SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : BOROZINC

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

Use for agriculture (nutrients/ trace elements for plants)

1.3. Details of the supplier of the safety data sheet

Registered company name : AGRONUTRITION SAS.

Address : Parc Activestre - 3 avenue de l'Orchidée.31390.CARBONNE.FRANCE.

Telephone : +33 (0)5 61 97 85 00. Fax : 33 (0) 5 61 97 85 01.

fds-msds@agro-nutrition.fr

http://www.agronutrition.com

1.4. Emergency telephone number : +33 (0)1 45 42 59 59.

Association/Organisation : INRS / ORFILA http://www.centres-antipoison.net.

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS compliant.

Acute oral toxicity, Category 5 (Acute Tox. 5, H303).

Serious eye damage, Category 1 (Eye Dam. 1, H318).

Reproductive toxicity, Category 1B (Repr. 1B, H360).

Specific target organ toxicity (single exposure), Category 3 (STOT SE 3, H335).

Hazardous to the aquatic environment - Acute hazard, Category 2 (Aquatic Acute 2, H401).

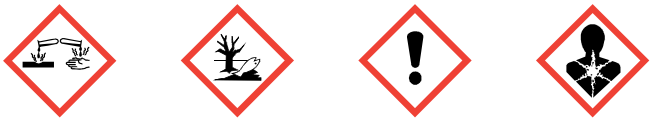
Hazardous to the aquatic environment - Chronic hazard, Category 2 (Aquatic Chronic 2, H411).

This mixture does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.

2.2. Label elements

GHS compliant.

Hazard pictograms :



GHS05 GHS09 GHS07 GHS08

Signal Word :

DANGER

Product identifiers :

CAS 12280-03-4	DISODIUM OCTABORATE TETRAHYDRATE
CAS 77-92-9	CITRIC ACID
CAS 7446-19-7	ZINC SULPHATE (HYDROUS) (MONO-, HEXA- AND HEPTA HYDRATE)

Hazard statements :

H303	May be harmful if swallowed.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H360	May damage fertility or the unborn child .

H411	Toxic to aquatic life with long lasting effects.
Precautionary statements - General :	
P102	Keep out of reach of children.
Precautionary statements - Prevention :	
P280	Wear protective gloves/protective clothing/eye protection.
Precautionary statements - Response :	
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P391	Collect spillage.
Precautionary statements - Disposal :	
P501	Dispose of contents and container to hazardous or special waste disposal point.

2.3. Other hazards

In use, may form flammable/explosive dust-air mixture.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Composition :

Identification	GHS	Note	%
INDEX: 005-020-00-3 CAS: 12280-03-4 EC: 234-541-0 REACH: 01-2119490860-33-XXXX DISODIUM OCTABORATE TETRAHYDRATE	GHS08 Dgr Repr. 1B, H360	[2] [6]	50 <= x % < 100
INDEX: 607-750-00-3 CAS: 77-92-9 EC: 201-069-1 REACH: 01-2119457026-42-XXXX CITRIC ACID	GHS07 Wng Eye Irrit. 2, H319 STOT SE 3, H335		20 <= x % < 25
CAS: 7446-19-7 EC: 231-793-3 REACH: 01-2119474684-27-XXXX ZINC SULPHATE (HYDROUS) (MONO-, HEXA- AND HEPTA HYDRATE)	GHS07, GHS05, GHS09 Dgr Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		10 <= x % < 20

Information on ingredients :

(Full text of H-phrases: see section 16)

[2] Carcinogenic, mutagenic or reprotoxic (CMR) substance.

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. Description of first aid measures

In the event of exposure by inhalation :

In the event of massive inhalation of dust, remove the person exposed to fresh air. Keep warm and at rest.

If the person is unconscious, place in recovery position. Notify a doctor in all events, to ascertain whether observation and supportive hospital care will be necessary.

If breathing is irregular or has stopped, effect mouth-to-mouth resuscitation and call a doctor.

