

Lead-Free Solder



SPECIFICATIONS

Range	Composition	Fusion Temperature °C	Features	Main Application
Sn-Cu	Sn-0.7Cu	227	Low melting point, low temperature, higher antioxidation property, good solder ability, bright solder surface	Manual soldering, wave soldering
	Sn-1.5Cu	227	Low melting point, high temperature, and belonging to high antioxidation solder, mainly used for the disposable soldering for the stripping of enameled wire	Manual soldering
	Sn-3.0Cu	227-300		
Sn-Cu-Ni-Ce	Sn-0.7Cu-0.1Ni-0.1Ce	227	Low melting point, good fluidity, bright solder joints and low cost.	Wave soldering
Sn-Ag-Cu	Sn-3.8Ag-0.7Cu	217-219	Low melting point, good fluidity and invasive ability, good ability of heat-resistant and high cost	Wave soldering, manual soldering, SMT Path
	Sn-3.0Ag-0.5Cu	217-220		
	Sn-0.3Ag-0.7Cu	217-227		
Sn-Zn	Sn-9Zn	198-200	Melting point is closed to Sn-Pb, but the wet ability and anti-oxidation effects are poorer	-
Sn-Sb	Sn-5Sb	240-243	High strength, good antioxidation property, inhibit metal compounds and improve the solder ability of solder joints	High temperature soldering
Sn-In	Sn-52In	118	Good performance, but poor the creep property and tensile strength, applicable to special process with low temperature soldering	-
Sn-Bi	Sn-58Bi	138		Wave soldering, manual soldering, SMT Path
Sn-Zn-Bi	Sn-8Zn-3Bi	190-197		Manual soldering, wave soldering
Sn	Sn99.99	232	Mainly used for handicraft and electric plating process	Electric plating

Tin-Lead Solder

• Solder Ball

- Uniform size
- Bright surface
- Purity of the structure close, no longer oxidation



• Tin Leaded Solder Alloy

Tin(%)	Lead(%)	Silver(%)	Other(%)	Solid phase temperature °C	Liquid phase temperature °C	Density g/cm3
100	0				232	7.28
95	5			183	222	7.42
90	10			183	213	7.55
85	15			183	205	7.7
80	20			183	199	7.85
75	25			183	192	8
70	30			183	186	8.16
65	35			183	184	8.33
63	37			183	183	8.4
60	40			183	191	8.5
55	45			183	200	8.68
50	50			183	212	8.87
45	55			183	227	9.07
40	60			183	238	9.28
35	65			183	247	9.5
30	70			183	257	9.72
25	75			183	268	9.96
20	80			183	280	10.21
15	85			183	288	10.7
10	90			275	302	10.75
5	95			308	312	11.06
0	100				327	11.35
16	32		58Bi	95	96	9.69
37	42		21Bi	120	152	9.16
49.7	41.8	0.5	8Bi	166	172	8.82
61.5	35.5	3		179	189	8.43
44	55	1		177	210	9.11
27	70	3		179	253	9.84
40	58		2Sb	185	231	9.17
5	92		3Sb	239	285	10.82
95		5		305	364	11.3

• Common Solder Types and Usage

Composition	Melting point °C	Working temperature °C	Density g/cm3	Main Application
63Sn/37Pb	183	240-250	8.4	Low melting point, good fluidity, widely used for the soldering of precision instruments, electrical and electronics, wave soldering and circuit board elements and aviation.
60Sn/40Pb	183-191	250-260	8.5	
55Sn/45Pb	183-200	260-280	8.68	
50Sn/50Pb	183-212	280-300	8.87	Mainly used for the soldering of appliance, auto electric parts and other general electronic products
45Sn/55Pb	183-227	280-320	9.07	
40Sn/60Pb	183-238	290-330	9.28	High melting point, widely used for soldering mechanical machine, lamp holder, auto water tank and the welding of cable connectors.

• Solder Bar

Solder bar is an alloy of solder cast or extruded into bar form for melting into solder pots. Solder bar melted into solder pots can be a faster, more automated method of soldering than hand-soldering with solder wire.



