MATERIAL SAFETY DATA SHEET

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

Product: **NUANCE**

SECTION 1. Identification of the substance or mixture and of the Company / Undertaking

1.1. Product identifier:

denomination	**NUANCE**
UFI	**D520-K0T6-200K-6143**

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

Description / Use	**Color activator for ornamental saltwater aquariums.**

Identifying Uses	Industrial	Professional	Consumption
Industrial use	-	✔	✔

1.3. Information on the supplier of the safety data sheet

Business name	E'QUO S.R.L.
Street address	Via Emilio Boni, nr. 19
Zip code, city and state	59100 – Prato (PO) – ITALIA
Phone	+39 0574 819 170
e-mail of the competent person, responsible for the safety data sheet	mauro.c@equoitaly.com

1.4. Emergency telephone number

For urgent information contact

Florence Poison Control Center: Tel. 0557947819 (CAV Careggi Hospital
Pavia Poison Control Center: Tel. 038224444 (CAV IRCCS Maugeri-Pavia Foundation).
Tel. 063054343 (CAV Policlinico Gemelli-Rome).
0649978000 (CAV Policlinico Umberto I-Rome).
Rome Poison Control Center: Tel. 0668593726 (CAVp. Ospedale Pediatrico Bambino Gesù).
Naples Poison Control Center: Tel. 0817472870 (CAV Cardarelli Hospital-Naples.
Bergamo Poison Control Center: Tel. 800883300 (CAV Papa Giovanni XXII Hospital).
Foggia Poison Control Center: Tel: 0881-732326 (CAV Foggia University Hospital).
Milan Poison Control Center: Tel. 0266101029 (CAV Niguarda Ca`Granda-Milan Hospital).
Medical Service provided 24 hours a day

Technical support:
EQUO SRL, phone: +39 0574 819 170 (available from 08: 00-12: 00/14: 00-18: 00 from Monday to Friday)

SECTION 2. Hazards identification

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Product: **NUANCE**

2.1. Substance or mixture classification

The product is classified as dangerous pursuant to the provisions of Regulation (CE) 1272/2008 (CLP) (and subsequent amendments and adjustments). The product therefore requires a safety data sheet compliant with the provisions of Regulation (EU) 2020/878.
Any additional information regarding risks to health and / or the environment are given in sections. 11 and 12 of this sheet.

Hazard classification and indications:

Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful to aquatic life with long lasting effects.

2.2. Label elements

Danger labeling pursuant to Regulation (EC) 1272/2008 (CLP) and subsequent amendments and adjustments.

Hazard pictograms: -

Warnings: -

Hazard statements:

H412	Harmful to aquatic life with long lasting effects.
EUH208	Contains: Nickel (II) chloride hexahydrate May cause an allergic reaction.

precautionary statements:

P501	Dispose of contents / container in accordance with regional / national regulation.
P273	Do not disperse in the environment.

2.3. Other dangers

Based on available data, the product does not contain PBT or vPvB substances in percentage ≥ 0.1%.
The product does not contain substances having properties of interference with the endocrine system in concentration ≥ 0.1%.

SECTION 3. Composition / information on ingredients

3.2. Mixture

Contains:

Identification	**x = Conc. %**	**Classification 1272/2008 (CLP)**

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Product: **NUANCE**

Copper Sulphate Pentahydrate INDEX 029-023-00-4 EC 231-847-6 CAS 7758-99-8 Reg. REACH 01-2119520566-40-xxxx	0,6 ≤ x < 0,7	Acute Tox. 4 H302, Eye Dam. 1 H318, Aquatic Acute 1 H400 M=10, Aquatic Chronic 1 H410 M=1 Repr. 1B H360FD: ≥ 8,5% LD50 Orale: 300 mg/kg
Disodium Tetraborate Decahydrate; Borax Decahydrate INDEX 005-011-01-1 EC 215-540-4 CAS 1303-96-4 Reg. REACH 01-2119490790-32-XXXX	0,1 ≤ x < 0,2	Repr. 1B H360FD, Eye Irrit. 2 H319 Repr. 1B H360FD: ≥ 8,5%
Hydrochloric acid INDEX 017-002-01-X EC 231-595-7 CAS 7647-01-0 Reg. REACH 01-2119484862-27-XXXX	0 ≤ x < 0,1	Met. Corr. 1 H290, Skin Corr. 1B H314, Eye Dam. 1 H318, STOT SE 3 H335, Nota di classificazione secondo l'allegato VI del Regolamento CLP: B Skin Corr. 1B H314: ≥ 25%, Skin Irrit. 2 H315: ≥ 10%, Eye Dam. 1 H318: ≥ 25%, Eye Irrit. 2 H319: ≥ 10%, STOT SE 3 H335: ≥ 10%
Nickel (II) Chloride Hexahydrate INDEX - CE 616-576-7 CAS 7791-20-0 EC 616-576-7 CAS 7791-20-0	0 ≤ x < 0,01	Carc. 1A H350i, Muta. 2 H341, Repr. 1B H360D, Acute Tox. 3 H301, Acute Tox. 3 H331, STOT RE 1 H372, Skin Irrit. 2 H315, Resp. Sens. 1 H334, Skin Sens. 1 H317, Aquatic Acute 1 H400 M=1, Aquatic Chronic 1 H410 M=1 Skin Irrit. 2 H315: ≥ 20%, Skin Sens. 1 H317: ≥ 0,01%, STOT RE 1 H372: ≥ 1%, STOT RE 2 H373: ≥ 0,1% LD50 Orale: 175 mg/kg, LC50 Inalazione nebbie/polveri: 0,593 mg/kg

The full wording of the hazard statements (H) 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 any, if the situation allows for easy operation. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids well.
SKIN: Take off contaminated clothing. Wash immediately and abundantly with running water (and soap if possible). Contact a poison control center or doctor immediately. Avoid further contact with contaminated clothing.
INHALATION: Take the person to the open air, away from the place of the accident. Consult a physician immediately.
INGESTION: Immediately call a poison control center or physician.

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Nickel (II) chloride hexahydrate
If swallowed: make drink water (max. 2 glasses). Consult a physician immediately.
Only in exceptional cases, if the doctor is not available within an hour, induce vomiting (only in people who are totally awake and fully conscious), administer activated carbon (20-40 g in 10% slurry) and consult a doctor as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed
No specific information on symptoms and effects caused by the product is known.

4.3. Indication of any need to immediately consult a doctor and special treatments
Information not available

SECTION 5. Fire fighting measures

5.1. Fire fighting
The extinguishing media are the traditional ones: carbon dioxide, foam, powder and nebulized water.
UNSUITABLE EXTINGUISHING MEDIA
No one in particular.

5.2. Special hazards arising from the substance or mixture
HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Avoid breathing combustion products.

Nickel (II) chloride hexahydrate
Hydrochloric acid gas
nickel/ nickel oxides
Not combustible. In case of fire, it can release dangerous vapours.

5.3. Recommendations for firefighters
GENERAL INFORMATIONS
Cool the containers with jets of water to avoid product decomposition and the development of substances potentially hazardous to health. Always wear full fire protection equipment. Collect the extinguishing water which must not be discharged into the sewers. Dispose of the contaminated water used for extinguishing and the residue of the fire according to current regulations.
EQUIPMENT
Normal clothing for firefighting, such as an open circuit compressed air breathing apparatus (EN 137), flame retardant suit (EN469), flame retardant gloves (EN 659) and fire brigade boots (HO A29 or A30).

SECTION 6. Measures in case of accidental release

6.1. Personal precautions, protective equipment and emergency procedures
Stop the leak if there is no danger.
Wear suitable protective equipment (including personal protective equipment referred to in section 8 of the safety data sheet) to prevent contamination of skin, eyes and personal clothing. These indications are valid both for the workers and for emergency interventions.

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Product: **NUANCE**

Nickel (II) Chloride Hexahydrate
Advice for non-emergency personnel. Under all circumstances, avoid the formation and inhalation of dust. Avoid contact with the substance. Provide adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

6.2. Environmental precautions
Prevent the product from entering sewers, surface water, groundwater.

6.3. Methods and materials for containment and cleaning up
Suck up the leaked product into a suitable container. Evaluate the compatibility of the container to be used with the product, checking section 10. Absorb the remainder with inert absorbent material.
Provide sufficient ventilation of the place affected by the leak. The disposal of contaminated material must be carried out in accordance with the provisions of point 13.