In the event of splashes or contact with eyes :

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.

Regardless of the initial state, refer the patient to an ophthalmologist and show him the label.

If there is any redness, pain or visual impairment, consult an ophthalmologist.

In the event of splashes or contact with skin :

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

Wash with plenty of water and soap. In case of redness or irritation, consult a doctor/medical service.

In the event of swallowing :

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water, administer activated medical charcoal and consult a doctor.

Seek medical attention, showing the label.

If swallowed accidentally, call a doctor to ascertain whether observation and hospital care will be necessary. Show the label.

Give nothing by mouth. Do not induce vomiting.

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

Symptoms/lesions after inhalation: cough,respiratory tract irritation.

Symptoms/lesions after skin contact : skin irritation, redness.

Symptoms/lesions after eye contact : corrosion, irritation of eye tissues.

Symptoms/lesions after ingestion: abdominal pain, nausea.

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

Treat symptomatically.

Provide eye baths on site.

SECTION 5 : FIREFIGHTING MEASURES

Non-flammable.

5.1. Extinguishing media

Suitable methods of extinction

In the event of a fire, use :

- sprayed water or water mist
- foam
- powder
- carbon dioxide (CO2)

The choice of the method depends on the other products present.

Do not use a strong water jet, danger of spreading of the product.

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

-Sulfur oxides (SOx)

5.3. Advice for firefighters

Precautions against fire: like in case of all fires involving chemicals, wear appropriate protective equipment (chemical protective clothing, boots and gloves).

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

Avoid breathing dust and wear an appropriate filter mask (see section 8).

For non first aid worker

Avoid any contact with the skin and eyes.

Avoid inhaling dust.

If a large quantity has been spilt, evacuate all personnel and only allow intervention by trained operators equipped with safety apparatus.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Retrieve the product by mechanical means (sweeping/vacuuming) : do not generate dust.

Dispose of waste with an authorized waste collection provider.

6.4. Reference to other sections

See section 1 for information about emergency contact.

Se section 13 for obtain additional information on waste treatment.

See section 8 for information on personal protection equipments.

See section 7 for information on safe handling.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.

Avoid exposure to pregnant women and warn women of child-bearing age of the possible risks

7.1. Precautions for safe handling

Always wash hands after handling.

Remove and wash contaminated clothing before re-using.

Emergency showers and eye wash stations will be required in facilities where the mixture is handled constantly.

Avoid formation of dust and dégement when handling.

Fire prevention :

Handle in well-ventilated areas.

Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Also provide breathing apparatus for certain short tasks of an exceptional nature and for emergency interventions.

In all cases, recover emissions at source.

Avoid eye contact with this mixture at all times.

Avoid exposure - obtain special instructions before use.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the mixture is used.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

Storage

Keep out of reach of children.

Keep the container tightly closed in a dry, well-ventilated place.

Keep away from food and drink, including those for animals.

Keep away from food, drink and animal feedingstuffs.

Keep the product away from heat sources.

Storage temperature: no restriction.

Packaging

Always keep in packaging made of an identical material to the original.

Replace the label in case of split of packaging.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

No data available.

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :

Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

Before handling powders or dust emission, wear mask goggles in accordance with standard EN166.

Prescription glasses are not considered as protection.

Provide eyewash stations in facilities where the product is handled constantly.

- Hand protection

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN ISO 374-1.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

- Body protection

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

- Respiratory protection

Avoid inhaling dust.

If the ventilation is insufficient, wear appropriate breathing apparatus.

When workers are confronted with concentrations that are above occupational exposure limits, they must wear a suitable, approved, respiratory protection device.

Type of FFP mask :

Wear a disposable half-mask dust filter in accordance with standard EN149/A1.

Category :

- FFP1

If the implementation of the product is generating dust formation it is recommended to wear a respirator, properly fitted complying with an approved regulations (according to EN143) standard if a risk assessment indicates this is necessary.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

No data available.

