

LEAD-FREE ALLOY INFORMATION



AIM offers a broad range of RoHS compliant lead-free alloys for all SMT, wave soldering, hand soldering, and various applications. These alloys include all non-patented alloys, as well as the CASTIN and SN100C alloys. Many of these alloys are compatible with the flux chemistries currently used with tin-lead alloys, while some alloys require special flux chemistries. Other alloys are available upon request.

Alloy	Melting Point °C	Comment	Solder Form Availability					
			Solder Paste	Bar Solder	Cored Wire	Solid Wire	Solder Preforms	Solder Spheres
In52/Sn48	118	Alloy for low temperature applications. Costly due to high indium content. Attention should be paid to corrosion, joint strength and fatigue issues.	Yes	Yes	No	Yes	Some*	No
Sn42/Bi58	138	Alloy for low temperature applications. Attention should be paid to potential embrittlement issues and poor thermal fatigue properties.	Yes	Yes	No	Yes	Some	Yes
Sn42/Bi57/Ag1	138	Similar characteristics to Sn42/Bi58 with improved fatigue characteristics.	Yes	Yes	No	Yes	Some	Yes
In97/Ag3	143	Alloy for low temperature applications. Costly due to high indium and silver contents. Attention should be paid to corrosion, joint strength and fatigue issues.	Yes	Yes	No	Yes	Some	No
Sn91/Zn9	199	Attention should be paid to the very high corrosion and oxidation of Sn/Zn alloys. Requires special flux formulation. Short shelf-life.	No	Yes	No	Yes	Some	Yes
CASTIN® Sn/Ag2.5/Cu.8/Sb.5	217	The lowest melting point and least expensive of the tin-silver-copper family of alloys.	Yes	Yes	Yes	Yes	Yes	Yes
SAC305 Sn/Ag3.0/Cu0.5	217-218	Low-silver tin-silver-copper alloy in line with JEIDA recommendation. Lowest cost pure tin-silver-copper alloy.	Yes	Yes	Yes	Yes	Yes	Yes
SAC387 Sn/Ag3.8/Cu0.7	217-218	Alternative tin-silver-copper alloy. Similar characteristics as SAC305 with slightly higher cost of metals.	Yes	Yes	Yes	Yes	Some	Yes
SAC405 Sn/Ag4.0/Cu0.5	217-218	High-silver tin-silver-copper alloy. Similar characteristics as SAC305 with higher cost of metals.	Yes	Yes	Yes	Yes	Some	Yes
Sn96.5/Ag3.5	221	May not have adequate thermal reliability or wetting and requires higher soldering temperatures than tin-silver-copper alloys.	Yes	Yes	Yes	Yes	Yes	Yes
Sn95/Ag5	221-240	Alloy for high-temperature applications only. Costly due to high silver content.	Yes	Yes	Yes	Yes	Yes	Yes
SN100C	227	Sn/Cu/Ni + Ge alloy available from AIM in North America. Bright solder joints, improved wetting.	Yes	Yes	Yes	Yes	Yes	Yes
SAC-LOW	227	Low-silver, cost effective Sn/Cu/Ag alloy available for wave soldering and rework applications.	Yes	Yes	Yes	Yes	Yes	Yes
Sn99.3/Cu0.7	227	Cost-effective alternative for wave soldering and hand soldering applications. Attention should be paid to poor wetting and fatigue properties.	Yes	Yes	Yes	Yes	Yes	Yes
Sn97/Sb3	232-238	Alloy with similar properties to Sn95/Sb5.	Yes	Yes	Yes	Yes	Yes	Yes
Sn95/Sb5	232-240	Alloy for high-temperature applications only. Poor wetting. Less cost-prohibitive than Sn/Ag.	Yes	Yes	Yes	Yes	Yes	Yes
Au80/Sn20	281	Eutectic die attach alloy. Costly due to high gold content.	Yes	Yes	No	Yes	Some	Yes
Sn97/Cu3	227-300	Alloy for high-temperature applications only.	Yes	Yes	No	Yes	Yes	Yes
Sn/Ag25/Sb10	260-300	High Temperature die-attach alloy. Costly due to high silver content.	Yes	Yes	No	Yes	Yes	Yes
Au88/Ge12	356	Gold die attach alloy.	Yes	Yes	No	Yes	Some	Yes

* "Some" refers to preforms that generally are not available flux filled.

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