

PRODUCT DATA SHEET

Fusible Alloys

Introduction

Indium Corporation is a leading global supplier of fusible alloys.

The low melting point of fusible alloys enables temporary bonding to workpieces during manufacturing, with easy removal after processing. This makes them well suited for lens blocking in optical manufacturing and workpiece holding.

Fusible alloys, such as Indalloy®281, are also used in Plugging and Abandonment (P&A) of gas wells, where controlled melting and expansion upon solidification provide reliable sealing and removal. In addition, they serve in fusible plugs and other thermal safety devices—such as fire sprinkler systems—where precise melting points ensure dependable activation.



Properties of Commonly Requested Fusible Alloys

Indalloy® Number	117	136	147	158	160–190	217–440	255	281	281–338
Alloy Composition	44.7Bi 22.6Pb 19.1In 8.3Sn 5.3Cd	49.0Bi 21.0In 18.0Pb 12.0Sn	48.0Bi 25.6Pb 12.8Sn 9.6Cd 4.0In	50.0Bi 26.7Pb 13.3Sn 10.0Cd	42.5Bi 37.7Pb 11.3Sn 8.5Cd	48.0Bi 28.5Pb 14.5Sn 9.0Sb	55.5Bi 44.5Pb	58.0Bi 42.0Sn	60.0Sn 40.0Bi
Liquidus °C (°F)	47 (117)	58 (136)	65 (149)	70 (158)	88 (190)	227 (441)	124 (255)	138 (281)	170 (338)
E = Eutectic	E	E		E			E	E	
Solidus °C (°F)	47 (117)	58 (136)	61 (142)	70 (158)	71 (160)	103 (217)	124 (255)	138 (281)	138 (280)
Density lbs/in³	0.3310	0.3255	0.3432	0.3461	0.3544	0.3360	0.3772	0.3093	0.2934
Tensile Strength lbs/in²	5,400	6,300		5,990	5,400	13,000	6,400	8,000	7,500
Brinell Hardness No.	16.5	16.5		14.5	15	19	15	23	23.5
Maximum Load 30sec lbs/in²	–	–		10,000	9,000	16,000	8,000	15,000	15,000
Safe Load Sustained	–	–		300	300	300	300	500	500
Electrical Conductivity Compared with Pure Copper (% IACS)	4.5	2.4		4	4.3	3	4	4.5	5

All information is for reference only.

Not to be used as incoming product specifications.

Storage and Shelf Life

Fusible alloys should be stored in a clean and dry environment to minimize the risk of oxidation, surface contamination, and unintended melting. Since some fusible alloys have lower melting points between 40–70°C, the storage temperature should be maintained well below the melting point to prevent softening or the material consolidating into large masses.

Fusible alloys have a shelf life of 12 months but can be used for an extended period of time with proper storage.

Technical Support

Indium Corporation sets the industry standard in providing rapid response and onsite technical support for our customers worldwide. Indium Corporation’s team of Technical Support Engineers can provide expertise in all aspects of Materials Science.

Safety Data Sheets

Please refer to the SDS document within the product shipment, or contact our local team to receive a copy.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices. All Indium Corporation’s products and solutions are designed to be commercially available unless specifically stated otherwise.

All of Indium Corporation’s solder paste and preform manufacturing facilities are IATF 16949:2016 certified. Indium Corporation is an ISO 9001:2015 registered company.

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