6.4. Reference to other sections
Any information regarding personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for Safe Handling
Ensure an adequate earthing system for plants and people. To avoid the danger of fire and explosion, never use compressed air for handling. Keep away from heat, sparks and open flames, do not smoke or use matches or lighters. Avoid the dispersion of the product in the environment. Avoid contact with eyes and skin. Do not inhale any dusts or vapors or mists. Do not eat, drink or smoke during use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities
Keep only in the original container. Keep the product in clearly labeled containers. Keep containers tightly closed. Store in a ventilated place, away from sources of ignition. Avoid violent shocks. Avoid overheating. Avoid contact with water.

7.3. Specific end uses
Information not available

SECTION 8. Exposure / personal protection controls

8.1. Control parameters
Normative requirements:

ITA	Italy	Legislative Decree 9 April 2008, n.81 EH40/2005 Workplace exposure limits
GBR	United Kingdom	(Fourth Edition 2020) Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398;
EU	OEL EU	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

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Product: **NUANCE**

Copper sulphate Pentahydrate								
Threshold limit value								
Type	**Status**	**TWA/8h**			**STEL/15min**		**Notes / Observations**	
		mg/m3	ppm		mg/m3	ppm		
WEL	GBR	1			2		As Cu	
Disodium Tetraborate Decahydrate; Borax Decahydrate								
Threshold limit value								
Type	**Status**	**TWA/8h**			**STEL/15min**		**Notes / Observations**	
		mg/m3	ppm		mg/m3	ppm		
WEL	GBR	5						
TLV-ACGIH		2			6			

TLV-ACGIH Predicted no-effect concentration for the environment - PNEC		
Reference value in fresh water	2,02	mg/l
Reference value in sea water	2,02	mg/l
Reference value for water, intermittent release	13,7	mg/l
Reference value for STP microorganisms	10	mg/l
Reference value for the terrestrial compartment	5,4	mg/kg dw

Health - Derived no-effect level - DNEL / DMEL								
Effects on consumers					Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		1,15 mg/kg bw/d		1,15 mg/kg bw/d				
Inhalation	17,04 mg/m3		17,04 mg/m3	4,8 mg/m3	17,04 mg/m3		17,04 mg/m3	9,8 mg/m3
Dermal				231,8 mg/kg bw/d				458,2 mg/kg bw/d

Hydrochloric acid						
Threshold limit value						
Type	**Status**	**TWA/8h**		**STEL/15min**		**Notes / Observations**
		mg/m3	ppm	mg/m3	ppm	
VLEP	ITA	8	5	15	10	
WEL	GBR	2	1	8	5	
OEL	EU	8	5	15	10	
TLV-ACGIH				2,9 (C)	2 (C)	

Legend:

(C) = CEILING; INALAB = Inhalable fraction; RESPIR = Breathable fraction; TORAC = Thoracic fraction.

VND = hazard identified but none DNEL/PNEC available; NEA = no exposure expected; NPI = no hazards identified.

8.2. Exposure controls
Considering that the use of adequate technical measures should always have priority over personal protective equipment, ensure good ventilation in the workplace through effective local exhaust.
For the choice of personal protective equipment, if necessary, seek advice from your chemical suppliers.
Individual protection devices must bear the CE marking which certifies their compliance with current regulations.

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Provide an emergency shower with face and eye basin.

HAND PROTECTION
Protect hands with category III work gloves (ref. Standard EN 374).
For the final choice of the material of the work gloves it is necessary to consider: compatibility, degradation, breakage time and permeation.
In the case of preparations, the resistance of work gloves to chemical agents must be checked before use as it is not foreseeable. Gloves have a wear time that depends on the duration and method of use.

SKIN PROTECTION
Wear category II work clothes with long sleeves and safety footwear for professional use (ref. Regulation 2016/425 and standard EN ISO 20344). Wash with soap and water after removing protective clothing.

EYE PROTECTION
It is recommended to wear airtight protective goggles (ref. Standard EN 166).

