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## Brazing Materials & Applications Material Safety Data sheet 1100/105 Appendix D - Brazing fluxes

\*Ref: TF 272 310gms

### 1. Identification of Substance

This Product Safety Data Sheet gives specific information on brazing fluxes.

Product Name	Form	Working Range	pH*	Composition Group
Easy-flo Flux Powder	White Powder	550 - 800°C	8	1
Easy-flo - Stainles Steel Grade	White Powder	550 - 775°C	8	1
Easy-flo - Stainless Steel Grade	White Paste	550 - 775°C	8	1
Tenacity No.2	White Powder	550 - 800°C	8	1
Tenacity No.6	Brown Powder	550 - 800°C	8	1
Tenacity No.14	White Powder	550 - 750°C	8	1
Easy-flo Flux Paste	White Paste	575 - 825°C	8	1
Easy-flo Dipping Grade	White Paste	550 - 750°C	9	1
Silver-flo Flux Paste	White Paste	550 - 775°C	9	1
Mattiflux 100 Paste	White Paste	550 - 800°C	9.5	1
Mattiflux 3A Paste	Brown Paste	600 - 875°C	8	1
Tenacity No.4A	White Powder	600 - 850°C	8	2
Tenacity No.5	White Powder	600 - 900°C	9	2
Tenacity No.5A	Brown Powder	600 - 900°C	8	2
Tenacity No. 125 Powder	White Powder	750 - 1200°C	7	3
Tenacity No. 125 Paste	White Paste	750 - 1200°C	7	3
Easy-flo - Aluminium Bronze Grade	White Paste	550 - 800°C	5	4
Tenacity 12	White Powder	800 - 1300°C	Not measured	5
Flux Coating on Rods	White Compact	550 - 850 ° C	8	6

\*pH of aqueous suspension

### 2. Composition

- Group 1 - Mixture of potassium bifluoride (CAS No. 7789-29-9), potassium tetraborate (CAS No. 1332-77-0) potassium fluoroborate (CAS No. 14075-53-7) with boric acid (CAS No. 10043-35-3) and boric anhydride (CAS No. 1303-86-2). Elemental boron (CAS No. 7440-42-8) in Tenacity 6 and Mattiflux 3A.
- Group 2 - Mixture of potassium bifluoride (CAS No. 7789-29-9), potassium tetraborate (CAS No. 1332-77-0) and potassium fluorosilicate (CAS No. 16871-90-2) with boric acid (CAS No. 10043-35-3) and boric anhydride (CAS No. 1303-86-2). Elemental boron (CAS No. 7440-42-8) in Tenacity 5A only.
- Group 3 - Mixture of potassium tetraborate (CAS No. 1332-77-0) and potassium fluorosilicate (CAS No. 16871-90-2) with borax (CAS No. 1303-96-4) and boric acid (CAS No. 10043-35-3).
- Group 4 - Mixture of potassium tetraborate (CAS No. 1332-77-0) and potassium fluoroborate (CAS No. 14075-53-7) with zinc chloride (CAS No. 7646-85-7), sodium chloride (CAS No. 7647-14-5) and lithium chloride (CAS No. 7447-41-8).

Group 5 - Mixture of borax (CAS No. 1303-96-4), boric acid (CAS No. 10043-35-3) and potassium tetraborate (CAS No. 1332-77-0).

Group 6 - Mixture of potassium tetraborate (CAS No. 1332-77-0), potassium fluoroborate (CAS No. 14075-53-7), potassium bifluoride (CAS No. 7789-29-9) and potassium fluorosilicate (CAS No. 16871-90-2) bonded with an organic polymer.

### 3. Hazard Identification

The main hazard with this product occurs in its use. On heating the flux will fume slightly, and with overheating the fume will increase. The fumes produced include hydrogen fluoride and boron trifluoride which can cause irritation of the nasal passages, eyes and throat.

The flux is harmful by ingestion and is irritating to the eyes. Contact with skin may cause moderate irritation.

