mg/kg bw/d
Workers, long-term, inhalation		13.56 mg/m³

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.
When choosing risk management measures and operating conditions, consult the exposure scenarios attached.
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).
Provide an emergency shower with face and eye wash station.

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 II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344/EN ISO 13034). 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

Physical state	clear liquid	
Colour	blue	
Odour	odourless	
Odour threshold	Not relevant	
Melting point / freezing point	Not applicable	
Initial boiling point	100 °C (212 °F)	
Flammability	Not applicable	
Lower explosive limit	Not applicable	
Upper explosive limit	Not applicable	

Flash point	Not available	
Auto-ignition temperature	Not applicable	
Decomposition temperature	Not available	
pH	9.2	
Kinematic viscosity	Not available	
Solubility	soluble in water	
Partition coefficient: n-octanol/water	Not available	
Vapour pressure	Not available	
Density and/or relative density	1 kg/l	
Relative vapour density	Not available	

Particle characteristics

Information not available.

9.2 Other information

9.2.1 Information with regard to physical hazards

Information not available.

9.2.2 Other safety characteristics

Danger of explosion	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.

BORIC ACID

Decomposes above 100 °C (212 °F)

10.2 Chemical stability

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

BORIC ACID

The product is stable to normal environment temperatures (from -40 to +40 ° C). If heated, the product loses water forming first metaboric acid (HBO2) and transforming itself into boric anhydride to a subsequent heating (B2O3).

10.3 Possibility of hazardous reactions

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

BORIC ACID

Risk of explosion on contact with: acetic anhydride
Boric acid is a weak acid capable of corroding common metals. The reaction with strong reducing agents, such as metal hydruri or alkaline metals, generates gaseous hydrogen that could cause an explosion danger.

Mercury iodide

Reacts with: halogenated compounds, alkaline metals

10.4 Conditions to avoid

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

SODIUM HYDROXIDE

Avoid exposure to: air, moisture, sources of heat

Mercury iodide

Decomposes if exposed to: high temperatures
Avoid exposure to: light

10.5 Incompatible materials

SODIUM HYDROXIDE

Incompatible with: strong acids, ammonia, zinc, lead, aluminium, water, flammable liquids

Mercury iodide

Incompatible with: strong acids, strong bases

10.6 Hazardous decomposition products

BORIC ACID

May develop: boric anhydride, metaboric acid

POTASSIUM IODIDE

Decompone for heating, developing sulfur and sodium oxides.

Mercury iodide

fumes, carbon oxides, mercury vapours

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

11.1.1 Metabolism, toxicokinetics, mechanism of action and other information

BORIC ACID

In the blood, boric acid is the main present species and is not further metabolized. Boric acid spreads quickly and uniformly throughout the body, with concentrations in the bones from 2 to 3 times higher than those in other fabrics. Boric acid is quickly excreted, with 1 -hour elimination semivitis in the mouse, 3 hours in the rat and <27.8 hours in humans, and has a low storage potential. Boric acid is mainly excreted through urine. The absorption of oral boogers is about 100%. For the inhalation route, 100% absorption is also assumed in the scenario of the worst case. Cutaneous absorption through intact skin is very low, with a percentage dose absorbed of <0.5%.

11.1.2 Information on likely routes of exposure

BORIC ACID

Inhalation is the main way of exposure in professional and non -professional environments. The skin exposure does not always represent a problem, as the product is poorly absorbed through intact skin. The product must not be ingested.

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

BORIC ACID

Epidemiological studies on humans do not show an increase in lung diseases in occupational populations with chronic exposures to boric acid and sodium borato dust. These studies indicate that there is no effect on fertility in occupational populations with chronic exposures to the dust of Borati and in the normal population with high exposures to the borati in the environment.

11.1.4 Interactive effects

Information not available.