RESPIRATORY PROTECTION
In case of exceeding the threshold value (e.g. TLV-TWA) of the substance or of one or more of the substances present in the product, it is advisable to wear a mask with a type A filter whose class (1, 2 or 3) must be chosen in relation to the limit concentration of use. (ref. standard EN 14387). If there are gases or vapors of a different nature and / or gases or vapors with particles (aerosols, fumes, mists, etc.), combined filters must be provided.
The use of respiratory protection means is necessary in case the technical measures adopted are not sufficient to limit the exposure of the worker to the threshold values taken into consideration. The protection offered by the masks is however limited.
In the event that the substance in question is odorless or its olfactory threshold is higher than the relative TLV-TWA and in the event of an emergency, wear an open-circuit compressed air breathing apparatus (ref. Standard EN 137) or a self-contained breathing apparatus. outdoor air (ref. EN 138 standard). For the correct choice of the respiratory protection device, refer to the EN 529 standard.

ENVIRONMENTAL EXPOSURE CONTROLS
Emissions from manufacturing processes, including those from ventilation equipment should be controlled for compliance with environmental protection legislation.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Property	Value	Information
Physical state	Liquid	
Color	Opalescent light blue	
Smell	Characteristic	
Melting or freezing point	Unvailable	
Initial boiling point	Unvailable	
Flammability	Not inflammable	
Lower explosive limit	Unvailable	
Upper explosive limit	Unvailable	
Flash point	> 60 °C	
Self-ignition temperature	Unvailable	

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pH	5
Kinematic viscosity	Unvailable
Dynamic viscosity	Soluble in water
Solubility	Unvailable
Partition coefficient: n-octanol / water	Unvailable
Vapor pressure	17,5 mmHg
Density and / or Relative density	1000 g/Lt
Relative vapor density	Unvailable
Characteristics of the particles	Unvailable

9.2. Other information
9.2.1. Information relating to the classes of physical hazards
Information not available

9.2.2. Other security features
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.

Copper sulphate Pentahydrate
Aqueous solutions behave as: weak acids.

10.2. Chemical stability
The product is stable under normal conditions of use and storage.

Copper sulphate Pentahydrate
In case of heating loss of crystallization water.

Disodium Tetraborate Decahydrate; Borax Decahydrate
the product is stable at normal ambient temperatures (from - 40°C to + 40°C). When heated, the product loses water first forming metaboric acid (HBO2) and transforming into boric anhydride on subsequent heating (B2O3).

10.3. Possibility of hazardous reactions
In normal conditions of use and storage no dangerous reactions are foreseeable.

Copper sulphate Pentahydrate
May react dangerously with: strong oxidizing agents, magnesium powder, hydroxylamine. Reactions with peroxides and other radical formers. Decomposition of hydrogen peroxide.

Disodium Tetraborate Decahydrate; Borax Decahydrate
BORAX: risk of explosion on contact with: strong oxidizing agents, acids, humidity/water, metallic salts.

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Hydrochloric acid
Risk of explosion on contact with: alkali metals, aluminum powder, hydrogen cyanide, alcohol.

10.4. Conditions to avoid
None in particular. However, follow the usual precautions against chemicals

Disodium Tetraborate Decahydrate; Borax Decahydrate
BORAX: keep away from strong reducing agents to avoid the development of hydrogen, which is explosive.

10.5. Incompatible materials
Information not available

Copper sulphate Pentahydrate
Acetylene.

Hydrochloric acid
Incompatible with: alkalis, organic substances, strong oxidants, metals.

10.6. Hazardous decomposition products
Information not available

Copper sulphate Pentahydrate
May develop: sulfur oxides. In case of fire: sulfur oxides.

Disodium Tetraborate Decahydrate; Borax Decahydrate
Borax: boron oxides, sodium oxides.

Hydrochloric acid
On decomposition develops: fumes of hydrochloric acid.

SECTION 11. Toxicological information

In the absence of experimental toxicological data on the product itself, any health hazards of the product have been assessed on the basis of the properties of the substances contained, according to the criteria established by the reference legislation for classification.
Therefore, consider the concentration of the individual dangerous substances possibly mentioned in sect. 3, to evaluate the toxicological effects resulting from exposure to the product.