Physical state

Physical state :	Powder or dust.
State	Soluble powder (SP)

Colour

Color	White

Odour

Odour threshold :	Not stated.
Odor	Odorless

Melting point

Melting point/melting range :	Not relevant.

Freezing point

Freezing point / Freezing range :	Not stated.

Boiling point or initial boiling point and boiling range

Boiling point/boiling range :	Not relevant.

Flammability

Flammability (solid, gas) :	Not stated.

Lower and upper explosion limit

Explosive properties, lower explosivity limit (%) :	Not stated.
Explosive properties, upper explosivity limit (%) :	Not stated.

Flash point

Flash point interval :	Not relevant.

Auto-ignition temperature

Self-ignition temperature :	Not relevant.

Decomposition temperature

Decomposition point/decomposition range :	Not relevant.

pH

pH (aqueous solution) :	4.8- 6.5 (10 g/l)
pH :	Not relevant.

Kinematic viscosity

Viscosity :	Not stated.

Solubility

Water solubility :	Partially soluble.
Fat solubility :	Not stated.

Partition coefficient n-octanol/water (log value)

Partition coefficient: n-octanol/water : Not stated.

Vapour pressure

Vapour pressure (50°C) : Not relevant.

Density and/or relative density

Density : 0.6 +/-1.5%

Relative vapour density

Vapour density : Not stated.

9.2. Other information

No additional information.

9.2.1. Information with regard to physical hazard classes

Mixture not classified on physical hazards

9.2.2. Other safety characteristics

No additional information.

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No dangerous reaction known under normal conditions of use and storage.

10.2. Chemical stability

This mixture is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

According to our knowledge, this product does not present any particular hazard under normal conditions of use and storage.

10.4. Conditions to avoid

Avoid :

- formation of dusts

Dusts can form an explosive mixture with air.

10.5. Incompatible materials

Keep away from :

- strong reducing agents

10.6. Hazardous decomposition products

The product does not decompose when used for its intended purpose.

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

May be harmful if swallowed.

May have irreversible effects on the eyes, such as tissue damage in the eye, or serious physical decay of sight, which is not fully reversible by the end of observation at 21 days.

Serious eye damage is typified by the destruction of cornea, persistent corneal opacity and iritis.

Respiratory tract irritation may occur, together with symptoms such as coughing, choking and breathing difficulties.

Presumed human reproductive toxicant.

11.1.1. Substances

Acute toxicity :

ZINC SULPHATE (HYDROUS) (MONO-, HEXA- AND HEPTA HYDRATE) (CAS: 7446-19-7)

Oral route : LD50 = 574 mg/kg
Species : Rat

Species : Rat

11.1.2. Mixture

Acute toxicity :

May be harmful if swallowed.

Skin corrosion/skin irritation :

Not classified. Based on the available data, the classification criteria are not met.

Serious damage to eyes/eye irritation :

Causes severe eye damage.

Respiratory or skin sensitisation :

Not classified. Based on the available data, the classification criteria are not met.

Germ cell mutagenicity :

Not classified. Based on the available data, the classification criteria are not met.

Carcinogenicity :

Not classified. Based on the available data, the classification criteria are not met.

Reproductive toxicant :

May damage fertility or the unborn child .

Specific target organ systemic toxicity - single exposure :

May cause respiratory irritation.

Specific target organ systemic toxicity - repeated exposure :

Not classified. Based on the available data, the classification criteria are not met.

Aspiration hazard :

Not classified. Based on the available data, the classification criteria are not met.

11.2. Information on other hazards

SECTION 12 : ECOLOGICAL INFORMATION

Toxic to aquatic life with long lasting effects.

The product must not be allowed to run into drains or waterways.

The mineral elements (nutrients) contained in this product are essential for healthy plant growth, but may be harmful in large quantities to wildlife, aquatic organisms or sensitive plants. It is therefore necessary to minimize the amount of product released into the environment, except as part a rational fertilization program for the plants, preferably after a test for soil and/or plant issues.

