



Johnson Matthey

Metal Joining

Safety Data Sheet

1. Identification of the Substance/Preparation and of the Company/Undertaking

Identification of the Substance or preparation:

Easy-flo™ Stainless Steel Grade Flux Powder

Description and Application of the substance/preparation:

A white powder brazing flux for use when brazing with silver type brazing filler metals with liquidus temperatures up to 750°C.

Product category - PC38 Welding and Soldering products (with flux coatings or flux cores) flux products.

Company/Undertaking identification: Johnson Matthey Metal Joining (a Business unit of Johnson Matthey plc)

Contact details

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2. Hazard Identification

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



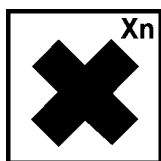
T, Toxic

R25 Toxic if swallowed



C; Corrosive

R34 Causes burns



Xn: Harmful

R22 Harmful if swallowed

R62 Possible risk of impaired fertility

R63 Possible risk of harm to the unborn child








Based on the testing of similar products, the product as supplied will be moderately irritating in the case of skin contact and will be immediately irritating if the skin is already broken. Eye contact will cause immediate irritation.

2. Hazard Identification Cont.

The main hazards associated with this product result from its use as a brazing flux. On heating the product will fume slightly and with overheating the fumes will increase. The fumes produced may include hydrogen fluoride and boron trifluoride, which can cause irritation of the nasal passages, eyes and throat. To minimise evolution of flux fume use with brazing filler metals that have liquidus temperatures no higher than 750°C. Severe, long term exposure to flux fume may result in fluorosis. In acute cases there is a danger of pulmonary oedema although this occurrence could also result from inhalation of metal fume, metal oxides fumes or torch gases. Inhalation of the fume will be irritating to the nose and throat and will cause smarting of the eyes. To minimise the release of flux powder dust into the working environment we would recommend mixing the flux powder to a paste with water, which should be applied to the work piece.

3. Nominal Composition

The product identified is a mixture of the substances identified below with non hazardous additions

Substance	CAS No.	EINECS No.	Applicable 'R' Phrases	% Concentration
Potassium difluorodihydroxyborate (1-)	85392-66-1	286-925-2	 Xn, R20/22	25 to 50
Potassium tetraborate	1332-77-0	215-575-5	 Xn, R62, R63	25 to 50
Potassium bifluoride	7789-29-9	232-156-2	 T, R25  C, R34	10 to 25
Potassium fluoroborate	14075-53-7	237-928-2	 Xn, R20/22  Xi, R36/38	2.5 to 10
Boric acid	10043-35-3	233-139-2	 T, R60, R61	< 1

Additional information

Boric acid and potassium bifluoride are starting ingredients used in the manufacture of this product. During manufacture of the product the starting ingredients undergo chemical reactions with each other. The concentrations of the boric acid and potassium bifluoride given in the table represent the possible, maximum residue levels of the two substances where the reactions have not been fully completed.

For the wording of the 'R' phrases used in the table refer to section 16

4. First Aid Treatment

Inhalation	Remove from source of exposure and allow to rest in fresh air. In acute cases apply artificial respiration and if necessary summon medical aid.
Ingestion	Rinse mouth with water & give patient water or milk mixed with calcium carbonate (chalk) to drink. Do not induce vomiting. Summon medical aid.
Eyes	Irrigate with water or isotonic saline for up to 20 minutes. Seek medical attention if there is any hint of eye damage.
Skin	Remove any contaminated clothing and wash skin immediately with soap and water. Seek medical attention if sores develop. Launder clothing before re-use.

5. Fire Fighting Measures

Non flammable. Use full protection with breathing apparatus if involved in a fire as harmful fumes may be evolved. Use any extinguishing medium appropriate for surrounding fire.

6. Accidental Release Measures

Carefully sweep up and collect in a suitable container for re-use or disposal. Avoid contact with skin or eyes and do not inhale dust. Use protective equipment, gloves, eye protection, filter masks etc as considered appropriate to size and nature of the release. Dispose of all collected product as directed in Section 13.

7. Handling & Storage

Handling Use only under conditions of good local ventilation or efficient extraction systems and do not inhale fumes evolved during use. Avoid contact with skin and eyes. Do not eat, drink, smoke or apply cosmetics whilst using these materials. Keep away from food, drink and animal feed stuffs and out of reach of children. Wash hands with soap and water following skin contact with the product and wash hands with soap and water after handling the product even if no direct skin contact has occurred. Observe good industrial hygiene practices.

Storage Store in a cool, dry place. Keep container closed when not in use. Do not freeze.

8. Exposure Controls

United Kingdom Workplace Exposure limits (EH40/2005) For The Fumes Evolved During Use

Element	Long Term (8 hour) *TWA Value	Short Term (15 minutes) *TWA Value
Fluoride (inorganic as F) (CAS No. 16984-48-8)	2.5 mg / m ³	-
Hydrogen fluoride (as F) (CAS No. 7664-39-3)	1.5 mg / m ³	2.5 mg / m ³
* Time Weighted Average		

PERSONAL PROTECTION

Avoid exposure to fume by using good natural ventilation or local exhaust extraction. If risk of inhalation exists, personal respiratory protection should be worn. Local exhaust extraction systems should be tested for effectiveness to ensure adequate capture of the fume on initial installation and then checked on a regular basis to confirm on going effectiveness.