11.1.5 ACUTE TOXICITY

ATE (Inhalation - mists / powders) of the mixture	> 5 mg/l
ATE (Inhalation - vapours) of the mixture	> 20 mg/l
ATE (Oral) of the mixture	> 2,000 mg/kg
ATE (Dermal) of the mixture	> 2,000 mg/kg

SODIUM HYDROXIDE

LD50 (Oral):	1,350 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	1,350 mg/kg	Species/guidelines: Rat

BORIC ACID

LD50 (Oral):	2,660 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	> 2,000 mg/kg	Species/guidelines: Rabbit
LC50 (Inhalation mists/powders):	0.16 mg/l	Exposure duration: 4 hours Species/guidelines: Rat

Method: acute oral toxicity essay - Guideline 401 of the OECD
Species: rat
Dose: from 2000 to 5000 mg/kg of body weight exposure routes: oral
Results: low acute oral toxicity. The oral LD50 value in male rats is 3,450 mg/kg of body weight, while in female rats it is 4,080 mg/kg of body weight. Based on the available data, the classification criteria are not satisfied.
Method: acute dermal toxicity essay - Epa -Fifra guidelines United States
Species: rabbit
Dose: 2,000 mg/kg of body weight exposure routes: Dermica
Results: low acute dermal toxicity; LD50 in rabbits is> 2,000 mg/kg of body weight. Poorly absorbed in case of intact skin. Based on the available data, the classification criteria are not satisfied
Method: acute inhaled toxicity essay -
Guideline 403 of the OECD
Species: rat
Dose: 2.12 mg/l
Exhibition routes: inhalation
Results: Low acute inhalation toxicity; LC50 In the rats is> 2.0 mg/l (or g/m3). Based on the available data, the classification criteria are not satisfied.

POTASSIUM IODIDE

LD50 (Oral):	3,118 mg/kg	Species/guidelines: Ratto

Mercury iodide

LD50 (Oral):	18 mg/kg	Species/guidelines: topo
LD50 (Dermal):	75 mg/kg	Species/guidelines: coniglio
LC50 (Inhalation vapours):	1 mg/l	Exposure duration: 4 hours Species/guidelines: Ratto
LC50 (Inhalation mists/powders):	1 mg/l	Exposure duration: 4 hours Species/guidelines: Rat
ATE (Dermal)	5 mg/kg	estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)
ATE (Inhalation - mists / powders)	0.05 mg/l	estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)

11.1.6 SKIN CORROSION/IRRITATION

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: Essay of primary dermal irritation - Epa Fifra (40 Cfr 163)
Species: New Zealand's white rabbit
Dose: 0.5 g humidified with physiological solution exposure routes: Dermica
Results: no skin irritation. Average primary irritation score: 0.1. Based on the available data, the classification criteria are not satisfied.

11.1.7 SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: study on eye irritations - similar to the OECD 405 guideline
Species: New Zealand's white rabbit
Dose: 0.1 g
Exhibition routes: eyepiece
Results: non -irritating, corneal interest or irritation resolved in 7 days.
Classification: Based on average scores <1 and with completely reversible effects in 7 days, classification criteria are not satisfied.
Numerous years of professional exposure do not indicate negative effects for the human eye.

11.1.8 RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: Buehler test - Guidelines 406 of the OECD Species: Pomm of India
Dose: 0.4 g 95% W/W/Borico Acid Exposure routes: Dermica
Results: it is not a sensitivity of the skin. Studies on the raising awareness of the respiratory tract have been conducted. There are no data that suggest that boric acid is a sensitivity of the respiratory tract. Based on the available data, the classification criteria are not satisfied.

11.1.9 GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: numerous studies on the in vitro mutagenicity of boric acid have been conducted including the gene mutation of mammal cells, the synthesis of unscheduled DNA, the chromosomal aberration and the exchange of chromatid brothers in the mammals cells.
Species: L5178Y mouse lymphoma, Chinese hamster cells V79, C3h/10T1/2 cells, hepatocytes, Chinese hamster ovary (CLE cells).
Dose: from 1.0 to 10.0 mg/ml (from 1,000 to 10,000 ppm) of boric acid
Exposure routes: in vitro
Results: not mutagen. Based on the available data, the classification criteria are not satisfied.

11.1.10 CARCINOGENICITY

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: OECD 451 Equivalent
Species: B6c3f1 mice
Dose: 446; 1,150 mg of boric acid/kg body weight/day exposure routes: study on oral nutrition
Results: no evidence of carcinogenicity. Based on the available data, the classification criteria are not satisfied.

11.1.11 REPRODUCTIVE TOXICITY

May damage fertility.