11.1. Information on the hazard classes defined in the Regulation (CE) n. 1272/2008

METABOLISM, KINETICS, MECHANISM OF ACTION AND OTHER INFORMATION

Disodium Tetraborate Decahydrate; Borax Decahydrate
Toxicokinetics
In the blood, boric acid is the major species present and is not further metabolised. Boric acid spreads rapidly and

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evenly throughout the body, with concentrations in bone 2 to 3 times higher than in other tissues. Boric acid is excreted rapidly, with elimination half-lives of 1 hour in mice, 3 hours in rats, and < 27.8 hours in humans, and has a low potential for accumulation. Boric acid is mainly excreted in the urine. Oral absorption of borates is approximately 100%. For the inhaled route, 100% absorption is also assumed in the worst case scenario. Dermal absorption through intact skin is very low, with a percent absorbed dose of < 0.5%.

INFORMATION ON LIKELY ROUTES OF EXPOSURE

Disodium Tetraborate Decahydrate; Borax Decahydrate
nhalation is the most important route of exposure in occupational and non-occupational environments. Dermal exposure is not always a problem as the product is poorly absorbed through intact skin. The product must not be ingested.

DELAYED AND IMMEDIATE EFFECTS AND CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE

Disodium Tetraborate Decahydrate; Borax Decahydrate
At high concentrations, irritation of the nose, throat and eyes may be observed. The products must not be ingested. Small doses (e.g. one teaspoon) accidentally ingested are unlikely to cause any effects. Symptoms caused by accidental overexposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. Among these it is possible to mention nausea, vomiting and diarrhea, with delayed effects of redness and skin exfoliation.

Interactive effects
Information not available

ACUTE TOXICITY

ATE (Inhalation) of the mixture:	Not classified (no relevant component)
ATE (Oral) of the mixture:	>2000 mg/kg
ATE (Dermal) of the mixture:	Not classified (no relevant component)

Copper sulphate Pentahydrate

LD50 (Dermal):	> 2000 mg/kg
LD50 (Oral):	300 mg/kg

Disodium Tetraborate Decahydrate; Borax Decahydrate

LD50 (Dermal):	> 2000 mg/kg bw Rabbit, Acute Dermal Toxicity Assay - EPA-FIFRA Guidelines United States
LD50 (Oral):	3305 mg/kg bw Rat, Acute Oral Toxicity Assay - EPA-FIFRA Guideline United States
LD50 (Inhalation of mists/dusts.):	> 2 mg/l Rat, Acute Inhalation Toxicity Assay – OECD Guideline 403

Nickel (II) Chloride Hexahydrate

LD50 (Oral):	175 mg/kg Rat , OECD Test Guideline 401 (Non-hydrated substance)
LD50 (Inhalation of mists/dusts.):	0.593 mg/l/4h, OECD Test Guideline 403 (Non-hydrated substance)

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SKIN CORROSION / SKIN IRRITATION
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: Primary Dermal Irritation Study - US EPA-FIFRA Guidelines
Species: New Zealand White Rabbit
Dose: 0.5 g moistened with physiological solution
Routes of Exposure: Dermal
Results: No skin irritation. Average primary irritation score: 0.
Based on available data, the classification criteria are not met.

SERIOUS EYE DAMAGE / EYE IRRITATION
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: Eye irritation assay - similar to OECD Guideline 405
Species: New Zealand White Rabbit
Dose: 0.08ml equivalent
Routes of exposure: eye
Results: irritating, completely reversible in 14 days.
Classification: eye irritation category 2 (hazard statement: H319:
Causes serious eye irritation). Many years of occupational exposure indicate no adverse effects to the human eye.

RESPIRATORY OR SKIN SENSITIZATION
May cause an allergic reaction.

Contains
Nickel (II) Chloride Hexahydrate

Skin sensitization

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: Buehler test - OECD Guideline 406
Species: guinea pig
Dose: 0.4g
Routes of exposure: dermal
Results: Not a skin sensitizer. Respiratory sensitization studies have not been conducted. There is no data to suggest that disodium tetraborates are respiratory skin sensitisers. Based on available data, the classification criteria are not met.

