



1. Identification of the preparation and of the company

1.1 Identification of the preparation

Deoxidizer.

1.2 Use of the preparation

Product for the adhesion of stainless steel solders to orthodontic products.

1.3 Company identification

Leone s.p.a.

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Tel. ++39 (0)55.30.44.1 – Fax ++39 (0)55 374808.

1.4 Emergency telephone

++39 (0)55.30.44.1. An answering machine is on during closing time.

2. Hazards identification

No hazard is foreseen during normal handling.

3. Composition/information on ingredients

Information on ingredients and composition %

Chemical name	%	CAS ¹ Number	Formula
Boric acid	75	10043-35-3	H ₃ BO ₃
Tetraboron disodium decahydrate	25	12267-73-1	Na ₂ B ₄ O ₇ · 10H ₂ O

4. First aid measures

Skin contact: wash with plenty of water and soap.

Eye contact: rinse with plenty of water for at least 10 minutes.

Ingestion: induce vomiting; drink a lot of water or milk; seek immediately for medical advice showing this safety data sheet. It is possible to give activated carbon suspended in water or medicinal white mineral oil.

Inhalation: ventilate the working place. Move to a good ventilated area and take a rest. If you feel unwell seek for medical advice.

5. Fire-fighting measures

Suitable fire extinguishing methods: water, CO₂, foam, chemical powders according to the materials involved in the fire.

Unsuitable fire extinguishing methods: none.

Exposure hazards coming from combustion: do not breathe fumes.

Fire-fighters equipment: wear suitable respiratory equipment.

6. Accidental release measures

Personal precautions: wear suitable protective clothing and gloves.

Environmental precautions: contain leaks with earth or sand. If the product is in liquid form, prevent it from entering the sewage system.

Cleaning up methods: pick up the product leaked and dispose of it. Eventually absorb with inert material.

After the pick up, flush the contaminated area and materials with water.

7. Handling and storage

Handling precautions: avoid contact and inhalation of vapours. See next section 8. When using do not smoke.

Personal protection: wear protecting glasses.

Storage: keep containers tightly closed in a dry and well ventilated place.

8. Exposure controls/personal protection

8.1. Exposition limit values²

Boric acid, occupational exposure limits (TWA): 10 mg/m³.

Sodium tetraborate decahydrate, occupational exposure limits (TWA): 5 mg/m³.

8.2. Exposure control

8.2.1. Professional exposure control

Breathing organs protection: wear a dust protection mask.

Hand protection: wear suitable protective gloves.

¹ CAS Number (Chemical abstract service).

² The "occupational exposure limit", if not otherwise specified, is the average limit or serious concentration in the time of a chemical agent in the air inside the breathing area of a worker related to a specific period of time (Directive 98/24/EC on health and safety protection of the workers against the consequential risks from chemical agents during the job); the TWA (time weighted average) indicator is the serious average concentration in the time for a working day of 8 hours.



Eye protection: use a suitable protection, just follow the standards of good manufacturing practices.

Skin protection: follow the standards of good manufacturing practices.

8.2.2. Exposure controls

Precautionary measures: provide a good local ventilation of the places where the product is stored/or handled.

9. Physical and chemical properties

9.1. General information

	Boric acid	Sodium tetraborate decahydrate
Appearance:	granular powder	granular powder
Colour:	white	white
Odour:	odourless	odourless.
9.2. Health, safety and environmental information		
Boiling point:	not applicable	not applicable
Melting point:	171°C	62°C (anhydrous =742°C)
Vapour pressure:	not applicable	not applicable
Solubility in water at 20°C	46.5 g/l	48.9 g/l
Solubility in water at 100°C	275.3 g/l	656.5 g/l
pH aqueous sol.:	at 20°C(concentration 46.5 g/l DI H ₂ O) =3.7	9.32 (sol. 48.9 g/l H ₂ O)
Auto-flammability temperature:	not applicable	not applicable
Explosive properties:	not applicable	not applicable
Comburent properties:	not applicable	not applicable
Relative density (water=1):	1.51	1.73
Solubility in solvents:	soluble in ether, alcohol, glycerol	ethyl glycol, glycerol, alcohol
Decomposition:	at temperature > 100°C it loses water forming methaboric acid, boric oxide	no available data.