12.1. Toxicity

12.1.1. Substances

ZINC SULPHATE (HYDROUS) (MONO-, HEXA- AND HEPTA HYDRATE) (CAS: 7446-19-7)

Fish toxicity :	LC50 = 0.6 mg/l Factor M = 1 Species : Pimephales promelas Duration of exposure : 96 h
Crustacean toxicity :	EC50 = 0.56 mg/l Factor M = 1 Species : Daphnia magna Duration of exposure : 48 h

12.1.2. Mixtures

Toxic to aquatic life with long-lasting effects.

12.2. Persistence and degradability

12.2.1. Substances

ZINC SULPHATE (HYDROUS) (MONO-, HEXA- AND HEPTA HYDRATE) (CAS: 7446-19-7)

Biodegradability :	no degradability data is available, the substance is considered as not degrading quickly.

12.2.2. Mixtures

This product is very soluble in water and is dangerous to the aquatic environment in the long term. We must therefore ensure that any flow is not driven into the aquatic environment or in any sewer or drain. When using, avoid spreading of the product in the cultivated areas (hedges, borders, ditches, streams).

No information is available on the persistence and degradability of the product.

12.3. Bioaccumulative potential

12.3.2. Mixtures

No bioaccumulation data is available.

12.4. Mobility in soil

No information is available on mobility in soil. It is therefore essential to avoid at all costs that it spills into sewers or waterways. Prevent it from entering the ground.

12.5. Results of PBT and vPvB assessment

The mixture fulfils neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

12.6. Endocrine disrupting properties

The mixture does not contain substances identified as disrupting the endocrine system for the environment >= 0.1%.

12.7. Other adverse effects

No information is available on other adverse environmental effects.

SECTION 13 : DISPOSAL CONSIDERATIONS

The appropriate waste management of the mixture and/or its container must be determined in accordance with local regulations.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

Local arrangements :

Product must be disposed of in accordance with local and national regulations.

SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2021 - IMDG 2020 [40-20] - ICAO/IATA 2022 [63]).

14.1. UN number

3077

14.2. UN proper shipping name

UN3077=ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

(zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate))

14.3. Transport hazard class(es)

- Classification :

9

14.4. Packing group

III

14.5. Environmental hazards

- Environmentally hazardous material :

14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	9	M7	III	9	90	5 kg	274 335 375 601	E1	3	-

Not subject to this regulation if Q <= 5 l / 5 kg (ADR 3.3.1 - DS 375)

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation
	9	-	III	5 kg	F-A. S-F	274 335 966 967 969	E1	Category A SW23	-

Not subject to this regulation if Q <= 5 l / 5 kg (IMDG 3.3.1 - 2.10.2.7)

IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ

	9	-	III	956	400 kg	956	400 kg	A97 A158 A179 A197 A215	E1
	9	-	III	Y956	30 kg G	-	-	A97 A158 A179 A197 A215	E1

Not subject to this regulation if Q <= 5 l / 5 kg (IATA 4.4.4 - DS A197)

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

Marine pollutant (IMDG 3.1.2.9):(zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate))

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No data available.

SECTION 15 : REGULATORY INFORMATION

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

The following regulations have been used:

- Globally Harmonized System of Classification and Labelling of Chemicals (GHS), review no. 8 (2019)

- Container information:

No data available.

- Particular provisions :

No data available.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

Wording of the phrases mentioned in section 3 :

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360	May damage fertility or the unborn child .
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Abbreviations :

LD50 : The dose of a test substance resulting in 50% lethality in a given time period.

LC50 : The concentration of a test substance resulting in 50% lethality in a given period.

EC50 : The effective concentration of substance that causes 50% of the maximum response.

REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.

CMR: Carcinogenic, mutagenic or reprotoxic.

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

GHS05 : Corrosion

GHS07 : Exclamation mark

GHS08 : Health hazard

GHS09 : Environment

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.