BORIC ACID

Method: Food study on three generations - similar to studying on two generations 416 of the OECD
Species: rat
Dose: 0; 34 (5.9); 100 (17.5) and 336 (58.5) MG of Borico Acid (MG B)/Kg BW/Day Exposure routes: study on oral nutrition
Results: the dose without adverse effects observed (Noael) in the rats in terms of effects on the fertility of the males is 100 mg of boric/kg of body weight, equivalent to 17.5 mg b/kg of body weight.
Method: Essay on boric acid toxicity on prenatal development - Guideline 414 of the OECD
Species: rat
Dose: 0; 19 (3,3); 36 (6.3); 55 (9.6); 76 (13.3) and 143 (25) MG of Borico Acid (MG B)/kg of body weight. Exhibition routes: study on oral nutrition
Results: the dose without adverse effects observed (Noael) in the rats in terms of effects on the development of the fetus including fetal weight loss and the minimum skeletal variations is 55 mg of boric/kg of body weight or 9.6 mg b /Kg.
Classification: Toxicity for reproduction, category 1b (danger indication: H360fd: it can harm fertility. It can harm the fetus.)
Method: employment studies for the assessment of parameters sensitive to sperm in workers strongly exposed to borains. Epidemiological studies were conducted that have evaluated environmental exposures to the Boro and the effects on the development of individuals.
Species: human
Dose: a subset of workers was exposed to 125 mg b/day exposure routes: oral ingestion and combined inhalation
Results: no negative effect on male workers fertility. The epidemiological studies of the effects on man's development have demonstrated an absence of effects in workers exposed to borains and populations living in areas characterized by high environmental levels of Boro.

11.1.12 STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: Standard test method for the estimate of the sensory irritation of aerodisperse chemicals - ASTM E981-04 (2004)
Species: mouse
Dose: from 221 to 1096 mg of boric acid/m3 exposure routes: inhalation
Results: the highest concentration of boric acid reached with acceptable control of the aerosol concentration was 1096 mg/m3 with an RD % of 19 %. The minimum exposure of 221 mg/m3 of Borico acid has led to a respiratory rhythm reduced by 9%, assessed as non -irritating.
Based on the available data, the classification criteria are not satisfied.
Method: sensory irritation in voluntary subjects especially: human
Dose: 2.5, 5 or 10 mg of boric acid/m3 exposure routes: inhalation
Results: Irritations are not observed against Borico Acid for exposures up to 10 mg/m3 among the male and female volunteer subjects in controlled laboratory conditions.

11.1.13 STOT - REPEATED EXPOSURE

May cause damage to organs through prolonged or repeated exposure.

BORIC ACID

Method: Essay on chronic toxicity of boric acid - similar to the guideline 452 of the OECD species: rat
Dose: 0; 33 (5.9); 100 (17.5); 334 (58.5) mg of boric acid (B)/kg body weight/day (nominal in the diet)
Exposure routes: oral (power supply)
Results: a dose Noael of 17.5 mg B/kg body weight/day equivalent to 100 mg of boric/kg body weight/day was established in a study on chronic diet (2 years) in the rats and is based on the tested effects. Other effects (kidneys, hematopoietic system) are considered exclusively to even superior dosage levels. Based on the available data, the classification criteria are not satisfied.

11.1.14 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

BORIC ACID

EC10 for Algae / Aquatic Plants	24 mg/l	Exposure duration: 96 hours Species/guidelines: Alga verde, Scenedesmus subspicatus
LC50 - for Fish	74 mg/l	Exposure duration: 96 hours Species/guidelines: Limanda - acqua di mare
Chronic NOEC for Crustacea	6 mg/l	Species/guidelines: 21 giorni

LC50 - Pisces 5600 mg/l/96h Gambusia Affinis
EC50 - Crustaceans 658 mg/l/48h Daphnia Magna
EC10/30min: 1580 mg/l/30min (b) (pseudomonas putida)
IC10/96h: 24 mg/l/96h (alche) (Desmodesmus subspypotus)

POTASSIUM IODIDE

EC50 - for Crustacea	7.5 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	> 3,780 mg/l	Exposure duration: 96 hours Species/guidelines: Oncorhynchus mykiss

12.2 Persistence and degradability

SODIUM HYDROXIDE

Solubility in water	> 10,000 mg/l	
Degradability	Unavailable	

BORIC ACID

Solubility in water	> 10,000 mg/l	
Degradability	Unavailable	

Biodegradation is not an applicable endpoint as the product is an inorganic substance.