10. Stability and reactivity

10.1. Boric acid

Conditions to avoid: stable under normal conditions

Substances to avoid: potassium, sodium, acetic anhydride.

Dangerous reactions: contact with potassium, sodium, acetic anhydride may cause explosions.

Decomposition products: contact with dithiocarbamate, mercaptan and other organic sulphides, elementary metals and strong reducing agents may liberate flammable gases. It may liberate toxic gases in contact with inorganic fluorides, halogenated organic substances, sulphides, nitrides, nitriles, organophosphate, strong oxidising agents.

Flammable in contact with dithiocarbamate, elementary metals, nitrides.

10.2 Sodium tetraborate decahydrate

Conditions to avoid: stable under normal conditions.

Substances to avoid: strong oxidisers

Decomposition products: contact with water, mineral acids, organic acids, alcohol, glycol, aldehydes, amine, combustible and flammable materials may generate flammable gases. Contact with dithiocarbamate may generate toxic gases.

Flammable in contact with acids, alcohol, glycol, aldehydes, strong oxidising agents.

11. Toxicological information

11.1. Boric acid

Routes of entry: ingestion, inhalation, contact.

Irritating capacity: light irritating effects to skin.

Acute toxicity - oral: LD₅₀³ (rat): 2660 mg/kg
LD₅₀ (mouse): 3450 mg/kg.

Chronic toxicity: rare cases of chronic poisonings may cause digestive disorders and skin injuries.

Carcinogenesis: not remarked.

Mutagenesis: not remarked.

Other information:

Dangerous effects and symptoms: vomiting, diarrhoea, convulsions, fever, skin rashes.

Effects on the central nervous system: shock, coma, shivers.

11.2 Sodium tetraborate decahydrate

Routes of entry: ingestion, inhalation, contact.

Effects on human: vomiting, effects on central nervous system, shock, coma, shivers.

Symptoms: vomiting, diarrhoea, convulsions, fever, skin rashes.

Irritating capacity: may cause reddening.

³ LD₅₀ Lethal Dose, dose of substance which results to be lethal for 50% of organisms used in a toxicity test.



Sensitizing effect: not remarked.
Acute toxicity: LD₅₀ (rat): 2660 mg/kg (oral)
DLLo⁴ (human): 709 mg/kg.
Chronic toxicity: rare cases of chronic poisonings may cause digestive disorders and skin injuries.
Carcinogenesis: not remarked.
Mutagenesis: not remarked.
Effects on reproduction: not remarked.

Other information:

It can be easily absorbed through injured or burned skin; it may cause irritations.
Slightly irritating to eyes when in a dry powder state.
Irritating to respiratory system and it may cause cough and sneezes.
Ingestion of about 5g can be lethal for children and of 30g for adults.

12. Ecological information

Use properly according to the regular working procedures and avoid release to the environment.

13. Disposal consideration

Dispose of in accordance with local and national regulations. In Italy dispose of according to Legislative Decree of April 3 2006 no. 152 "Regulations on environmental subject", application of European Directives on environmental protection, and subsequent modifications and integrations.

14. Transport information

The material is not classified as dangerous to transport.

15. Regulatory information

- Health, safety and environmental information shown on the label according to European Directives on hazardous materials and substances

None.

- Information related to further dispositions

None.

16. Other information

The safety data sheet has been written according to relevant European provisions, on the basis of information received by the supplier of preparation.

The product is intended for orthodontic and odontological use only. The use of the product has to be restricted to skilled and licensed professionals.

The information drawn herein is based on our knowledge at the date of the issue.

The information is exclusively provided related to the product herewith specified and is not intended as a warranty of quality.

Leone disclaims any responsibility arising out of the use of the information here furnished, or of the handling, the application or the manufacture of the product here described. The final user is called to verify the application and completeness of the information herein in relationship to the specific use and reliability of the rules and local applicable dispositions. The present information doesn't imply any liberty to break patent rights

Previous safety data sheet n. R15/2E dated 17/05/2001 is to be considered cancelled. In comparison to the preceding revision, meaningful changes have not been effected but only adjustments to the European provisions which regulate the compilation of safety data sheet.

This safety data sheet is subject to revision.

Visit our web site www.leone.it for an updated version of the present sheet.

⁴ LDLo, Lethal Dose Lower, Lowest dose of substance which results to be lethal for the organisms used in a toxicity test.