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SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by UK REACH Regulation SI 2019/758

TENACITY™ No. 125 Flux Powder

Version	:	2
Date of issue/ Date of revision	:	16/06/2023
Date of previous issue	:	14/06/2023

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name TENACITY™ No. 125 Flux Powder

Product type : Powder.

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

Specific uses : Brazing. Flux agent.

1.3 Details of the supplier of the safety data sheet

Supplier : Johnson Matthey Plc,
Gate 11, Orchard Road,
Royston,
Herts SG8 5HE
United Kingdom
+44 (0) 1763 253000

e-mail address of person responsible for this SDS : mj@matthey.com

1.4 Emergency telephone number

Telephone number : +44 (0)1763 253000

Hours of operation : 24 hours

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to UK CLP/GHS

Acute Tox. 4, H302
Acute Tox. 4, H332
Repr. 1B, H360FD

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.

SECTION 2: Hazards identification

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Harmful if swallowed or if inhaled.
May damage fertility. May damage the unborn child.

Precautionary statements

Prevention : Obtain special instructions before use. Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection. Avoid breathing dust or mist. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Response : IF exposed or concerned: Get medical advice or attention. IF INHALED: Call a POISON CENTER or doctor if you feel unwell.

Storage : Not applicable.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
boric acid	REACH #: 01-2119486683-25 EC: 233-139-2 CAS: 10043-35-3 Index: 005-007-00-2	≥50 - ≤75	Repr. 1B, H360FD	[1]
Boron potassium oxide, tetrahydrate	REACH #: 01-2119970730-37 EC: 215-575-5 CAS: 12045-78-2	≥10 - ≤25	Repr. 2, H361d	[1]
Dipotassium hexafluorosilicate	REACH #: 01-2119539421-45 EC: 240-896-2 CAS: 16871-90-2 Index: 009-012-00-0	≥10 - <15	Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331	[1] [2]
disodium tetraborate decahydrate	REACH #: 01-2119490790-32 EC: 215-540-4 CAS: 1303-96-4 Index: 005-011-01-1	<8.5	Eye Irrit. 2, H319 Repr. 1B, H360FD	[1] [2]
tetraboron manganese heptaoxide	EC: 235-446-7 CAS: 12228-91-0	≤3	Not classified. **See Section 16 for the full text of the H statements declared above.**	[2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

SECTION 4: First aid measures

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Move affected person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. In case of burns, immediately cool affected skin with cold water and continue for as long as possible or apply wet cloths to the area until medical attention can be obtained. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

SECTION 4: First aid measures

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : No specific fire or explosion hazard.

Hazardous combustion products : Decomposition products may include the following materials:
halogenated compounds
metal oxide/oxides
hydrogen fluoride

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Not explosive.
Non-flammable.

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. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

SECTION 6: Accidental release measures

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe fumes or vapours released when the product is heated. Do not ingest. Avoid breathing dust. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 7: Handling and storage

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Dipotassium hexafluorosilicate	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [Fluorides (inorganic)]** TWA: 2.5 mg/m³, (as F) 8 hours.
disodium tetraborate decahydrate	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** TWA: 5 mg/m³ 8 hours.
tetraboron manganese heptaoxide	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [manganese and its inorganic compounds inhalable fraction/respirable fraction, as Mn]** TWA: 0.2 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.05 mg/m³, (as Mn) 8 hours. Form: Respirable fraction

