SECTION 1: Identification of the substance or mixture and of the company

1.1. Product identifier

Product description: Flux.

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

Identified Use Professional use: flux for orthodontic soldering.

1.3. Details of the supplier of the safety data sheet

Leone s.p.a.
I – 50019 Sesto Fiorentino – Firenze - Via P. a Quaracchi, 50
e-mail: research@leone.it – http://www.leone.it
Tel. +39 055.30.44.1 – Fax +39 055 374808.

1.4. Emergency telephone number

+39 055.30.44.1. An answering machine is on during closing time.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

According to the Regulation (EC) no. 1272/2008 [CLP].

Acute toxicity cat. 4	H302
Eye Irritation Cat. 2	H319
Aquatic Chronic 4	H431

2.2. Label elements

Signal word	Danger	
Hazard statements:	H302	Harmful if swallowed.
	H319	Causes serious eye irritation.
	H413	May cause long-lasting harmful effects to aquatic life.
Precautionary statements	P264	Wash with water thoroughly after handling.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P301+P312	IF SWALLOWED: Call a poison center or a doctor if you feel unwell.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Containing potassium fluoride.

2.3. Other hazards

Not classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.1. Substances

This product is a mixture.

3.2. Mixtures

Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.
According to the Regulation (EC) no. 1272/2008 [CLP].

Hazardous ingredient(s)	%W/W	EC no.	CAS no.	Hazard Class and Category Code(S)	Hazard statement Code (S)
Potassium tetrafluoroborate	49-51	237-928-2	14075-53-7	Aquatic Chronic 4	H413
Potassium metaborate	45-46	237-262-2	13709-94-9	Eye irritation, cat. 2	H319
Potassium fluoride	5-5.8	232-151-5	7789-23-3	Acute Toxicity 3	H301 H311 H331

SECTION 4: First aid measures

4.1. Description of first aid measures

Precautions must be taken when in case of production of dust or fumes which can be inhaled or breathed in.

Inhalation	IF INHALED: move the operator at fresh air, if breathing problem occur, give oxygen. If respiration stops, apply artificial respiration.
Skin contact	The product does not cause skin irritation. If on skin, remove contaminated clothes, and wash with copious water.
Eye contact	The product does not cause ocular damage. If in eyes wash with water or eye-cleaning solution.
Ingestion	The substance does not cause intoxication. Do not induce vomiting unless assisted by a doctor. Seek medical advice if symptoms persist.

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

Not applicable.

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing Media	In case of fire, Use fire-fighting measures suitable to the environment.
Unsuitable extinguishing Media	None in particular.

5.2. Special hazards arising from the substance or mixture

Fire or explosion hazards. The product is non-flammable and non-combustible.

5.3. Advice for firefighters

Protective clothing for fire-fighting as a self-contained, open-circuit compressed air breathing apparatus (ref. standard EN 137). Flameproof equipment (EN 469) fireproof boots (HO A29or A30).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid the formation of dust spraying the product with water, if there are not contraindications. DO NOT breathe vapors/mists and gases. Wear suitable protective equipment to prevent contamination of the skin, eyes and clothing (See section 8). These information are valid for workers and emergency operations.

6.2. Environmental precautions

Do not allow product to reach sewage system, ground water levels or any water course.

6.3. Methods and material for containment and cleaning up

Collect spillage using no sparkling mechanical means the leaked product, place it in containers for recovery and disposal. Eliminate the remainder using jets of water if there are no contraindications. Ensure adequate ventilation of the contaminated place. Check the compatibility of the material of the containers in Section 7. The disposal of contaminated material must be made in accordance with the provisions of Section 13.

6.4. Reference to other sections

See sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handle the product after consultation with all other sections of this safety data sheet. Avoid discharges into the environment. Do not eat, drink or smoke during use. Wash hands after use.

7.2. Conditions for safe storage, including any incompatibilities

Keep the product in clearly labeled containers. Store in closed containers in well-ventilated area, out of direct sunlight.

7.3. Specific end uses

Welding and soldering: Refer to the safety regulations for each type of heating method. Make sure in any case the presence of a suction system fumes. Use appropriate clothing to end use (heat protective gloves, glasses with special UV protection, safety shoes, fireproof clothing).

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

It is recommended to consider in the process of risk assessment for the occupational exposure limit value prescribed dy ACGIH for inert powders classified as ‘not allocated’ (PNOC breathable fraction: 3 mg/mc, PNOC inhalable fraction 10 mg/mc). If those limits are exceeded, it is advised to use a mask with filter type P which classes (1,2 or 3) is based on the risk assessment outcomes.

8.2. Exposure controls

Whereas the use of adequate technical equipment must always take priority over personal protection equipment, ensure good ventilation in the workplace through effective local aspiration. The personal protective equipment must have the CE label on the mark attesting to their compliance with applicable regulations.

An emergency eye washing and shower system must be provided.

