

# Material Safety Data Sheet 1100/105

MSDB 1-4:

## Soft Solders



*Metalli as*

*Material Safety Data Sheet (MSDB)*

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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	214-275	

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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 <sup>3</sup>	-
Tin compound inorganic (as Tin - Sn)	2.0 mg/m <sup>3</sup>	4.0 mg/m <sup>3</sup>
Lead compound inorganic (as Lead - Pb)	0,15 mg/m <sup>3</sup>	-
Copper	0,2 mg /m <sup>3</sup>	-
Zinkoxid fume	5,0 mg/m <sup>3</sup>	10,0 mg/m <sup>3</sup>
Cadmium compound inorganic (as Cadmium - Cd)	0,025 mg/m <sup>3</sup>	0,05 mg/m <sup>3</sup>

\*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, CO<sub>2</sub> 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.