

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 "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 after July 1, 2006 for many applications covered by the 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 especially taken into consideration eutectic alloys with a precisely defined melting point. The lead- and cadmium-bearing alloys have been highlighted by special colours. [>>](#)

■ Areas of Application

Low-melting alloys are used for many purposes, as special solders for joining temperature-sensitive parts, or as secondary solder 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 this difficult-to-make 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 analyses conducted in our internal metal laboratory.

■ Available Forms and Shapes:

Designation	Dimensions mm	Weight / Piece kg
Bars with suspension eyelets	50 (W) x 18 (H) x 600 (L)	Approx. 3,2*
	50 (W) x 20 (H) x 490 (L)	Approx. 3,4*
Triangular bars	8 (W) x 10 (H) x 400 (L)	Approx. 0,160*
Clippings	8 (W) x 10 (H) x 30 (L)	Bulk material

*) = depending on density of the material (see table)

■ Shelf Life

Minimum 12 months. If stored in a clean, dry place, shelf life is practically unlimited.

■ Health and Safety

Toxic vapours occur when cadmium-based alloys are processed. The corresponding safety measures as detailed in the material safety data sheet must be kept by all means.

Important information: The above information was put together based on the data available to the producer at the time of print. The technical data contained herein are consistent with the properties of the material but should not be used for the preparation of specification as it is intended for reference only.

■ Alloys T < 150°C (further alloys on request)

Alloy	Cd* Pb**	Melting point/range		Density kg / dm ³	Form of Supply	
		Solidus °C	Liquidus °C		solid	cored
In100		156,7	156,7	7,31	■	
Sn43 Pb43 Bi14	**	144	163	8,99	■	
Sn50 Pb32 Cd18	*	145	145	8	■	■
Sn51,2 Pb30,6 Cd18,2 - Eutectic	*	145	145	8,45	■	
Bi60 Cd40 - Eutectic	*	144	144	9,31	■	
Bi58 Sn42 - Eutectic		138	138	8,1....8,7	■	
Sn54 Pb26 In20	**	132	149		■	■
Bi56 Pb44 - Eutectic	**	125	125	10,6	■	
In74 Cd26 - Eutectic	*	123	123	7,62	■	
Sn58 In42		118	145	7,30	■	
Sn50 In50		118	125	7,3	■	
In52 Sn48 - Eutectic		117	117	7,3	■	
Bi54 Sn26 Cd20 - Eutectic (Newton's Metal)	*	103	103	8,6....8,9	■	
Bi50 Pb31,3 Sn18,7 - Eutectic	**	96	96	9,7	■	
Bi50 Sn25 Pb25 - Rose's Metal	**	96	98	9,32	■	
Bi50 Pb30 Sn20 - Lichtenberg Metal	**	96	98	9,70	■	
In44 Sn42 Cd14 - Eutectic	*	93	93	7,4	■	
Bi51,6 Pb40,2 Cd8,2 - Eutectic	*	91,5	91,5	10,4	■	
Bi57 In26 Sn17 - Eutectic		78,9	78,9	8,1....8,7	■	
Bi50 Pb26,7 Sn13,3 Cd10 - Lipowitz Metal	*	71	71	9,5	■	
Bi50 Pb25 Sn12,5 Cd12,5 - Wood's Metal	*	71	71	9,7	■	
Ga100 - Gallium		29,8			■	
Ga92 Sn8 - Eutectic		20			■	

* **Alloys** contain cadmium or lead and cadmium. Toxic vapours occur when processing these alloys.
Observe the health and safety information!

** **Alloys** contain lead (Pb)