MUTAGENICITY ON GERMINAL CELLS
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate

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Method: Numerous in vitro mutagenicity studies of boric acid have been conducted, including mammalian cell gene mutation, unscheduled DNA synthesis, chromosomal aberration, and sister chromatid exchange in mammalian cells.
Species: L5178Y mouse lymphoma, V79 Chinese hamster cells, C3H/10T1/2 cells, hepatocytes, Chinese hamster ovary (CHO cells).
Dose: 1.0 to 10.0 mg/mL (1,000 to 10,000 ppm) boric acid Routes of exposure: in vitro
Results: Non-mutagenic (based on boric acid). Based on available data, the classification criteria are not met.

CARCINOGENITY
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: OECD 451 equivalent.
Species: B6C3F1 mice
Dose: 446; 1,150 mg boric acid/kg body weight/day Routes of Exposure: Oral feeding study
Results: No evidence of carcinogenicity (based on boric acid). Based on data available, the classification criteria are not met.

REPRODUCTION TOXICITY
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: Three-generation feeding study, similar to the OECD's Two-Generation Study 416 Species: rat
Dose: 0; 34 (5.9); 100 (17.5); and 336 (58.5) mg boric acid (mg B)/kg weight body/day; and 0; 50 (5.9); 155 (17.5); and 518 (58.5) mg borax (mg B)/kg body weight/day) Routes of Exposure: Oral feeding study
Results: The no observed adverse effect level (NOAEL) in rats in terms of effects on fertility in males is 100 mg boric acid/kg body weight and 155 mg sodium tetraborate decahydrate/kg body weight; equivalent to 17.5 mg B/kg del body weight.
Method: Prenatal Developmental Toxicity Assay - OECD Guideline 414 Species: rat
Dose: 0; 19 (3.3); 36 (6.3); 55 (9.6); 76 (13.3) and 143 (25) mg boric acid (mg B)/kg body weight. Routes of Exposure: Oral feeding study Results: The no observed adverse effect level (NOAEL) in rats for effects on fetal development, including fetal weight loss and minimal skeletal changes, is 55 mg boric acid/kg body weight or 9.6 mgB/kg; equivalent to 64.7 mg disodium tetraborate pentahydrate/kg body weight.
Classification: Reproductive Toxicity, Category 1B (Hazard Statement: H360FD: May damage fertility. May harm the fetus.)
Method: Occupational studies for the evaluation of sperm-sensitive parameters in workers heavily exposed to borates. Epidemiological studies have been conducted that evaluated environmental exposures to boron and the effects on the development of individuals.
Human species
Dose: A subset of workers were exposed to 125 mg B/day.
Routes of Exposure: Oral ingestion and inhalation combined.

SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: Standard Test Method for Estimating Sensory Irritation of airborne chemicals - ASTM E981-04 (2004)
Species: mouse

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Dose: 186 to 1704 mg/m3
Routes of exposure: inhalation
Results: Maximum exposure of 1704 mg/m3 resulted in a 33% decreased respiratory rate, evaluated as moderate irritation. The lowest tested exposure of 186 mg/m3 sodium tetraborate pentahydrate resulted in a decreased respiratory rate of 11%, rated as non-irritating.
Based on available data, the classification criteria are not met.
Method: sensory irritation in volunteer subjects
Human species
Dosage: 5 to 40 mg/m3
Routes of exposure: inhalation
Results: A NOAEL dose for irritation caused by sodium tetraborate pentahydrate of 10 mg/m3 between male and female volunteers under controlled laboratory conditions. At the value of 10 mg/m3 an increase in nasal secretion was observed, which occurred in the absence of other irritant effects at a concentration lower than that considered irritating by the volunteers, then no longer found in a subsequent study.

SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE
It does not meet the classification criteria for this hazard class

Disodium Tetraborate Decahydrate; Borax Decahydrate
Method: Chronic toxicity test of boric acid and disodium tetraborate decahydrate, similar to OECD Guideline 452.
Species: rat
Dose: 0; 33 (5.9); 100 (17.5); 334 (58.5) mg boric acid (B)/kg body weight per day (nominal in the diet); and 0; 52 (5.9); 155 (17.5); 516 (58.5) mg borax (B)/kg/day (nominal in diet).
Routes of Exposure: Oral feeding study Results: A NOAEL dose of 17.5 mg B/kg bw/day equivalent to 118 mg sodium tetraborate pentahydrate/kg bw/day was established in a chronic feeding assay (2 years) in rats and is based on the tested effects. Other effects (kidneys, hematopoietic system) are only considered at even higher dosage levels.
Based on available data, the classification criteria are not met.