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
boric acid	DNEL	Long term Inhalation	8.3 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	392 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	4.15 mg/m³	General population	Systemic
	DNEL	Long term Dermal	196 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.98 mg/kg bw/day	General population	Systemic
	DNEL	Short term Oral	0.98 mg/kg bw/day	General population	Systemic
Boron potassium oxide, tetrahydrate	DNEL	Long term Inhalation	7.8 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	7.8 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	13.6 mg/m³	Workers	Local
	DNEL	Short term Inhalation	13.6 mg/m³	Workers	Local
	DNEL	Long term Dermal	367.7 mg/kg bw/day	Workers	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Long term Inhalation	3.9 mg/m³	General population	Systemic
	DNEL	Short term Inhalation	3.9 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	13.6 mg/m³	General population	Local
	DNEL	Short term Inhalation	13.6 mg/m³	General population	Local
	DNEL	Long term Dermal	185.6 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	10.2 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	10.2 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	17.8 mg/m³	Workers	Local
	DNEL	Short term Inhalation	17.8 mg/m³	Workers	Local
	DNEL	Long term Dermal	480.6 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Oral	1.2 mg/kg bw/day	General population	Systemic
	DNEL	Short term Oral	0.92 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.92 mg/kg bw/day	General population	Systemic
Dipotassium hexafluorosilicate	DNEL	Short term Inhalation	2.5 mg/m³	Workers	Local
	DNEL	Long term Inhalation	2.5 mg/m³	Workers	Local
	DNEL	Short term Inhalation	2.5 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	2.5 mg/m³	Workers	Systemic
disodium tetraborate decahydrate	DNEL	Long term Inhalation	17.04 mg/m³	Workers	Local
	DNEL	Short term Inhalation	17.04 mg/m³	Workers	Local
	DNEL	Long term Inhalation	6.7 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	316.4 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	17.04 mg/m³	General population	Local
	DNEL	Long term Inhalation	17.04 mg/m³	General population	Local
	DNEL	Long term Oral	0.79 mg/kg bw/day	General population	Systemic
	DNEL	Long term	3.4 mg/	General	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Inhalation Long term Dermal	m³ 159.5 mg/kg bw/day	population General population	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
boric acid	Fresh water	2.9 mg/l	Sensitivity Distribution
	Sewage Treatment Plant	10 mg/l	Assessment Factors
	Soil	5.7 mg/kg dwt	Sensitivity Distribution
Boron potassium oxide, tetrahydrate	Fresh water	2.02 mg/l	Sensitivity Distribution
	Sewage Treatment Plant	10 mg/l	Assessment Factors
	Soil	5.4 mg/kg dwt	Sensitivity Distribution
Dipotassium hexafluorosilicate	Fresh water	0.9 mg/l	Assessment Factors
	Sewage Treatment Plant	51 mg/l	Assessment Factors
	Soil	11 mg/kg dwt	Assessment Factors
disodium tetraborate decahydrate	Fresh water	2.9 mg/l	Sensitivity Distribution
	Sewage Treatment Plant	10 mg/l	Assessment Factors
	Soil	5.7 mg/kg dwt	Sensitivity Distribution

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Fume extraction should take place as close as possible to the source of emission.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles. Recommended: EN 166 or local equivalent. Wear eye protection with filtered lenses compliant with EN 169 (or local equivalent) when carrying out brazing work.

Skin protection

SECTION 8: Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: EN 374 or local equivalent. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: inorganic gases/vapours filter (Type B) or acid gas filter (Type E) (EN 14387 or local equivalent) and particulate filter (EN 143 or 149, Type P3 or FFP3, Associated Protection Factor (APF) = 20) or local equivalent as a minimum)

Thermal hazards : When handling hot material, wear heat-resistant protective gloves that are able to withstand the temperature of molten product (EN 407 or local equivalent).

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Solid. [Powder.]

Colour : White.

Odour : Odourless.

Odour threshold : Not applicable.

Melting point/freezing point : Not available.

Initial boiling point and boiling range : Not available.

Flammability (solid, gas) : Non-flammable.

Upper/lower flammability or explosive limits : Not applicable.

SECTION 9: Physical and chemical properties

Flash point : Not applicable.
Auto-ignition temperature : Not applicable.
Decomposition temperature : Not available.
pH : 6 to 7 [Conc. (% w/w): 10%]
Viscosity : Not applicable.
Solubility(ies) :

Media	Result
cold water	Partially soluble

Solubility in water : Not available.
Partition coefficient: n-octanol/water : Not applicable.
Vapour pressure : Not applicable.
Relative density : Not available.
Vapour density : Not applicable.
Explosive properties : Not explosive.
Oxidising properties : Not available.
Particle characteristics
Median particle size : Not available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability
The product is stable.

10.3 Possibility of hazardous reactions
Hazardous reactions or instability may occur under certain conditions of storage or use. May react with reducing agents, evolving extremely flammable hydrogen gas.

10.4 Conditions to avoid
No specific data.

10.5 Incompatible materials
reducing agents

10.6 Hazardous decomposition products
Emits acrid smoke and fumes when heated to decomposition. metal oxide/oxides. halogenated compounds. hydrogen fluoride. May react with reducing agents, evolving extremely flammable hydrogen gas.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
boric acid	LC50 Inhalation Dusts and mists	Rat - Male, Female	>2.12 mg/m³	4 hours
	LC50 Inhalation Dusts and mists	Rat - Male, Female	>2.03 mg/m³	5 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat - Male	3450 mg/kg	-
Boron potassium oxide, tetrahydrate	LC50 Inhalation Dusts and mists	Rat - Male, Female	>2.04 mg/l	4 hours
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male	3690 mg/kg	-
Dipotassium hexafluorosilicate	LD50 Oral	Mouse	70 mg/kg	-
disodium tetraborate decahydrate	LC50 Inhalation Dusts and mists	Rat - Male, Female	>2.03 mg/m³	4 hours
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male	5560 mg/kg	-

Conclusion/Summary : Harmful if swallowed. Harmful if inhaled.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
TENACITY™ No. 125 Flux Powder	714.3	2142.9	N/A	N/A	3.6
boric acid	3450	N/A	N/A	N/A	N/A
Boron potassium oxide, tetrahydrate	3690	N/A	N/A	N/A	N/A
Dipotassium hexafluorosilicate	100	300	N/A	N/A	0.5
disodium tetraborate decahydrate	5560	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
disodium tetraborate decahydrate	Eyes - Irritant	Rabbit	-	-	-

Conclusion/Summary

Skin : Not classified.

