




according 1907/2006/EG, Article 31
 Date of issue: 30.05.2016
 Date of revision: not applicable / Version: 1.0

Flux for special solder

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

- 1.1 Product identifier
 Tradename: Flux for special solder
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
 Relevant identified uses: Powder deoxidiser for braze welding of bronze, copper, carbon steel and stainless steel with brass
- 1.3 Details of the supplier of the safety data sheet
 Manufacturer/Supplier: ERNST HINRICHS Dental GmbH
 Street / mailbox: Borsigstr. 1
 Country code. / postal code / city: D - 38644 Goslar
 Phone: 0 53 21 / 5 06 24
 Fax: 0 53 21 / 5 08 81
 E-mail / Website: info@hinrichs-dental.de / www.hinrichs-dental.de
 Further information obtainable from: ERNST HINRICHS Dental GmbH
- 1.4 Emergency telephone number
 ERNST HINRICHS Dental GmbH: +49 (0) 53 21 / 5 06 24 - 25 (Mon-Fri. 8 a.m. – 4 p.m.)

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
 Classification according to Regulation (EC) No 1272/2008:
 Repr. 1B H360FD May damage fertility. May damage the unborn child.
- 2.2 Label elements
 Labelling according to Regulation (EC) No 1272/2008:
 Hazard pictograms:
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GHS08
 Danger
- Signal word: Danger
- Hazard-determining components of labelling: Boric Acid, Sodium Tetraborate Pentahydrate
- Hazard statements:
 H360FD: May damage fertility. May damage the unborn child.
- Precautionary statements:
 P201: Obtain special instructions before use.
 P202: Do not handle until all safety precautions have been read and understood.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P308+P313: If exposed or concerned: Get medical advice/attention.
 P405: Store locked up.
 P501: Dispose of contents/container in accordance with local/regional/national/international regulations.
- 2.3 Other hazards
 Results of PBT and vPvB assessment:
 PBT: Not applicable.
 vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.1 Substances Not applicable
- 3.2 Mixtures
 Description: Mixture of inorganic borates classified to be hazardous
 Dangerous components:

CAS: 10043-35-3	Boric acid (SVHC-substance)	75 - 100%
EINECS: 233-139-2	Repr. 1B, H360FD	
Index: 005-007-00-2	Specific concentration limit Repr. 1B, H360FD: C ≥ 5,5%	
CAS: 12179-04-3	Sodium tetraborate pentahydrate (SVHC-substance)	5 - < 10%
EINECS: 215-540-4	Repr 1B, H360FD	



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Index: 005-011-02-9	Eye Irrit. 2, H319 Specific concentration limit Repr. 1B, H360FD: C ≥ 6,5%	
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Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

4.1	Description of first aid measures General information: After inhalation: After skin contact: After eye contact: After swallowing:	Instantly remove any clothing soiled by the product. Take affected persons into the open air. The fumes that are released at high temperatures may irritate mucous membranes. Ventilate the area. Remove the patient from the contaminated environment immediately and take them outdoors. The product is not an irritant. If irritation occurs, wash with water and soap. Remove contaminated work clothing. May be an irritant. Rinse the eye immediately with clean water or isotonic solution for 15-20 minutes. Seek medical advice. Ingestion of small amounts is not dangerous for healthy adults. In case of ingesting larger amounts drink two glasses of water and seek medical advice.
4.2	Most important symptoms and effects, both acute and delayed:	Inhalation: cough, irritated throat; Contact with the skin: light irritation. Repeated exposition may cause dryness or cracking of the skin; Contact with the eyes: reddening, watering; Ingestion: burning sensation, abdominal pain, nausea and vomiting.
4.3	Indication of any immediate medical attention and special treatment needed:	Can damage unborn children and reduce fertility. In case of ingestion of large amounts, immediately seek medical advice and present this sheet. Maintain adequate renal function and ensure consumption of liquids. Stomach pumping is only recommended for patients exhibiting symptoms. Haemodialysis should be reserved for massive ingestion or in patients with renal impairment. Blood and urine examination are only useful for documenting exposure and should not be used to evaluate the severity of poisoning or to give therapeutic indications.

