SAFEBRAZE
QUALITY BRAZING ALLOYS

Material Safety Data Sheet.

According to Regulation (EC) No 1907/2006

Section 1: Product and Manufacturer Information

Product Name	Silver Brazing Flux Powders (see section 16 for product listing)
Product code	See section 16 for product codes
Recommended Use	Metal joining applications where a silver brazing alloy is used which has a liquidus temperature below 850°C.
Manufacturer	Manufactured for AES Industrial Supplies Ltd Olympic House Collett Southmead Industrial Park OX11 7WB Telephone: +44 (0) 1235 510717 Fax: +44 (0) 1235 818610 e-mail: order@aes-sales.com

Section 2: Hazards Identification

Most Important Hazards and Classification

Carcinogen	Limited evidence of a carcinogenic effect.
Mutagenic	Possible risk of harm to the unborn child.
Toxic for Reproduction	Possible risk of impaired fertility.
Toxic	Severe long term exposure to flux flume many result in fluorosis and in severe cases this may also result in pulmonary oedema; however pulmonary oedema could also be attributed to the brazing alloy metal fume or brazing torch gases.
Dangerous for the Environment	Slightly hazardous for water; do not allow product to reach ground water, water course or sewage system.

Specific Hazards

The main hazards associated with these products arise when they are used as a brazing flux. When heated the flux fumes slightly and if overheated evolution of these fumes, which may include hydrogen fluoride and boron trifluoride, will increase. Hydrogen fluoride and boron trifluoride can cause irritation to the nasal passage, eyes and throat.

To minimise fume evolution it is important that these products are used with brazing alloys that have liquidus temperatures of below 850°C and that the correct brazing alloy flux is used for the joining operation being undertaken.

Section 3: Composition

These products are mixtures of different chemical compounds and consequently reactions occur during the blending of the product which results in the formation of the potassium difluorodihydroxyborate compound. This means that theoretically any boric acid (CAS No. 10043-35-3) used in the production of these products should be completely used during this manufacturing process, however the possibility of some boric acid being present in the product at a level above the 0.1% SVHC (REACH) criteria cannot be excluded.

Chemical Name	CAS Number	EC Number	Label/Risk Phrase	Weight (%)
Potassium tetraborate	1332-77-0	215-575-5	R62, R63, Rep Cat 3	25-50
Potassium difluorodihydroxyborate	85392-66-1	286-925-2	R22	25-50
Potassium hydrogendifluoride	7789-29-9	232-156-2	T, R25, R34	<1
Potassium silicofluoride*	16871-90-2	240-896-2	R23, R24, R25	25-50
Boric acid	10043-35-3	233-139-2	T, R60, R61, Rep Cat 2	<1
Boric oxide	1303-86-2	215-125-8	T, R60, R61, Rep Cat 2	<1
Boron (amorphous)**	7440-42-8	231-151-2	R22 R36/37	<1

* present in G Flux Powder only
**present in E flux Powder only

Section 4: First Aid Measures

General Advice	Show this data sheet to the doctor in attendance.
Inhalation	Remove patient to fresh air. Seek medical attention if respiratory symptoms develop. Keep warm and at rest.
Skin contact	If reddening occurs wash affected area with soap and water. Seek medical attention if symptoms persist.
Eye contact	If redness or watering occurs irrigate with copious amounts of isotonic water or isotonic saline. Seek medical attention.
Ingestion	Do not induce vomiting. Rinse mouth with water and give patient water or milk mixed with calcium carbonate (chalk) to drink. Keep warm and at rest. Obtain medical attention.

Section 5: Fire Fighting Measures

Suitable extinguishing media	Extinguish with dry powder, carbon dioxide or water spray.
Unsuitable extinguishing media	Not applicable.
Specific hazards	Non-flammable, standard procedure for chemical fires.
Special protective equipment for fire fighting	No special measures required.

Section 6: Accidental Release Measures

Personal precautions	Wear personal protective equipment to prevent eye and skin contact.
Environmental precautions	Avoid release to the environment. Do not release to drain nor water courses.
Spillages	Spillages of powder to be moistened with water, then shovelled into a plastic container. The flux should be made into a thin slurry and neutralised with an excess of hydrated calcium carbonate. After allowing to settle dispose of according to local/national regulations.