Eye/face protection	Wear protective glasses (EN 166) f there is the risk of exposure to splashes or squirts during work, it is necessary to provide adequate protection of the mucous membranes (mouth, nose, eyes) in order to prevent accidental absorption.
Skin protection	Wear work clothes with long sleeves and safety footwear for professional use category I (ref. Directive 89/686 / EEC and standard EN ISO 20344). Wash with soap and water after removing protective clothing.
Hand protection	In case of prolonged contact with the product, use work gloves resistant to penetration (ref. Standard EN 374). For the final selection of glove's material evaluate the process and any additional products derived from it. Please remember that the latex gloves may result in irritation phenomena.
Respiratory protection	Use a mask with filter type P which classes (1,2 or 3) is based on the risk assessment outcomes.

Environmental exposure controls
Emissions from production processes, including those from ventilation should be checked for compliance of environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Dust.
Colour	White.
Odour	Slight.
Odour Threshold	Non applicable.
pH	Approximately 8.
Melting Point	>550°C.
Boiling Point	Not applicable.
Boiling Range	Not applicable.
Flash Point	Not available.
Evaporation Rate	Not applicable.
Solid And Gas Flammability	Not applicable.
Upper Flammability Or Explosive Limits	Not applicable.
Lower Flammability Or Explosive Limits	Not applicable.
Vapour Pressure	Not available.
Vapour Density	Not applicable.
Relative Density	3.1 kg/l.
Solubility	Insoluble.
Octanol/Water Partition Coefficient	Not applicable.
Auto-Ignition Temperature	Not applicable.
Decomposition Temperature	Not applicable.
Viscosity	Not applicable.
Explosive Property	Not applicable.
Oxidising Properties	Not applicable.

9.2. Other information

Not available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Information not available.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Not indicated.

10.4. Conditions to avoid

Avoid high temperatures, direct contact with fire or other heat sources.

10.5. Incompatible materials

Concentrated mineral acids.

10.6. Hazardous decomposition product(s)

In case of decomposition, vapours of potassium fluoride and boron trifluoride may occur.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

In the absence of experimental toxicological data on the product itself any product health hazards were evaluated based on the properties of the substances contained, according to the criteria laid down by the relevant regulations for the classification. Consider, therefore, the concentrations for the individual dangerous substances listed in Section 3, to assess toxicological effects resulting from exposure to the product.
Acute effects: the product is harmful id swallowed and also small amounts of product may cause serious health problems (abdominal pain and sting, nausea, vomiting and diarrhoea). Eye contact causes irritation, the symptoms may be redness, swelling, pain and tearing.
Potassium tetrafluoroborate:
LD50 (oral) >5.8 mg/kg.

SECTION 12: Ecological information

The product can represent a long-term danger and/or delayed, to the structure and/or functioning of aquatic ecosystems.

12.1. Toxicity

Potassium fluoroborate:
LC50 –fish >760 mg/l/96h.

12.2. Persistence and degradability

Information not available.

12.3. Bioaccumulative potential

Information not available.

12.4. Mobility in soil

Information not available.

12.5. Results of PBT and vPvB assessment

According to the available data, the product does not contain PBT or vPvB components in excess of 0,1% percentages.

12.6. Other adverse effects

Not available.

SECTION 13: Disposal considerations

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.

13.1. Waste treatment methods

For solid residues consider landfill authorized waste management firm, in compliance with national and local regulations.
Contaminated packaging
Contaminated packaging must be recovered or disposed of in compliance with national waste management.

SECTION 14: Transport information

Not dangerous according to current transportation regulations

14.1. UN-number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information

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

Regulation (EC) no. 1272/2008 (Classification, labeling and packaging of substances and mixtures) and subsequent amendments, amending and repealing Directive 67/548/EEC and 1999/45/EC, and amending Regulation (EC) no. 1907/2006.
Directive 2009/161/EU (third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC).

15.2. Chemical safety assessment
Not applicable.

SECTION 16: Other information
This Safety data sheet was prepared in accordance with the Commission Regulation (EU) no. 453/2010 and Commission Regulation (EU) no. 2015/830.
The safety data sheet has been written according to relevant European provisions, on the basis of information received by the supplier of the mixture.
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 relates only to specific product designated 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 does not imply any liberty to break patent rights.

Previous safety data sheet no. R16/4E dated 29/05/2009 is to be considered obsolete. 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.

Hazard statements
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H331 Toxic if inhaled.

Legend
ACGIH: American Conference of Governmental Industrial Hygienists.
CAS No.: Chemical Abstract Service Registry number.
EC No.: European Inventory of Existing Commercial Chemical Substances.
EN 137: Respiratory protective devices. Self-contained open-circuit compressed air breathing apparatus with full face mask. Requirements, testing, marking.
EN 166: Personal eye protection – Specifications.
EN 20344: Methods for testing footwear.
EN 374: Protective gloves against chemicals and micro-organisms.
EN 469: Protective clothing for fireman.
EN 659: Protective gloves for firefighters.
EN ISO 20344: Personal protective equipment - Test methods for footwear.
HOA29/A30: UK Home Office specification A29 (rubber boots) or A30 (leather boots).
IBC Code: International Bulk Chemicals Code.
LC50: Lethal Concentration 50: lethal concentration of substance for 50% of organisms of a certain population during a certain exposure period.
LD50 Lethal Dose 50: the dose required to kill half the members of a tested population after a specified test duration.
PBT: Persistent, Bioaccumulative And Toxic Substances.
PNOC: Particulates Not Otherwise Classified.
vPvB: Very Persistent And Very Bioaccumulative Substances.