SECTION 5: Firefighting measures

5.1	Extinguishing media Suitable extinguishing agents: For safety reasons unsuitable extinguishing agents:	The product is not flammable, nor combustible or explosive. The product itself is a flame retardant. Appropriate extinguishing media are foaming agent, carbon dioxide, foam and water spray. Water jets
5.2	Special hazards arising from the substance or mixture:	In case of hazardous fumes can form: protect the respiratory system. Risks from combustion: avoid breathing fumes.
5.3	Advice for firefighters Protective equipment:	Wear full protective clothing. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1	Personal precautions, protective equipment	Wear protective equipment. Keep unprotected persons
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- and emergency procedures:
 - away.
 - Ensure adequate ventilation
 - Use breathing protection against the effects of dust.
 - In treating spillages of this product, wear protection for the respiratory system, protective goggles and protective gloves (recommended material: rubber, nitrile and butyl).
- 6.2 Environmental precautions:
 - Prevent material from reaching sewage system, holes and cellars.
 - Inform respective authorities in case product reaches water or sewage system.
 - Do not allow to enter drainage system, surface or ground water.
- 6.3 Methods and material for containment and cleaning up:
 - Ventilate the area, immediately contain the spillage with inert material (sand, earth, etc.) and subsequently wash the area with water.
 - Take up mechanically and collect in suitable container for disposal. Send for recovery or disposal in suitable containers.
- 6.4 Reference to other sections:
 - See Section 7 for information on safe handling
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for information on disposal.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling
 - Handle in respect of good industrial hygiene and adequate safety measures. Avoid smoking, eating or drinking in areas where the product is used.
 - Ensure good ventilation/exhaustion at the workplace.
 - Take note of emission threshold. Keep away from children
 - Avoid release to the environment.
- Information about protection against explosions and fires:
- 7.2 Conditions for safe storage, including any incompatibilities
 - Storage:
 - Store in tightly closed containers in a clean, dry and ventilated place. For transport, storage, and handling use only suitable materials.
 - During welding operations use adequate personal protection measures. Operate in sufficiently ventilated environments and/or equip the welding area with appropriate suction means. Keep away from substances which it may react violently with (see point 10).
 - Storage class:
 - LGK 6.1 D (non-combustible, acute toxicity cat . 3/toxic or substances with chronic effects)
- 7.3 Specific end use(s)
 - No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters	Components with critical values that require monitoring at the workplace:	
	12179-04-3 Disodiumtetraborate, pentahydrate	
	WEL (8 h)	1 mg/m ³
	DNEL:	
	10043-35-3 Boric acid	
	Inhalation, chronic exposure, systemic effect:	8,3 mg/m ³ (worker)



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Dermal, chronic exposure, systemic effect:	392 mg/kg/d (worker)
Oral, chronic exposure, systemic effect:	0,98 mg/kg/d (general population)
Inhalation, chronic exposure, systemic effect:	4,15 mg/m ³ (general population)
Dermal, chronic exposure, systemic effect:	196 mg/kg/d (general population)
PNEC:	
10043-35-3 Boric acid	
Aqua (freshwater)	2,9 mg/l
Aqua (marine water)	2,9 mg/l
Sewage treatment plant (STP)	10 mg/l
Soil	5,7 mg/kg
Aqua (intermittent releases)	13,7 mg/l

8.2	Additional information: Exposure controls: Additional information about design of technical systems: General protective and hygienic measures: Personal protective equipment: Protection of hands: Material of gloves: Penetration time of glove material: Eye protection: Breathing equipment: Body protection:	Based on information valid at the time of writing. Please take care on national and local requirements. Use local ventilation to maintain dust concentrations within the allowable exposure limits. Respect hygiene standards. Keep away from food, drink and animal feeding stuff. Do not eat or drink at the workplace. Do not smoke. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Remove and wash soiled work clothing. Avoid contact with the eyes and skin. Avoid dispersing the mixture into the environment. Respect current regulations on emissions and waste. Wear suitable gloves. The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Latex, nitrile, rubber (≥ 0.4 mm) The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. Tightly sealed safety glasses (EN 166). Not necessary if room is well-ventilated. In case of prolonged exposure to high levels of dust concentration, use personal respiratory equipment in compliance with EN standards. Avoid inhalation of welding fumes. Protective work clothing.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:	Pink powder
Physical state:	Solid
Colour:	pink
Odour:	Odourless
Odour threshold:	No data available
pH:	Neutral
Melting point/Freezing point	168-170 °C boric acid