Section 7: Handling and Storage

Handling	When using do not eat, drink or smoke. Avoid contact with eyes, skin and clothing. Use only under conditions of good local ventilation or adequate local exhaust ventilation.
Storage	Store in original packaging in cool, dry conditions. Containers of powder may absorb moisture and become lumpy if left open.

Section 8: Exposure Controls/Personal Protection

Workplace exposure limits (From EH40/2005 including revisions up until 2011); information on boron trifluoride is taken from EH40/2004, this was omitted from later revisions.

Substance	TWA (8 hours)	STEL (15 minutes)
Fluoride (inorganic as F)	2.5 $mg.m^{-3}$	--
Hydrogen fluoride (as F)	1.5 $mg.m^{-3}$	2.5 $mg.m^{-3}$
Boron trifluoride	--	2.8 $mg.m^{-3}$

Wear suitable protective clothing, PVC gloves for handling and heat resistant gloves as appropriate when handling fluxes or brazing, to prevent eye and skin contact. Where there is a risk of inhalation, personal respiratory protection should be worn.

Section 9: Physical and Chemical Properties

Form	Powder
Colour	Brown (E flux powder) or White (all other flux powders)
Odour	None
pH	6-12 (of aqueous pastes)
Melting point/range	550-1000^{o}C
Water solubility	Limited solubility, no specific data
Relative Density	0.45-0.85 at 20 ^{o}C (dependent on composition)

Section 10: Stability and Reactivity

Stability	Stable under normal conditions, containers of powder may absorb moisture and become lumpy if left open.
Conditions to avoid	Not applicable.
Materials to avoid	Concentrated acids.
Hazardous decomposition products	Hydrogen fluoride, fluorides, boron trifluoride.

Section 11: Toxicological Information

Acute toxicity	Potassium tetraborate has been classified as a reproductive toxin (category 3) and presents possible risks of impaired fertility and risks of harm to the unborn child.
Irritancy - Skin	None.
- Eyes	None.
Skin sensitisation	No sensitising effects known.
Carcinogenicity	Limited evidence of a carcinogenic effect.
Chronic toxicity	Potassium tetraborate, oral LD50 – 3500-4100mg/kg (rat).

Section 12: Ecological Information

Mobility	The product is non-volatile and has limited solubility.
Persistence/Degradability	The product is expected to be resistant to biodegradation.
Bio-accumulation	A potential for bio-accumulation is indicated, available data for potassium tetraborate: CL50 – 133mg/l (daphnia); CL50/96h – 40mg/l (fish)
Ecotoxicity	Slightly hazardous for water, do not allow product to reach ground water, water course or sewage system.

Section 13: Disposal Considerations

Waste from residues and unused product	Return to supplier.
Regulations	Dispose of in accordance with local and national regulations. Registered waste contractors should be aware of the composition and data in section 3 of this document.

Section 14: Transport Information

Non-hazardous for air, sea and road freight.

UN Class	Not classified (no UN numbers have been issued for fluxes).
ADR/RID - Class	Not classified.
IMDG - Class	Not classified.
IMDG - Marine pollutant	Yes.
IATA - Class	Not restricted.

Section 15: Regulatory Information

Regulation EC 1272/2008 Classification, Labelling and Packaging of Hazardous Substances and Mixtures (CLP) has been used in compiling this data sheet. This replaces the Dangerous Substances Directive (67/548/EEC) and the Dangerous Preparations Directive (1999/45/EC).
Chemicals (Hazard Information and Packaging for Supply) Regulations 2009
EH40/2005 Workplace exposure Limits.
Personal Protective Equipment at work regulations 1992 (as amended)).
Control of Substances Hazardous to Health Regulations as amended (2002)

Labels Health – Repr Cat 3

Classification according to EC 1272/2008 Classification, Labelling and Packaging of Hazardous Substances and Mixtures (CLP).

Risk Phrases:	R22	Harmful if swallowed
	R62	Possible risk of impaired fertility
	R63	Possible risk of harm to unborn child
Safety Phrases:	S29	Do not empty into drains
	S36/37	Wear suitable protective clothing, gloves and eye/face protection
	S60	This material and its container must be disposed of as hazardous waste.

Product Names and Product Codes.

Product Name	Product Code
SafraBraze Silver Solder Flux Powder	W.0941-F
SafraBraze Silver Solder Flux Paste	W.0941-P

For futher information contact the Technical Department at **AES Industrial Supplies Ltd**
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