

ELSOLD Low Melting Alloys

Low melting alloys are used where high processing temperatures would have a negative impact on the materials to be processed, or where a precisely defined melting point is indispensable to guarantee a problem-free operation of the component or system to be manufactured. Any alloy with a melting point/ range under 150 °C is considered as "low-melting". They are indispensable for the solution of many technical problems.

Certain low-melting alloys, e.g. Wood's metal, Lipowitz metal, or Rose's metal, have been known for many years. Many of these alloys will no longer be generally available for many applications covered by RoHS legislation (prohibition of lead and cadmium). Having eliminated the alloys based on lead and cadmium we are substantially left with alloys on the basis of tin, indium and bismuth.

The table overleaf lists the most important alloys. We have particularly taken into consideration eutectic alloys with a precisely defined melting point. Cadmium-bearing alloys are not listed as we do not manufacture them anymore. Lead-bearing alloys are marked.

Areas of Application

Low melting alloys are used for many purposes, as special solders for joining temperature-sensitive parts, or as secondary solders for parts that have already been soldered, as melting fuses in telecommunication fuse components, automatic sprinkling units, alarm gear, as embedding material for temperature sensitive parts and many more.

The use of high-purity virgin-grade metals is important for the production of these alloys.

The solders have to flow easily and must not contain non-melting components. The quality of our products is continuously monitored by means of metal analysis conducted in our internal laboratory.

Forms of Delivery

| Designation | Dimensions [mm] | Weight / Piece [kg] |
|-----------------------------|---------------------------|---------------------|
| Bars with suspension eyelet | 50 (W) x 18 (H) x 600 (L) | Approx. 3,4 kg |
| | 50 (W) x 20 (H) x 490 (L) | Approx. 3,2 kg |
| Triangular bars | 8 (W) x 10 (H) x 400 (L) | Bundle á 25 kg |
| Clippings | 8 (W) x 10 (H) x 30 (L) | Bulk material |

Shelf Life

Material can be stored to a minimum of 5 years in a clean and dry place.

Health and Safety

Dangerous vapours can occur in processing. For information regarding health and safety please refer to the relevant material safety data sheet.

Technical Product Information

ELSOLD Low Melting Alloys

Alloys with melting range below 150 °C, other alloys available on request

| Alloy | Melting point/-range | | Density [g/cm ³] | Form Solid | Lead containing |
|--------------------------------------------|----------------------|---------------|---------------------------------|---------------|--------------------|
| | Solidus [°C] | Liquidus [°C] | | | |
| In100 | 156.7 | 156.7 | 7.31 | ■ | |
| Sn53Pb37Bi10 | 150 | 168 | 8.65 | ■ | ■ |
| In80Pb15Ag5 | 149 | 150 | 7.85 | ■ | ■ |
| In97Ag3 - Eutectic | 144 | 144 | 7.38 | ■ | |
| Sn43Pb43Bi14 | 144 | 163 | 8.99 | ■ | ■ |
| Bi58Sn42 - Eutectic | 138 | 138 | 8.57 | ■ | |
| Sn54Pb26In20 | 136 | 152 | 8.05 | ■ | ■ |
| Bi56Pb44 | 125 | 150 | 10.43 | ■ | ■ |
| In51Sn49 - Eutectic | 120 | 120 | 7.3 | ■ | |
| Sn58In42 | 118 | 145 | 7.3 | ■ | |
| Sn50In50 | 118 | 125 | 7.3 | ■ | |
| In52Sn48 - Eutectic | 117 | 117 | 7.3 | ■ | |
| Bi55Pb44Sn1 | 117 | 120 | 10.4 | ■ | ■ |
| Bi67In33 | 109 | 109 | 8.8 | ■ | |
| Bi50Pb31.3Sn18.7 Eutectic | 96 | 96 | 9.7 | ■ | ■ |
| Bi50Sn25Pb25 <i>Rose's-Metal</i> | 96 | 98 | 9.32 | ■ | ■ |
| Bi50Pb30Sn20 <i>Lichtenberg's Metal</i> | 96 | 98 | 9.70 | ■ | ■ |
| Bi57In26Sn17 - Eutectic | 78.9 | 78.9 | 8.54 | ■ | |
| In66Bi34 | 73 | 75 | 8.0 | ■ | |
| In51Bi33Sn16 - Eutectic | 60 | 60 | 7.88 | ■ | |
| Bi49In21Pb18Sn12 Eutectic | 58 | 58 | 9.0 | ■ | ■ |
| Other alloys on request | | | | | |

The technical information contained herein is consistent with the properties of this material but should not be used in the preparation of specifications as it is intended for reference only.