POTASSIUM IODIDE

Solubility in water	> 10,000 mg/l	
Degradability	Rapidly degradable	

Mercury iodide

Degradability	NOT rapidly degradable	

May cause long-term adverse effects in the environment

12.3 Bioaccumulative potential

BORIC ACID

Bioconcentration factor	0.7
Partition coefficient n-octanol/water	-1.09 LogKow

The product undergoes hydrolysis in water with the formation of non -dissociated boric acid. Boric acid does not undergo biomagnification through the food chain. Eighty -free division coefficient/water: log power = - 0.7570 to 25 ° C (based on boric acid). BCF> 100

POTASSIUM IODIDE

Bioconcentration factor	2.268
Partition coefficient n-octanol/water	-0.958 LogKow

Mercury iodide

Bioconcentration factor	> 100

12.4 Mobility in soil

BORIC ACID

The product is soluble in water and can be released in normal soils. Adsorption in the land or sediments is irrelevant.

12.5 Results of PBT and vPvB assessment

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

12.6 Endocrine disrupting properties

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

12.7 Other adverse effects

Information not available.

Section 13 Disposal considerations

13.1 Waste treatment methods

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

Hazardous waste classification - Reg. (UE) 1357/2014
HP 10 – Toxic for reproduction

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

Not applicable

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		
	Restrictions	Registration Number EU
Product restrictions	3	
Contained substance		
	75	
BORIC ACID	30	01-2119486683-25

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

Substances in Candidate List (Art. 59 REACH)	Registration Number EU
BORIC ACID	01-2119486683-25

Substances subject to authorisation (Annex XIV REACH)	Authorisation Number	Sunset date	Registration Number EU
None			

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
Mercury iodide

Substances subject to the Rotterdam Convention:
Mercury iodide

Substances subject to the Stockholm Convention:
None

Regulation (EU) 2019/1021 - on persistent organic pollutants
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)
None

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:	
Acute Tox. 1	Acute toxicity, category 1
Acute Tox. 2	Acute toxicity, category 2
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Repr. 1B	Reproductive toxicity, category 1B
Skin Corr. 1A	Skin corrosion, category 1A
Skin Corr. 1B	Skin corrosion, category 1B
Skin Irrit. 2	Skin irritation, category 2
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H360FD	May damage fertility. May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic 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
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EC50: Effective concentration (required to induce a 50% effect)
- EC: Identifier in ESIS (European archive of existing substances)
- 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%

Legend

- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

General Bibliography

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I ATP CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II ATP CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III ATP CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV ATP CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V ATP CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI ATP CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII ATP CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII ATP CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX ATP CLP)
13. Regulation (EU) 2017/776 (X ATP CLP)
14. Regulation (EU) 2018/669 (XI ATP CLP)
15. Regulation (EU) 2019/521 (XII ATP CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII ATP CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (EU) 2020/217 (XIV ATP CLP)
19. Delegated Regulation (EU) 2020/1182 (XV ATP CLP)
20. Delegated Regulation (EU) 2021/643 (XVI ATP CLP)
21. Delegated Regulation (EU) 2021/849 (XVII ATP CLP)
22. Delegated Regulation (EU) 2022/692 (XVIII ATP CLP)
23. Delegated Regulation (EU) 2023/707
24. Delegated Regulation (EU) 2023/1434 (XIX ATP CLP)
25. Delegated Regulation (EU) 2023/1435 (XX ATP CLP)
26. Delegated Regulation (EU) 2024/197 (XXI ATP CLP)
27. Delegated Regulation (EU) 2024/2564 (XXII ATP CLP)
28. Regulation (EU) 2024/2865
29. Delegated Regulation (EU) 2025/1222 (XXIII 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

Section 16

Note for users

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

Calculation methods for classification

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

Changes from the previous revision

This SDS has been prepared with a different software from the one previous revision. The new calculation does not allow us to identify all the differences compared to the previous version. We therefore recommend carefully reviewing all 16 sections of the SDS. We remain available to provide any clarification regarding the content or the changes made compared to the previous version, which is available to professional or industrial users.