It is recommended that safety glasses are worn when handling or using this product for brazing. Where regular, on-going skin contact with the product cannot be avoided suitable gloves should be worn. Seek advice from glove supplier to most suitable type of glove to protect against this type of product. Show glove supplier this Safety Data Sheet. In cases where skin contact with the product may occur on an irregular basis the use of barrier creams will help to prevent skin irritation in such circumstances. Suitable gloves should also be worn where the nature of the brazing operation may result in hand contact with the molten flux or brazing filler metal to protect against burns.

Wash hands after using these products.

Use protective clothing appropriate to the nature and use of the product.

9. Physical & Chemical Properties

Appearance	White powder
Odour	No detectable odour
pH	8 of aqueous paste.
Boiling/Melting Point	Not applicable
Flash Point	Not applicable
Flammability	Not flammable
Oxidising properties	Not oxidising
Solubility	Partly soluble in water.

10. Stability & Reactivity

Product is stable, but may absorb moisture during storage and become lumpy.

Avoid contact with acids and strong oxidising agents.

No other adverse reactions are known

11. Toxicological Information

Based on similar products LD50 (oral rat) would be expected to be in the order of >200 mg/kg

Based on similar products, the product would expect to be classified as moderately irritating, according to Draize skin test.

12. Ecological Information

Do not allow product to reach groundwater, water course or sewerage systems.

Water hazard class 1 (Self assessment): slightly hazardous for water.

13. Disposal Considerations

Disposal according to local and national regulations. Registered waste contractors should be aware of the composition and data given in Section 2 of this document.

14. Transport Information

Land transport ADR/RID (cross-border)



ADR/RID Class	6.1 Toxic substance
Danger code (Kemler)	68
UN-Number	3290
Packaging Group	II
Label	6.1+8
UN Shipping proper name	TOXIC SOLID, CORROSIVE, INORGANIC N.O.S. (POTASSIUM BIFLUORIDE, fluoborates)
Limited quantities (LQ)	LQ18
Transport category	2
Tunnel restriction code	D/E

Maritime transport IMDG



IMDG Class	6.1
UN Number	3290
Label	6.1+8
Packaging group	IIB
EMS Number	F-A,S-B
Marine pollutant	No
Segregation groups	Acids
UN Shipping proper name	TOXIC SOLID, CORROSIVE, INORGANIC N.O.S. (POTASSIUM BIFLUORIDE, fluoborates)

Air transport ICAO-TI and IATA-DGR

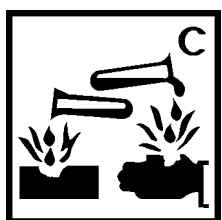
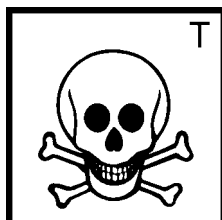


ICAO/IATA Class	6.1
UN/ID Number	3290
Label	6.1+8
Packaging group	II
UN Shipping proper name	TOXIC SOLID, CORROSIVE, INORGANIC N.O.S. (POTASSIUM BIFLUORIDE, fluoborates)

15. Regulatory Information

Labelling elements
according to EC
guidelines

Corrosive
and
Toxic



Contains:
Potassium tetraborate
Potassium bifluoride
Potassium difluorodihydroxyborate (1-)

Risk Phrases	R25	Toxic if swallowed
	R34	Causes burns
	R62	Possible risk of impair fertility
	R63	Possible risk of harm to the unborn child
Safety Phrases	S20	When using do not eat or drink
	S23	Do not breathe fumes
	S26	In case of eye contact, rinse immediately with water and seek medical advice
	S36/37/39	Wear suitable protective clothing, gloves, and eye/face protection
	S45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
	S60	This material and its container must be disposed of as hazardous waste.

16. Other Information

Risk Phrases from section 2

R20/21	Harmful by inhalation and in contact with the skin
R22	Harmful if swallowed
R25	Toxic if swallowed
R34	Causes burns
R36/38	Irritating to eyes and skin
R60	May impair fertility
R61	May cause harm to the unborn child
R62	Possible risk of impaired fertility
R63	Possible risk of harm to the unborn child

This Safety Data Sheet should be read in conjunction with the Safety Data Sheet for the brazing filler metal being used with the product before a full risk assessment of the brazing operation can be made.

Former HSE EH40 Exposure limit for boron trifluoride (BF₃) CAS No.7637-07-2 "Short term exposure limit (15 minute reference period) 3 mg/m⁻³

Safety Data Sheet Cont. – Easy-flo™ Stainless Steel Grade Flux Powder

REACH Substance of Very High Concern.

Boric acid CAS No. 10043-35-3 is used as an ingredient in the manufacture of this flux, but undergoes reaction with other substances during manufacture of the product, which results in the formation of the potassium difluorodihydroxyborate (1-) compound. While the boric acid should be completely reacted away during the manufacturing process the possibility of some residue of un-reacted boric acid being present in the product cannot be excluded above the 0.1% SVHC limit. In addition, the product is manufactured in a facility where both boric acid CAS No. 10043-35-3 and sodium tetraborate CAS No. 1303-96-4 are used in the manufacture of brazing fluxes, and therefore the possibility of cross contamination to a level above the maximum impurity level for both substances of 0.1% cannot be excluded.

Disclaimer

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