• Tin Leaded Solder Alloy

Tin(%)	Lead(%)	Silver(%)	Other(%)	Solid phase temperature °C	Liquid phase temperature °C	Density g/cm3
100	0				232	7.28
95	5			183	222	7.42
90	10			183	213	7.55
85	15			183	205	7.7
80	20			183	199	7.85
75	25			183	192	8
70	30			183	186	8.16
65	35			183	184	8.33
63	37			183	183	8.4
60	40			183	191	8.5
55	45			183	200	8.68
50	50			183	212	8.87
45	55			183	227	9.07
40	60			183	238	9.28
35	65			183	247	9.5
30	70			183	257	9.72
25	75			183	268	9.96
20	80			183	280	10.21
15	85			183	288	10.7
10	90			275	302	10.75
5	95			308	312	11.06
0	100				327	11.35
16	32		58Bi	95	96	9.69
37	42		21Bi	120	152	9.16
49.7	41.8	0.5	8Bi	166	172	8.82
61.5	35.5	3		179	189	8.43
44	55	1		177	210	9.11
27	70	3		179	253	9.84
40	58		2Sb	185	231	9.17
5	92		3Sb	239	285	10.82
95		5		305	364	11.3

• Common Solder Types and Usage

Composition	Melting point °C	Working temperature °C	Density g/cm3	Main Application
63Sn/37Pb	183	240-250	8.4	Low melting point, good fluidity, widely used for the soldering of precision instruments, electrical and electronics, wave soldering and circuit board elements and aviation.
60Sn/40Pb	183-191	250-260	8.5	
55Sn/45Pb	183-200	260-280	8.68	
50Sn/50Pb	183-212	280-300	8.87	Mainly used for the soldering of appliance, auto electric parts and other general electronic products
45Sn/55Pb	183-227	280-320	9.07	
40Sn/60Pb	183-238	290-330	9.28	High melting point, widely used for soldering mechanical machine, lamp holder, auto water tank and the welding of cable connectors.

● Solder Wire

- High performance soldering flux, fast melting speed, good fluidity and quick speed to coat with tin
- Less spatter during soldering
- Soldering flux is evenly distribution wit good continuity
- High temperature strength
- Good corrosion resistance
- Very little smoke and smell
- Less risk of crack solder point cracked, improve the melting between corrosion copper surface and alloy
- Less residues, no corrosion, high insulation resistance and free clean



● Tin Leaded Solder Alloy

Tin(%)	Lead(%)	Silver(%)	Other(%)	Solid phase temperature °C	Liquid phase temperature °C	Density g/cm3
100	0				232	7.28
95	5			183	222	7.42
90	10			183	213	7.55
85	15			183	205	7.7
80	20			183	199	7.85
75	25			183	192	8
70	30			183	186	8.16
65	35			183	184	8.33
63	37			183	183	8.4
60	40			183	191	8.5
55	45			183	200	8.68
50	50			183	212	8.87
45	55			183	227	9.07
40	60			183	238	9.28
35	65			183	247	9.5
30	70			183	257	9.72
25	75			183	268	9.96
20	80			183	280	10.21
15	85			183	288	10.7
10	90			275	302	10.75
5	95			308	312	11.06
0	100				327	11.35
16	32		58Bi	95	96	9.69
37	42		21Bi	120	152	9.16
49.7	41.8	0.5	8Bi	166	172	8.82
61.5	35.5	3		179	189	8.43
44	55	1		177	210	9.11
27	70	3		179	253	9.84
40	58		2Sb	185	231	9.17
5	92		3Sb	239	285	10.82
95		5		305	364	11.3

● Common Solder Types and Usage

Composition	Melting point °C	Working temperature °C	Density g/cm3	Main Application
63Sn/37Pb	183	240-250	8.4	Low melting point, good fluidity, widely used for the soldering of precision instruments, electrical and electronics, wave soldering and circuit board elements and aviation.
60Sn/40Pb	183-191	250-260	8.5	
55Sn/45Pb	183-200	260-280	8.68	
50Sn/50Pb	183-212	280-300	8.87	
45Sn/55Pb	183-227	280-320	9.07	
40Sn/60Pb	183-238	290-330	9.28	High melting point, widely used for soldering mechanical machine, lamp holder, auto water tank and the welding of cable connectors.