ALLOY INFORMATION

COMMON SOLDER ALLOYS

ALLOY	Ag	Cu	Pb	Sb	Sn	Melting Point (°C)	Density (lbs/in.³)
TIN							
Sn99					99.9	232	.2628
Sn96.5	3.5				96.5	221	.2657
Sn95	5				95	221-240	.2668
Sn90			10		90	183-213	.2682
Sn70			30		70	183-193	.2889
Sn63			37		63	183	.3032
Sn62	2		36		62	179	.3036
Sn60			40		60	183-188	.3068
Sn50			50		50	183-212	.3202
Sn40			60		40	183-247	.3430
Sn35			65		35	183-250	.3431
Sn30			70		30	183-257	.3509
Sn20			80		20	183-280	.3686
Sn10			90		10	275-302	.3881
Sn5			95		5	308-312	.3980
Sn3			97		3	314-320	.4030
SILVER							
Ag03A(CASTIN®)	2.5	0.8		0.5	96.2	217	.2670
SAC305	3.0	0.8			96.5	217-218	.2680
Ag2.5	2.5		97.5			304	.4070
Ag5.5	5.5		94.5			305-364	.4079
ANTIMONY							
Sb5				5	95	232-240	.2617
Sb2			63	2	35	185-243	.3350
Sb1			79	1	20	184-270	.3680
LEAD							
Pb88	2		88		10	268-290	.3880
Pb68			68	2	30	185-243	.3429
Pb80	2		80		18	252-260	.3826
Pb94	1.5		93.5		5	305-306	.3982
Pb93	2.5		92.5		5	299-304	.3980
Pb95	2		95		3	299-305	.3980
Pb96			96	2	2	252-295	.3956

SPECIALTY SOLDER ALLOYS

ALLOY	Ag	Au	Bi	Cd	Cu	Ge	In	Pb	Sb	Si	Sn	Melting Point (°C)	Density (lbs/in.³)
CADMIUM													
Cd70				70							30	140-160	.2770
Cd18				18				32			50	145	.3051
Cd1				1				32			65	216-219	.2657
COPPER													
Cu2					2			38			60	183-190	.3077
Cu1					1			49			50	183-215	.3202
BISMUTH													
Bi58			58								42	138	.3090
Bi52			52					32			16	100	.3465
Bi46			46					20			34	100-105	.3500
Bi14			14					43			43	144-163	.3245
Bi8			8					46			46	120-167	.3166
GOLD													
Au98		98								2		370-800	.6133
Au97		96.8								3.2		370	.5564
Au88		87.5				12.5						356	.5301
Au82		82					18					451-485	.5383
Au80		80									20	281	.5242
INDIUM													
In99							99.9					156	.2639
In80	5						80	15				142-149	.2834
In70							70	30				165-175	.2956
In60							60	40				173-181	.3072
In52							52				48	118	.2635
In50							50	50				178-210	.3198
In40							40	60				195-225	.3355
In30							30	70				245-260	.3590
In26							26	37.5			37.5	134-181	.3040
In25							25	75				250-264	.3599
In20							20	26			54	130-154	.2950
In19							19	81				270-280	.3707
In5		2.5					5	92.5				300-310	.3978

TECHNICAL INFORMATION ON COMMON & SPECIALTY ALLOYS

ALLOY COMPOSITION	MELTING POINT (°C)	TENSILE STRENGTH (ksi)	0.2% YIELD STRENGTH (ksi)	0.01% YIELD STRENGTH (ksi)	UNIFORM ELONGATION
In60/Sn40	118-122	1.10	0.67	0.53	5.5
Sn42/Bi58	138	9.71	6.03	3.73	1.3
Sn43/Pb43/Bi14	144-163	5.60	3.60	2.77	2.5
Sn62/Pb36/Ag2	179	4.50	2.57	2.06	17.9
In60/Pb40	173-181	4.29	2.89	2.06	10.7
Sn63/Pb37	183	4.92	2.34	1.91	1.38
Sn60/Pb40	183-188	4.06	2.06	2.19	5.3
Sn80/Pb20	183-199	6.27	4.30	2.85	0.82
Sn96.5/Ag3.5	221	8.36	7.08	5.39	0.69
Sn85/Pb10/Sb5	188-230	6.45	3.63	2.62	1.40
Sn95/Ag5	221-240	8.09	5.86	3.95	0.84
Sn95/Sb5	232-240	8.15	5.53	3.47	1.06
Sn5/Pb85/Sb10	245-255	5.57	3.67	2.26	3.50
Sn25/Pb75	183-268	3.35	2.06	1.94	8.4
Sn15/Pb82.5/Ag2.5	275-280	3.85	2.40	1.94	12.8
Sn10/Pb88/Ag2	268-290	3.94	2.25	2.02	15.9
Sn5/Pb93.5/Ag1.5	296-301	6.75	3.85	2.40	1.09
Sn10/Pb90	275-302	3.53	2.02	1.98	18.3
Sn1/Pb97.5/Ag1.5	309	5.58	4.34	3.36	1.15
Sn5/Pb95	308-312	3.37	1.93	1.83	26.0

ALLOY COMPOSITION	MELTING POINT (°C)	WETTING CHARACTERISTICS	THERMAL FATIGUE RESISTANCE	JOINT STRENGTH (psi)
Sn48/In52	118	Excellent	Excellent	1630
Sn42/Bi58	138	Fair	Poor	6800
In80/Pb15/Ag5	142-149	Good	Fair	2400
In100	157	Good	Good	900
In70/Pb30	165-175	Good	Good	2200
Sn62/Pb36/Ag2	179	Excellent	Poor	5600
Sn63/Pb37	183	Excellent	Poor	5400
CASTIN® Sn96.2/Ag2.5/Cu.8/Sb.5	217	Excellent	Excellent	6000
SAC305 Sn/Ag3.0/Cu.5	217-218	Excellent	Excellent	6000
Sn/Ag3.8-4.0/Cu0.5-0.7	217-218	Excellent	Excellent	6000
Sn96.5/Ag3.5	221	Excellent	Excellent	5300
In19/Pb81	244-275	Good	Good	5400
Pb92.5/In5/Ag2.5	300	Good	Fair	5700
Pb97.5/Ag1.5/Sn1	309	Good	Fair	5700

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