

Material Safety Data Sheet 1100/105

MSDB 1-4:

Soft Solders



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Material Safety Data Sheet (MSDB)

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INDEX AND REVISION STATUS

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This data is made i.h.t Commission Directives 91/155/EEC, 93/112/EEC & S.I. 1993 No. 1746

1.1 IDENTIFICATION OF SUBSTANCE

This Product Safety Data Sheet gives specific information on Cadmium free soft solder alloys.

Soft Solders

1.2 SUPPLIER

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2. COMPOSITION

WEIGHT %

| | Ag | Sn | Pb | Cd | Others | Melting Range C | Standard Specification |
|-----------------------------|-----|------|------|----|--------|-----------------|------------------------|
| COMSOL | 1,5 | 5 | 93,5 | | | 296 | BS 219 5S |
| A25 | 2,5 | | 97,5 | | | 304 | DIN 1707 L-PbAg3 |
| A5 | 5 | | 95 | | | 304-370 | DIN 1707 L-PbAg5 |
| PLUMBSOL | 2,5 | 97,5 | | | | 221-225 | |
| 3/97 | 3 | 97 | | | | 221-225 | |
| 3,5/96,5 | 3,5 | 96,5 | | | | 221 | |
| 3,58/96,5 Flux with 3 cores | 3,5 | 96,5 | | | | 221 | |
| Metalli Ag3 | 3 | 96,5 | | | 0,5 Cu | 217,5-221,5 | |
| Metalli P5 | 5 | 95 | | | | 221-235 | DIN 1707 L-SnAg5 |
| LM 10 A | 10 | 87 | | | 3 Cu | 217-320 | |
| | | | | | | | |
| | | | | | | | |

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SOLDERS FOR ELECTRONICS

| | Ag | Sn | Pb | Cd | Others | Melting Range C | Standard Specification |
|---------------------------------------|----|----|---------|----|--------|-----------------|------------------------|
| 95 / 05 | | 95 | | | 5Sb | 232 - 240 | |
| 63 / 37 | | 63 | 37 | | | 183 | DIN 1707 L-Sn63Pb |
| 60 / 40 | | 60 | 40 | | | 183 - 188 | DIN 1707 L-Sn60Pb |
| 60 / 40 Flux with 3 cores | | 60 | 40 | | | 183 - 188 | DIN 1707 L-Sn63Pb |
| 60 / 40 / Sb | | 60 | balance | | 0,1 Sb | 183 - 188 | BS 219 CODE K |
| 60 / 39 / 1 | | 60 | 39 | | 1 Cu | 183 - 190 | |
| 60 / 38 / 2 Flux w/3 cores or without | | 60 | 38 | | 2 Cu | 183 - 190 | DIN 1707 L-Sn60PbCu2 |
| 50 / 50 | | 50 | 50 | | | 183 - 215 | DIN 1707 L-Sn50Pb |
| 45 / 55 RS3/322 flux core | | 45 | 55 | | | 183 - 227 | DIN 1707 L-PbSn45 |
| 99 / 1 | | 99 | | | 1 Cu | 230 - 240 | DIN 1707 L-Sn99Cu1 |
| 97 / 3 | | 97 | | | 3 Cu | 230 - 250 | DIN 1707 L-Sn97Cu3 |

SOLDERS FOR ELECTRONICS on reels of: 0,250 - 0,500 - 1 - 3 - 5 - 10Kg

3. HAZARD IDENTIFICATION

The only potential health hazards involved with this product arise from its use. On heating, metal and metal oxide fumes may be evolved but are unlikely to exceed the above stated OELS's under normal conditions. Severe overheating could lead to the emission of fumes in harmful concentrations but as the soldering temperatures are around 300°C this event is unlikely. It is recommended to prevent overheating of the soft solders and to have good extraction in connection with the workplace.

N.B.: Some alloys in section 2. Contain Lead & Cadmium

Cadmium containing soft solders:

COSHH Regulations list the exposure limits for cadmium oxide as a MAXIMUM EXPOSURE LIMIT (MEL) Which must never be exceeded. Short exposure to high levels of cadmium oxide can lead to pulmonary oedema and may be fatal. Prolonged or repeated over exposure to cadmium oxide fume is reported as causing renal damage. There is a symptomless latent period and any person thought to have been over exposed to cadmium oxide fume should be kept under observation for 48 hours.

