



## SAC305 Lead Free Electrolytic Wave Solder Product Bulletin

### Purity Improves Process

Metallic Resources' SAC305 Lead-free solder alloy is manufactured from electrolytically processed tin and other elements to create solder so pure it far exceeds the most common specifications. It has been independently tested to meet all restrictions on hazardous substances. **It is RoHS compliant.** The specific alloy is Sn96.5/Ag3.0/Cu0.5 (commonly referred to as SAC305 alloy). The melt point is 217°C and recommended operating temperature ranges are between 250-275°C. Other variations on the tin/copper, tin/silver and tin/silver/copper combination alloys are also available, depending upon customer preference. Standard packaging includes 50 pound boxes containing cast bars, ingots, or feeder bars.

When copper content approaches 1.0%, Metallic Resources offers a replenishment alloy, SAC305-R to lower the copper content of the solder bath.

### Versatile Uses

Metallic Resources' high purity SAC305 electrolytic alloy has been specially formulated and designed for use in all wave soldering and tin and dip soldering applications. It is ideally suited for the assembly of printed circuit boards utilizing existing or new equipment found in the electronics market.

### Benefits

Metallic Resources' high purity SAC305 alloy is manufactured using an electrolytic process, which creates an alloy that is lower in viscosity, which improves the fluidity. Greater fluidity improves the alloys' wetting capability for better through-hole fill, and reduces necessary re-work including bridging, icicling, cobwebbing and flagging.



High purity electrolytic solder is environmentally friendly, and generates less dross compared to other "virgin grade" Lead-free alloys. Less dross generation results in a greater number of joints per pound of solder consumed and greater cost-effectiveness through less waste due to solder loss. Energy savings, extended pot life, reduced thermal stress, and reduced potential of contamination are all benefits derived from the electrolytic manufacturing process.

The electrolytic manufacturing process assures batch-to-batch consistency for predictable performance in the solder pot. The process removes most metallic and non-metallic impurities often found in "virgin metals" to provide a purer solder alloy. This purity results in a smaller crystalline structure which exhibits a shinier, more brilliant solder appearance when compared to other SAC305 alloys.



METALLIC RESOURCES, INC.

## Certified

Metallic Resources' SAC305 bar solder alloy exceeds the requirements of Specification IPC J-STD-006B. Certificates of Conformance and Analysis are provided with each shipment.

## Physical Properties

Melting Point (°C)	217
Density (g/cm <sup>3</sup> )	7.4
Operating temp. (°C)	250-275
Tensile Strength (M Pa)	52
Elongation	27
Thermal Conductivity (J/m•s •K)	64
Electrical Resistance (μ m)	0.15
Thermal Shock -10 to +100°C	>1000 cycles

Alloy SAC305 (Sn96.5/Ag3.0/Cu0.5)			
	J-STD-006B	MRI Specs	MRI Typical Analysis
Sn	96.5000 (±0.5)	96.3-96.8	96.4600
As	0.0300	0.0035 (max)	0.0015
Sb	0.0500	0.0250 (max)	0.0150
Au	0.0500	0.0002 (max)	0.0002
Fe	0.0200	0.0050 (max)	0.0030
Ni	0.0100	0.0060 (max)	0.0030
Bi	0.1000	0.0100 (max)	0.0040
Al	0.0050	0.0010 (max)	0.0001
Cu	0.5000 (±0.1)	0.5000 (±0.1)	0.5000
Ag	3.0000 (±0.2)	3.0000 (±0.2)	3.0100
Zn	0.0030	0.0010 (max)	0.0005
Cd	0.0020	0.0010 (max)	0.0005
In	0.1000	0.0100 (max)	0.0050
Pb	0.1000	0.0500 (max)	0.0250

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