

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: MK-710W
Product name: CLEANAC-710

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

Intended use: Reagent for hematology analyzers.
For professional uses.
Uses advised against: Uses other than those indicated above

1.3. Details of the supplier of the safety data sheet

Name: NIHON KOHDEN FIRENZE S.r.l.
Full address: Via Torta, 72/74
District and Country: Osmannoro Sesto Fiorentino (FI)
ITALY

Tel. +39. 055.30.45.1

Fax. +39. 055.30.85.48

e-mail address of the competent person
responsible for the Safety Data Sheet

e-mail: info.MSDS@nkf.it

1.4. Emergency telephone number.

For urgent inquiries refer to

Malta 112
United Kingdom NHS 111
Ireland Members of Public: +353 (01) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)
NIHON KOHDEN FIRENZE S.r.l. Tel. +39 055 / 30.45.1 (technical support - office hours)

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.
EUH208 Contains: 2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated
May produce an allergic reaction.

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Precautionary statements:

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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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BORIC ACID

CAS 10043-35-3

$0,1 \leq x < 0,2$

Repr. 1B H360FD

EC 233-139-2

INDEX 005-007-00-2

REACH Reg. 01-2119486683-25

2,4,7,9-TETRAMETHYL-5-DECYNE-4,7-DIOL, ETHOXYLATED

CAS 9014-85-1

$0,1 \leq x < 0,2$

Eye Dam. 1 H318, Skin Sens. 1B H317, Aquatic Chronic 3 H412

EC 500-022-5

INDEX -

REACH Reg. -

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 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

PROTECTIVE MEASURES FOR THE FIRST RESCUE WORKERS: for PPE (personal protection equipment) required for first aid refer to section 8.2 of this safety data sheet.

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

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

Effects caused by the substance boric acid:

Main acute toxic effects

Slightly irritating to eyes and skin

gastrointestinal disturbances, CNS effects and (subsequent) skin damage after massive poisoning

Main toxic effects delayed:

Irritation of the mucous membranes following exposure by inhalation; effects on the gastrointestinal tract and the CNS

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

Treat symptomatically.

In case of accident or unwellness, immediately consult a doctor (if possible show the instructions for use or the safety data sheet).

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

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Do not touch or walk through spilled material. Wear appropriate respirator when ventilation is inadequate.

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. Do not breathe /mist/vapour/aerosol. Avoid leakage of the product into the environment.

Non-emergency personnel must follow the appropriate internal procedures in case of accidental release.

For emergency responders

Block the leakage if there is no hazard. Evacuate unprotected and untrained personnel from hazard area. Wear suitable protective equipment. (see Section 8 of this Safety data sheet)

Follow the appropriate internal procedures in case of accidental release.

Keep fumes and vapours under control. Isolate hazard area and deny entry. Ventilate closed spaces before entering. Send away individuals who are not suitably equipped.

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.

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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.
Avoid temperatures below -5 ° C and above 40 ° C.

7.3. Specific end use(s)

No use other than as indicated in section 1.2 of this safety data sheet

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

TLV-ACGIH

ACGIH 2021

BORIC ACID

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
TLV-ACGIH		2		6		INHAL	(Borati comp inorganici)
Predicted no-effect concentration - PNEC							
Normal value in fresh water				2,9		mg/l	
Normal value in marine water				2,9		mg/l	
Normal value of STP microorganisms				10		mg/l	
Normal value for the terrestrial compartment				5,7		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
Inhalation								8,3 mg/m3
Skin								392 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.

This product contains ingredients with exposure limits, monitoring of staff, so the atmosphere in the work and biological environment may be required to assess the effectiveness of ventilation or other control measures and/or the need to use respiratory equipment. Refer to monitoring standards, such as the following: European Norm EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy), European Norm EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.) European Norm EN 482 (Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents).

It is also necessary to refer to national guidance documents on the methods for the identification of hazardous substances.

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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).

Recommended materials:

Nitrile rubber / butadiene (nitrile or NBR), Neoprene, Polyvinyl chloride (PVC or vinyl) natural rubber.

Protection class: 6 (permeation time greater than 480 minutes according to EN 374).

Recommended material thickness: when identifying the thickness of the material, it is highly recommended to compare it with the PPE manufacturer to assess the effective protection regarding the peculiar characteristics of the same.

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

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
Appearance	Liquid
Colour	blue
Odour	Not available
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	> 60 °C
Auto-ignition temperature	Not available

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Decomposition temperature	Not available
pH	8,4 -8,6
Kinematic viscosity	Not available
Solubility	Not available
Partition coefficient: n-octanol/water	Not available
Vapour pressure	Not available
Density and/or relative density	Not available
Relative vapour density	Not available
Particle characteristics	Not applicable based on physical state

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

Information not available.