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Boiling point/Boiling range:	300 °C boric acid
Flash point:	Not flammable
Flammability (solid, gas):	Not flammable
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Oxidising properties:	No oxidation properties
Explosive properties:	Product is not explosive.
Explosive Limits:	
Lower:	No data available
Upper:	No data available
Vapour pressure at 20 °C:	No data available
Density at 20 °C:	No data available
Relative density:	1.517 to 14°C/1.435 to 15°C boric acid
Vapour density:	No data available.
Evaporation rate:	No data available
Solubility:	Slightly soluble in water
Partition coefficient (n-octanol/water):	No data available
Viscosity:	No data available
dynamic:	No data available
kinematic:	No data available
9.2 Other information	
Melting range:	800-1150 °C

SECTION 10: Stability and reactivity

10.1 Reactivity	No hazardous reactions known.
10.2 Chemical stability	
Thermal decomposition / conditions to be avoided:	No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions	Possible hydrogen formation upon contact with acids.
10.4 Conditions to avoid	None, if handled according to intended use.
10.5 Incompatible materials	The product reacts with strong reducing agents, as metal hydrides produce hydrogen gas which could create an explosion risk.
10.6 Hazardous decomposition products	No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects	
Acute toxicity:	Not classified Based on available data, the classification criteria are not met.

LD/LC50 values that are relevant for classification:		
10043-35-3 Boric acid		
Oral	LD50	> 2 000 mg/kg (rat)
Inhalation	LC0	> 2.0 mg/l (rat)
Dermal	LD50	> 2 000 mg/kg (rabbit)

Skin corrosion/irritation:	Not classified Based on available data, the classification criteria are not met.
Serious eye damage/irritation:	Not classified Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation:	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity:	Not classified



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Carcinogenicity:	Based on available data, the classification criteria are not met. Not classified
Reproductive toxicity:	Based on available data, the classification criteria are not met. May damage fertility. May damage the unborn child. Studies on the administration of boric acid and borax in high doses in rats, mice and dogs have shown negative haematological effects mainly on fertility and the testes. Studies at high doses on rats, mice and rabbits have shown effects on the development of the foetus, including loss of foetal weight and minor skeletal variations.
Specific target organ toxicity (single exposure):	Not classified Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure):	Not classified Based on available data, the classification criteria are not met.
Aspiration hazard:	Not classified Based on available data, the classification criteria are not met.
Potential adverse human health effects and symptoms:	Not classified Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

LC/EC50 values that are relevant for classification:

10043-35-3 Boric acid		
Fish, 96 h	LC50	79.7 mg/L (Fathead minnow)
Daphnids, 48 h	EC50	133 mg/L (Daphnia magna)
Algae, 72 h	EC50	40 mg/L (Pseudokirchneriella subcapitata)

Water hazard class 1: slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

12.2 Persistence and degradability:	The methods for determining the persistence and degradability are not applicable to inorganic products.
12.3 Bioaccumulative potential:	No further relevant information available.
12.4 Mobility in soil:	The product is soluble in water and is dispersed through the earth.
12.5 Results of PBT and vPvB assessment	
PBT:	Not applicable.
vPvB:	Not applicable.
12.6 Other adverse effects	No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation:	Disposal must be made according to official regulations. Do not dispose of with domestic waste. Do not allow product to reach sewage system.
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European waste catalogue	
18 00 00	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED



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	RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH CARE)
18 01 00	wastes from natal care, diagnosis, treatment or prevention of disease in humans
18 01 06*	chemicals consisting of or containing dangerous substances

SECTION 14: Transport information

14.1 UN number	
ADR, IMDG, IATA:	Not regulated for transport
14.2 UN proper shipping name	
ADR, IMDG, IATA:	Not applicable
14.3 Transport hazard class(es)	
ADR, IMDG, IATA	
Class:	Not applicable
Danger labels:	Not applicable
14.4 Packing group	
ADR, IMDG, IATA:	Not applicable
14.5 Environmental hazards	No
Marine pollutant:	No
Special marking:	No supplementary information available
14.6 Special precautions for user	Not applicable
Kemler Number:	Not applicable
EMS Number:	Not applicable
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
National regulations:	
Other regulations, limitations and prohibitive regulations:	
15.2 Chemical safety assessment	A Chemical Safety Assessment of the product has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications - usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer.

Relevant phrases

H319: Causes serious eye irritation.
 H360FD: May damage fertility. May damage the unborn child.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

Eye irrit. 2: Eye irritation, Hazard Category 2

Repr 1B: Reproductive toxicity, Hazard Category 1B