### 4. First Aid Measures

Severe long term exposure to fume may result in fluorosis. In acute cases there is a danger of pulmonary oedema although this occurrence could also result from inhalation of brazing metal fume or torch gases. Inhalation of fumes will be irritating to the nose and throat and will cause smarting of the eyes.

Tests carried out on fluxes indicate they are moderately irritating to the skin and if the skin is broken immediate irritation will occur on contact. The use of barrier creams may prevent skin irritation.

**Inhalation:** Remove from 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 and 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 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 suitable for surrounding fire.

### 6. Accidental Release Measures

**Powder:** Carefully sweep up and collect in suitable container for re-use or disposal.

**Paste:** Either collect in suitable container for re-use or disposal. For large spills, cover with sand or other inert absorbent and collect in suitable container for disposal. Wash area with water.

Avoid contact with skin or eyes and do not inhale dust.

### 7. Handling and 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 this material. Keep away from food, drink and animal feeding stuffs and out of reach of children. Observe good industrial hygiene practices.

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

**8. Exposure Controls and Personal Protection**  
**UK Occupational Exposure Standards are:**

Fume	Long Term 8-hour TWA* Value	Short Term 15 minutes Value
Hydrogen Fluoride (as F)	-	2.5mg/m <sup>3</sup>
Fluoride (as Fluorine)	2.5mg/m <sup>3</sup>	-
Boron Trifluoride	-	3mg/m <sup>3</sup>

*\* Time Weighted Average*

Avoid exposure to fume with good ventilation or local extraction. If a risk of inhalation exists, personal respiratory protection should be worn. Safety glasses should be worn as well as impervious gloves to prevent skin contact. Wash hands after using this material. The use of protective clothing is recommended.

**9. Physical and Chemical Properties**

Appearance: White or brown powder or paste. See page 1.  
 Odour: No detectable odour.  
 pH: See page 1.  
 Boiling/melting point: Becomes fluid on heating; working range - See page 1.  
 Flash point: Not applicable.  
 Flammability: Not flammable.  
 Oxidising properties: Not oxidising.  
 Solubility: Water-low solubility, no specific data.

**10. Stability and Reactivity**

Containers of powder left open once the seals are broken may absorb moisture and become lumpy. Pastes are water based and, whilst stable, will lose water by evaporation if left open. Avoid contact with acids and strong oxidising agents.

No other adverse reactions are known.

**11. Toxicological Information**

Toxicological data for these preparations: LD50(oral - rat) > 200mg/kg.

Classified as moderately irritating, according to Draize skin test.

**12. Ecological Information**

Likely to be harmful to all species of animal life. As far as is known no other threat is posed to the environment.

**13. Disposal Consideration**

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

**14. Transport Information**

Not classified for land, sea or air transport. No UN No's have been issued for fluxes.

**15. Regulatory Information**

EC/UK Supply to		
Material Classification	Harmful	
Risk Phrases	20/22 36/38	Harmful by inhalation and if swallowed. Irritating to eyes and skin.
Safety Phrases	2 13 20/21 22/23 26 45	Keep out of reach of children. Keep away from food, drink and animal feed stuffs. When using do not eat, drink or smoke. Do not breathe dust or fumes. In case of eye contact, rinse immediately with water and seek medical advice. In case of feeling unwell seek medical attention.

**16. Other Information**

For further information, see Johnson Matthey Data Sheet 1100:105 "Health and Safety in Brazing."

Guidance Note EH54 "Assessment of Exposure to fume from welding and allied processes" HSE 1990.

**EVERY ENDEAVOUR HAS BEEN MADE TO ENSURE THAT THE INFORMATION IN THIS LEAFLET IS RELIABLE BUT WE CANNOT ACCEPT LIABILITY FOR ANY LOSS, DAMAGE OR INJURY WHICH MAY RESULT FROM ITS USE. DATA GIVEN IN THIS PRODUCT SAFETY DATA SHEET IS SOLELY FOR GUIDANCE IN SAFE HANDLING AND USE OF THE PRODUCT – IT DOES NOT FORM PART OF ANY SPECIFICATION.**

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