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.

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.

10.5. Incompatible materials

BORIC ACID
Potassium, acid anhydrides

10.6. Hazardous decomposition products

BORIC ACID
boric anhydride, metaboric acid.

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

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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 1272/2008ACUTE 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)

BORIC ACID

LD50 (Oral):	> 2660 mg/kg Rat (OECD TG 401)
LD50 (Dermal):	> 2000 mg/kg Rabbit (FIFRA (40 CFR 163))
LC50 (Inhalation mists/powders):	> 2,03 mg/l/4h Rat (OECD TG 403)

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

LD50 (Oral):	> 500 mg/kg Rat (read-across study, publication ECHA dissemination site)
LD50 (Dermal):	> 2000 mg/kg Rat (OECD TG 402)

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: EPA FIFRA (40 CFR 163)
Species: rabbit (New Zealand)
Routes of exposure: dermal
Results: non-irritating

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

Not irritating to rabbit skin (Hazardous Substances and Articles, Section 1500.4, source: ECHA website).

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: OECD 405
Species: rabbit (New Zealand)
Routes of exposure: ocular
Results: non-irritating

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

Irritant, in vivo study in rabbit (Hazardous Substances and Articles, Section 1500.42, source: ECHA website).

RESPIRATORY OR SKIN SENSITISATION

May produce an allergic reaction.

Contains:

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

Skin sensitization

BORIC ACID

Method: OECD 406
Species: guinea pig
Dose: 0.4 g 95% w / w / Boric acid
Routes of exposure: dermal
Results: it is not sensitizing

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2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated
Skin sensitizer, in vivo test on mice (OECD TG 429).

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: equivalent or similar to OECD 471

Reliability (Klimisch score): 1

In vitro test

Results: negative.

Method: equivalent or similar to OECD 474

Reliability (Klimisch score): 1

Species: Swiss Webster mouse

Routes of exposure: oral

Results: negative.

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

Not mutagenic, in vitro study on bacterial cells OECD Guideline 471 (Bacterial Reverse Mutation Assay).

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: equivalent or similar to OECD 451

Species: B6C3F1 mice

Routes of exposure: oral

Results: Negative

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

No adverse effects at a dose of 1 000 mg / kg bw / day (nominal NOAEL). In vivo rat study, no guidelines followed, not in GLP (source: ECHA dissemination site).

Adverse effects on sexual function and fertility**BORIC ACID**

Method: OECD 416

Species: rat

Routes of exposure: oral

Results: The no observed adverse effect dose (NOAEL) in rats in terms of effects on male fertility is 100 mg Boric acid / kg body weight, equivalent to 17.5 mg B / kg body weight.

Adverse effects on development of the offspring**BORIC ACID**

Method: OECD 414

Species: rat

Routes of exposure: oral

Results: The no observed adverse effect dose (NOAEL) in rats in terms of effects on fetal development including fetal weight loss and minimal skeletal changes is 55 mg Boric acid / kg body weight or 9.6 mg B / kg.

Classification: Reproductive toxicity, category 1B (Hazard statement: H360FD: May damage fertility. May damage the unborn child.).

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: volunteers

Species: man

Dose: 2.5, 5 or 10 mg of Boric acid / m3

Routes of exposure: Inhalation

Results: No irritation of Boric acid was observed for exposures up to 10 mg / m3 among male and female volunteers under controlled laboratory conditions.

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2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

No adverse effects occurred. In vivo rat study, no guidelines followed, not in GLP (source: ECHA dissemination site).

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

BORIC ACID

Method: OECD 452

Species: rat

Routes of exposure: oral (nutrition)

Results: A NOAEL dose of 17.5 mg B / kg bw / day equivalent to 100 mg Boric acid / kg bw / day was established in a chronic (2-year) feeding study in rats and is based on the effects tested. Other effects (kidney, hematopoietic system) are only considered at even higher dosage levels. Based on available data, the classification criteria are not met.

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

NOAEL: 200 mg / kg bw / day (nominal). In vivo study performed on Beagle. (Pre-GLP study, no guidelines followed. Source: ECHA dissemination finger).

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**

LC50 - Fish. 2,9 mg/l/96h *Micropterus salmoides* (Dyer (2001) Chemosphere 44: 369-376)

EC50 - Crustacea. 5,7 mg/l/48h *Phragmites australis* (Gersich e Milazzo (1990) Arch. Environ. Contam. Toxicol. 19: 72-76)

EC50 - Algae / Aquatic Plants. 10 mg/l/72h *Chlorella pyrenoidosa* (Fernandez et al. (1984) Phytol. (Buenos Aires) 44: 125-133).