DANGER IN CASE OF SUCTION
It 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 effects on human health under evaluation.

SECTION 12. Ecological information

Use according to good working practices, avoiding to disperse the product in the environment. Notify the competent authorities if the product has reached water courses or if it has contaminated the soil or vegetation.

12.1. Toxicity

Disodium Tetraborate Decahydrate; Borax Decahydrate
LC50 - Pisces 1085 mg/l/48h Daphnia magna

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Copper sulphate Pentahydrate

LC50 - Pisces	0,89 mg/l/96h
EC50 – Crustaceans	0,04 mg/l/48h Daphnia

Nickel (II) Chloride Hexahydrate

LC50 - Pisces	15,3 mg/l/96h Oncorhynchus Mykiss (anhydrous substance)
EC50 – Crustaceans	0.013 mg / l / 48h Ceriodaphnia Dubia (anhydrous substance)
EC50 - Algae / Aquatic Plants	0.243 mg / l / 72h Green algae, OECD Test Guideline 201 (anhydrous substance)

12.2. Persistence and degradability

Hydrochloric acid

Solubility in water	> 10000 mg/l

Degradability: data not available

Copper sulphate Pentahydrate

Solubility in water	317 g/l

NOT rapidly degradable

12.3. Bioaccumulation potential
Information not available

12.4. Mobility in soil
Information not available

12.5. Results of PBT and vPvB assessment
Based on available data, the product does not contain PBT or vPvB substances in percentage ≥ 0.1%.

12.6. Properties of interference with the endocrine system
Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with effects on the environment being assessed.

12.7. Other adverse effects
Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods
Reuse if possible. Product residues are to be considered special hazardous waste. The dangerousness of the waste that partially contains this product must be assessed on the basis of the laws in force.
Disposal must be entrusted to an authorized waste management company, in compliance with national and possibly local regulations.
The transport of waste may be subject to ADR.
CONTAMINATED PACKAGING
Contaminated packaging must be sent for recovery or disposal in compliance with national waste management regulations.

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SEZIONE 14. Transport information.

14.1. Number ONU or Number ID
Not applicable

14.2. ONU official designation for transport
Not applicable

14.3. Transport hazard classes
Not applicable

14.4. Packing group
Not applicable

14.5. Environmental hazards
Not applicable

14.6. Special precautions for users
Not applicable

14.7. Bulk shipping in accordance with IMO acts
Not relevant information

SECTION 15. Regulatory information

15.1. Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela
Seveso Category - Directive 2012/18 / EU: None

Restrictions relating to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006
Product
Point 3

Contained substances
Point 75
Point 3 ***Disodium Tetraborate Decahydrate; Borax Decahydrate***
Reg. REACH: 01-2119490790-32-XXXX

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

Substances in Candidate List (Art. 59 REACH
Disodium Tetraborate Decahydrate; Borax Decahydrate
Reg. REACH: 01-2119490790-32-XXXX

Cobalt Chloride Hexahydrate

Substances subject to authorization (Annex XIV REACH)
None

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Substances subject to export notification obligation Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Sanitary checks
Workers exposed to this chemical agent dangerous to health must be subjected to health surveillance carried out in accordance with the provisions of art. 41 of Legislative Decree 81 of 9 April 2008 unless the risk to the safety and health of the worker has been assessed as irrelevant, in accordance with the provisions of art. 224 paragraph 2.