Cadmium oxide fume is reported as being carcinogenic and may cause cancer by inhalation.

Boiling temperature of the containing metals are:

| | |
|--------|---------|
| Silver | 2210 °C |
| Tin | 2270 °C |
| Lead | 1740 °C |
| Cu | 2595 °C |
| Cd | 795 °C |
| Zn | 907 °C |

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As the melting for the mentioned soft solders are between 183 – 398 °C is it unlikely that the exposure limits will be exceeded.

4. FIRST AID MEASURES

- Inhalation** Fume may be evolved at brazing temperatures, which will irritate nose, throat and respiratory organs. Remove patient to fresh air. In acute cases, apply artificial respiration. Summon medical aid if necessary.
- Ingestion** Not applicable. However, if the alloy in powder form is ingested, rinse mouth with water and Give patient water or milk to drink. Do not induce vomiting. Summon medical aid.
- Eyes** Not applicable. However, if the alloy is in powder form and dust gets into the eyes, irrigate with water or isotonic saline for up to 20 minutes. Seek medical attention if there is any hint of eye damage. In cases where flux is present and spits, seek medical attention.
- Skin** Wash hands with soap and water after handling brazing alloy. If any skin irritation develops, seek medical advice.

5. FIRE FIGHTING MEASURES

Non-flammable. Dry chemical, carbon dioxide, water spray or foam are suitable extinguishers. Do not use water jet where molten metal present. In the event of high temperatures metal fume dust and/or vapours may be formed. Fire fighters should wear full protective clothing and breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Material may be collected for re-use or scrap as required.

7. HANDLING AND STORAGE

- Handling:** Use in a well ventilated area or with local extraction systems. Do not inhale any fumes evolved during use. Wash hands thoroughly with soap and water after handling the brazing alloy, particularly before eating or smoking.
- Storage:** No special requirements – store in cool, dry conditions.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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Occupational Exposure Limits for constituents are:

| Element | Long term 8-hours TWA* | Short Term 15 minute Value |
|--|-------------------------|----------------------------|
| Silver | 0.1 mg/m ³ | - |
| Tin compound inorganic (as Tin - Sn) | 2.0 mg/m ³ | 4.0 mg/m ³ |
| Lead compound inorganic (as Lead - Pb) | 0,15 mg/m ³ | - |
| Copper | 0,2 mg /m ³ | - |
| Zinkoxid fume | 5,0 mg/m ³ | 10,0 mg/m ³ |
| Cadmium compound inorganic (as Cadmium - Cd) | 0,025 mg/m ³ | 0,05 mg/m ³ |

*Time weighted Average

The use of safety glasses is recommended. Local extraction should be used e.g. soldering iron tip extraction. Impervious gloves should be worn to prevent skin contact if necessary.

Flux type F-SW-25 in 3,5/96,5 soft solder is an organic, watersoluble, halogen activated liquid flux. Do not heat to a temperature over 400° C, as fumes may occur containing small amount of ammonia, CO₂ and HCl. Flux type F-SW-26 in 3,5/96,5 soft solder is an halide activated rosin suitable for nickel and other difficult – to – solder surfaces. All fumes can be irritant.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------|---|
| Appearance | Silver white soft metal in form as: Rod, Strip, wire, Rings/Preforms, Foil, Powder. |
| Odour | None. |
| pH | Not applicable. |
| Melting point | As shown in Section 2 |
| Flash point | Not applicable. |
| Flammability | Non flammable. |
| Viscosity | Not applicable. |

10. STABILITY AND REACTIVITY

No reaction with air or water. Avoid contact with acids.

11. TOXICOLOGICAL DATA

No data available.

12. ECOLOGICAL INFORMATION

As far as is known, no threat is posed to the environment by this material.

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13. DISPOSAL CONSIDERATIONS

According to local and national regulations. Recommended method: as scrap for refining.

14. TRANSPORT INFORMATION

Not classified for land, sea or air transport. No UN No/s have been issued for these alloys.

15. REGULATORY INFORMATION

| | |
|----------------|-----------------------------|
| EEC Supply: | Not classified as hazardous |
| Risk Phrases | None |
| Safety Phrases | None. |

16. OTHER INFORMATION

Guidance Note EH55 "The control of exposure to fume from welding, brazing and similar processes" HSE 1990.