2,4,7,9-TETRAMETHYL-5-DECYNE-4,7-DIOL, ETHOXYLATED

LC50 - for Fish 52,5 mg/l/96h *Scophtalmus maximus* (OECD Guideline 203)

EC50 - for Crustacea 166 mg/l/48h *Acartia tonsa* (ISO/CD 14669 "Determination of Acute Lethal Toxicity to Marine Copepods")

EC50 - for Algae / Aquatic Plants 15 mg/l/72h *Pseudokirchnerella subcapitata* (OECD Guideline 201)

EC10 for Algae / Aquatic Plants 1,8 mg/l/72h *Pseudokirchnerella subcapitata* (OECD Guideline 201)

Chronic NOEC for Fish 30 mg/l/96h *Scophtalmus maximus* (OECD Guideline 203)

Chronic NOEC for Algae / Aquatic Plants 4,6 mg/l/48h *Pseudokirchnerella subcapitata* (OECD Guideline 201)

12.2. Persistence and degradability**BORIC ACID**

Not applicable for inorganic substances.

2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated

NOT rapidly degradable: 1% - 28 d (ISO/TC147, SC5/WG4 N141: "BOD Test for Insoluble Substances)

Solubility in water: 2890 mg/L - 25°C (EU Method A.6).

12.3. Bioaccumulative potential

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Information not available

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**

The hazards of the wastes containing this product shall be evaluated according to applicable regulations. (Directive 2008/98/EC and subsequent amendments and supplements).

Disposal must be performed by an authorised waste management enterprise in compliance with national and local regulations.

The legal responsible for disposal is the producer / holder of the waste.

Different EWC codes could be applied to this mixture according to the European Waste Catalogue based on the specific circumstances that generated the waste, possible alterations and / or possible contamination.

The product as such, contained in the original packaging, or poured into in an appropriate recipient for disposal, or contained in a damaged packaging after an accidental leakage, shall be classified with a EWC code that is matching the description of the use shown at section 1.2.

The suitable final destination of the waste shall be evaluated by the producer on the basis of the chemical-physical characteristics of the waste, the compatibility with the authorized facility to which it will be provided for recovery, and the definitive treatment or disposal according to the procedures established by regulations in force.

Disposal through wastewater discharge is not permitted.

CONTAMINATED PACKAGING

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

15 01 01 : paper and cardboard packaging

15 01 02 : plastic packaging

15 01 03 : wooden packaging

15 01 04 : metallic packaging

15 01 05 : composite packaging

15 01 06 : mixed packaging

15 01 07 : glass packaging

15 01 09 : textile packaging

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

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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 1907/2006Contained substance

Point	75	
Point	30	BORIC ACID

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

Not applicable

Substances in Candidate List (Art. 59 REACH)

BORIC ACID

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

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Substances subject to the Stockholm Convention:

None

Healthcare controls

Information not available

15.2. Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances

BORIC ACID

SECTION 16. Other information

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

Repr. 1B	Reproductive toxicity, category 1B
Eye Dam. 1	Serious eye damage, category 1
Skin Sens. 1B	Skin sensitization, category 1B
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H360FD	May damage fertility. May damage the unborn child.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long lasting effects.
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
- 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

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- 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)
- 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 the recipient of the Safety Data Sheet (SDS):

The recipient of this SDS shall make sure of reading and understanding the information included by all people who handle, store, use, or otherwise come into contact in any way with the substance or mixture to which this SDS is referred to. In particular, the recipient shall provide adequate training to the personnel for the use of hazardous substances and/or mixtures. The recipient shall verify the suitability and completeness of the provided information according to the specific use of the substance or mixture. However, the substance or mixture referred to by this SDS shall not be used for uses other than those specified in Section 1. The Supplier don't assume responsibility for improper uses. Since the use of the product does not fall under the direct control of the Supplier, the user shall, under his own responsibility, fulfill national and EU regulations concerning health and safety.

The information included in this SDS are provided in good faith and are based on the current state of scientific and technical knowledge, at the revision date indicated, available to the Supplier indicated in Section 1 of this SDS. It shall not be meant that the SDS is a guarantee of any specific property of the substance or mixture. The information concern only to the substance or mixture specifically designated in Section 1 and it could not be valid for the substance or mixture used in combination with other materials or in any process not specified in the text.

This version of the SDS substitutes all the previous versions.

Changes to previous review:

The following sections were modified:

01/ 02 / 03 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 15 / 16.