Legislative Decree 152/2006 and subsequent amendments

Emissions according to Part V Annex I:

TAB. A1	Class II	00,03 %
TAB. B	Class III	00,66 %
TAB. C	Class III	00,07 %
Water		98,74 %

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the following contained substances:

Copper sulphate Pentahydrate
Disodium Tetraborate Decahydrate; Borax Decahydrate

SECTION 16. Other information

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

Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Carc. 1A	Carcinogenicity, category 1A
Muta. 2	Germ cell mutagenicity, category 2
Repr. 1B	Reproductive toxicity, category 1B
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
Skin Corr. 1B	Skin corrosion, category 1B
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Resp. Sens. 1	Respiratory sensitization, category 1

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Skin Sens. 1	Skin sensitization, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H290	May be corrosive to metals.
H350i	May cause cancer if inhaled.
H341	Suspected of causing genetic alterations.
H360D	It can harm the fetus.
H360FD	May damage fertility. It can harm the fetus.
H301	Toxic if ingested.
H331	Toxic if inhaled.
H302	Toxic if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H314	It causes serious skin burns and serious eye injuries.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May irritate the respiratory tract.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic organisms.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

LEGEND:
- ADR: European agreement for the transport of dangerous goods by road
- CAS: Number of the Chemical Abstract Service
- CE: Identification number in ESIS (European archive of existing substances)
- CLP: Regulation (CE) 1272/2008
- DNEL: Derived no effect level
- EC50: Concentration affecting 50% of the population under test
- EmS: Emergency Schedule
- GHS: Globally Harmonized System for Classification and Labeling of Chemicals
- IATA DGR: Regulations for the transport of dangerous goods of the International Air Transport Association
- IC50: Concentration of immobilization of 50% of the population subject to testing
- IMDG: International maritime code for the transport of dangerous goods
- IMO: International Maritime Organization
- INDEX: Identification number in Annex VI of the CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- OEL: Occupational exposure level
- PBT: Persistent, bioaccumulating and toxic according to REACH
- PEC: Predicted environmental concentration
- PEL: Predictable level of exposure

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- PNEC: Predicted No Effect Concentration
- REACH: Regulation (CE) 1907/2006
- RID: Regulations for the international transport of dangerous goods by train
- STA: Acute Toxicity Estimate
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that must not be exceeded during any moment of occupational exposure.
- TWA: Weighted average exposure limit
- TWA STEL: Short term exposure limit
- VOC: Volatile organic compound
- vPvB: Very persistent and very bioaccumulating according to REACH
- WGK: Water hazard class (Germany).

GENERAL BIBLIOGRAPHY:

1. Regulation (CE) 1907/2006 of the European Parliament (REACH)
2. Regulation (CE) 1272/2008 of the European Parliament (CLP)
3. Regulation (EU) 2020/878 (Annex II REACH Regulation)
4. Regulation (CE) 790/2009 of the European Parliament (I Atp. CLP)
5. Regulation (EU) 286/2011 of the European Parliament (II Atp. CLP)
6. Regulation (EU) 618/2012 of the European Parliament (III Atp. CLP)
7. Regulation (EU) 487/2013 of the European Parliament (IV Atp. CLP)
8. Regulation (EU) 944/2013 of the European Parliament (V Atp. CLP)
9. Regulation (EU) 605/2014 of the European Parliament (VI Atp. CLP)
10. Regulation (EU) 2015/1221 of the European Parliament (VII Atp. CLP)
11. Regulation (EU) 2016/918 of the European Parliament (VIII Atp. CLP)
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 (EU) 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)
- 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 Agency website
- Database of SDS models of chemical substances - Ministry of Health and National Institute of Health

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Note for the user:
The information contained in this sheet is based on the knowledge available to us at the date of the latest version. The user must ensure the suitability and completeness of the information in relation to the specific use of the product. This document should not be construed as a guarantee of any specific property of the product.
Since the use of the product does not fall under our direct control, the user is obliged to observe the laws and regulations in force on hygiene and safety under his own responsibility. No responsibility is assumed for improper use. Provide adequate training to personnel assigned to the use of chemical products.
METHODS OF CALCULATING THE CLASSIFICATION
Physico-chemical hazards: The classification of the product was derived from the criteria established by the CLP Regulation Annex I Part 2. The methods for assessing the physico-chemical properties are reported in section 9.
Health hazards: The classification of the product is based on the calculation methods set out in Annex I of CLP Part 3, unless otherwise indicated in section 11.
Environmental hazards: The classification of the product is based on the calculation methods set out in Annex I of CLP Part 4, unless otherwise indicated in section 12.

Changes from the previous revision
Changes have been made to the following sections:
01 / 02 / 03 / 04 / 05 / 06 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 14 / 15 / 16.