



ALCHEMY CASTINGS
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PIG & BAR SOLDER ALLOYS

Soft Solder Selection Chart & Technical Information

TIN/LEAD SOLDER ALLOYS

SOLDER ALLOY CLASSIFICATION	TEMPERATURE °F		TENSILE STRENGTH PSI	SHEAR STRENGTH PSI	SPECIFIC GRAVITY %	TYPICAL USES
	SOLIDUS	LIQUIDUS				
Pb 100	621	621	1780	1800	11.34	
Sn 5/ Pb 95	518	596	4190	3000	11.13	For Sealing pre-coated containers coating and joining metals.
Sn 10/ Pb 90	514	576	4400	3780	10.94	For Fabricating auto radiators, coating and joining metals where service temperatures are low enough to permit their use.
Sn 15/ Pb 85	437	553	4700	4470	10.7	
Sn 20/ Pb 80	362	533	4800	4740	10.5	
Sn 25/ Pb 75	362	514	5770	5310	10.3	For auto radiators and cans when machine or torch soldering.
Sn 30/ Pb 70	362	490	6140	5500	9.8	
Sn 35/ Pb 65	362	475	6230	5590	9.6	General purpose solder for sheet metal, radio & tv applications, cable wiping, auto radiators.
Sn 38/ Pb 62	362	465	6285	5640	9.81	
Sn 40/ Pb 60	362	460	6320	5680	9.34	
Sn 45/ Pb 55	362	440	5400	5780	9.13	For radiator cores, tv applications and roofing seams.
Sn 50/ Pb 50	362	420	6450	5870	8.91	General purpose solder for sheet metal, stained glass.
Sn 60/Ag 4/Pb 36	350	378	8500	7000	8.88	Commonly used for wave & dip soldering of electronic assemblies where low temperatures are required, also stained glass.
Sn 60/ Pb 40	362	375	6400	5700	8.67	
Sn 62/ Pb 38	362	363	6700	6060	8.50	
Sn 63/ Pb 37	362	362	6700	6060	8.42	

Sn= TIN Pb=LEAD Sb=ANTIMONY Cu=COPPER Ag=SILVER



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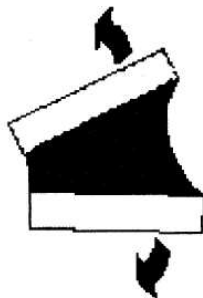
LEAD-FREE SOLDER ALLOYS

SOLDER ALLOY CLASSIFICATION	TEMPERATURE °F		TENSILE STRENGTH PSI	SHEAR STRENGTH PSI	SPECIFIC GRAVITY %	TYPICAL USES
	SOLIDUS	LIQUIDUS				
Sn 95/ Sb 5	450	464	5900	6200	7.26	Alloy with high strength and creep resistance. Will withstand service temperatures to 212 °F
Sn 95/ Ag 5	430	473	10100	8400	7.45	Lead-Free for potable water supplies, radiator repair and for stained glass.
Sn 96.5/ Ag 3.5	430	430	8900	4600	7.36	
Sn 97/ Cu 3	441	635	6420	-	7.34	
Sn 100	450	450	1800	2560	7.31	

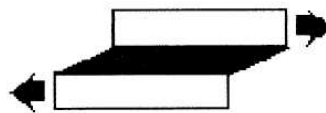
Tensile strength (P.S.I.) of soft solders at elevated and below zero temperatures.

ALLOY	ROOM TEMP.	200°F	300°F	-200°F	-300°F
Sn 5/ Pb 95	4190	2965	1785		
Sn 10/ Pb 90	5017	2917	1863		
Sn 20/ Pb 80	5410	3043	1518		
Sn 30/ Pb 70	6140	3120	1495		
Sn 40/ Pb 60	6320	3320	1275		
Sn 50/ Pb 50	6450	3090	1150		
Sn 60/ Pb 40	6400	3150	1000		
Sn 95/ Sb 5	5900	3700	2000	10,750	12,000
Sn1/ Ag1.5/Pb97.5	3600	2500	1750	7000	8750

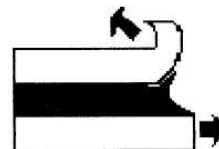
Four Basic Types of Stress



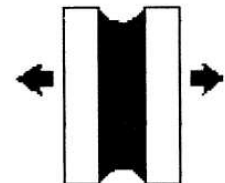
Cleavage



Shear



Peel



Tensile