Eyes : Not classified.

Respiratory : Not classified.

Sensitisation

SECTION 11: Toxicological information

Product/ingredient name	Route of exposure	Species	Result
boric acid	skin	Guinea pig	Not sensitizing
Boron potassium oxide, tetrahydrate	skin	Guinea pig	Not sensitizing
disodium tetraborate decahydrate	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : Not classified.

Respiratory : Not classified.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
boric acid	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	NTP	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative
Boron potassium oxide, tetrahydrate	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	NTP	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative
Dipotassium hexafluorosilicate	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
disodium tetraborate decahydrate	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	-	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative

SECTION 11: Toxicological information

Conclusion/Summary : Not classified.

Carcinogenicity

Conclusion/Summary : Not classified.

Reproductive toxicity

Conclusion/Summary : May damage fertility. May damage the unborn child.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Product/ingredient name	Result
Not available.	

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Harmful if inhaled. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Emits acrid smoke and fumes when heated to decomposition.

Skin contact : Contact with hot material causes thermal skin burns.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

SECTION 11: Toxicological information

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

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

Short term exposure

Potential immediate effects : Harmful if swallowed or if inhaled. Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Potential delayed effects : May damage fertility. May damage the unborn child.

Long term exposure

Potential immediate effects : May damage fertility. May damage the unborn child.

Potential delayed effects : May damage fertility. May damage the unborn child.

Potential chronic health effects

Conclusion/Summary : Not classified.

General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : May damage fertility. May damage the unborn child.

Other information : Not available.

Other adverse symptoms : No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
boric acid	Acute EC50 52.4 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute LC50 74 mg/l Marine water	Fish - Limanda limanda	96 hours
	Acute LC50 79.7 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute NOEC 17.5 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
Boron potassium oxide, tetrahydrate	Acute LC50 133 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 280 mg/l	Fish - Gila elegans	96 hours
	Acute LC50 74 mg/l Marine water	Fish - Limanda limanda	96 hours
Dipotassium hexafluorosilicate	Acute EC50 14.9 mg/m³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 18 mg/m³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 35.4 mg/m³ Fresh water	Daphnia - Daphnia magna	48 hours
	Acute EC50 169 mg/m³	Micro-organism - Activated	3 hours

SECTION 12: Ecological information

		sludge	
	Acute LC50 37.5 mg/m³ Fresh water	Fish - Danio rerio	96 hours
disodium tetraborate decahydrate	NOEC 10 mg/l Fresh water	Micro-organism - Opercularia bimarginata	72 hours
	Acute LC50 79.7 mg/l Fresh water	Fish - Pimephales promelas	96 hours

Conclusion/Summary : Not classified.

12.2 Persistence and degradability

Conclusion/Summary : The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
boric acid	-1.09	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 13: Disposal considerations

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class (es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Toxic to reproduction	boric acid	Candidate	-	18/06/2010
	disodium tetraborate, anhydrous	Candidate	-	18/06/2010

Ozone depleting substances

SECTION 15: Regulatory information

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Seveso Directive

This product is not controlled under the Seveso Directive.

EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Listed

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada : At least one component is not listed in DSL but all such components are listed in NDSL.

China : All components are listed or exempted.

Japan : **Japan inventory (CSCL)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : At least one component is not listed.

Republic of Korea : All components are listed or exempted.

SECTION 15: Regulatory information

Taiwan	:	All components are listed or exempted.
Thailand	:	At least one component is not listed.
Turkey	:	At least one component is not listed.
United States	:	All components are active or exempted.
Viet Nam	:	All components are listed or exempted.

15.2 Chemical safety assessment : Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

Classification	Justification
Acute Tox. 4, H302	Calculation method
Acute Tox. 4, H332	Calculation method
Repr. 1B, H360FD	Calculation method

Full text of abbreviated H statements

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H360FD	May damage fertility. May damage the unborn child.
H361d	Suspected of damaging the unborn child.

Full text of classifications

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B
Repr. 2	REPRODUCTIVE TOXICITY - Category 2

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Notice to reader

SECTION 16: Other information

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