

SC995e™ Lead Free Electrolytic Wave Solder Product Bulletin

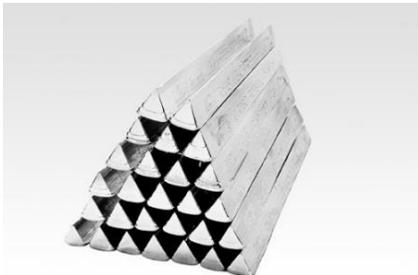
Purity Improves Process

Metallic Resources' SC995e™ lead free solder alloy is manufactured from electrolytically processed tin, copper, and cobalt to create solder so pure it far exceeds the most common specifications. **It is RoHS compliant.** The specific alloy is Sn99.5/Cu0.5/Co. Standard packaging is 25-pound boxes containing cast bars. Metallic Resources also offers nuggets, ingots, or feeder bars.

Versatile and Reliable

Metallic Resources' high purity lead free 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.

Metallic Resources' SC995e does not contain any rare earth or grain refiner ingredients (such as Nickel) which deplete and need to be added back to the alloy at great expense. Fewer process problems occur due to the stable nature of SC995e compared to other lead free alloys.



Higher Yield, Less Waste

This alloy provides brighter, shinier, less grainy solder joints when compared to SAC305 alloy. It is much less expensive. Lower viscosity improves the solder's 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 results in a greater number of joints per pound of solder consumed and greater cost effectiveness. 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.



METALLIC RESOURCES, INC.

Manufacturers of Superior Quality Electrolytic Solders

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Exceeds Industry Standards

Lead Free SC995e bar solder conforms to the requirements of IPC Specification J-STD-006. It meets or exceeds ASTM-32, and is approved for military usage. It complies with Directive 2011/65/EU and Directive 2015/863/EU Restriction of Hazardous Substances (RoHS 2 and 3).

Certificates of Conformance and Analysis are automatically provided with each shipment.

Physical Properties

Melting Point	228°C
Density	7.4 g/cm ³
Operating Temperature	260-275°C
Tensile Strength	28 M Pa
Tensile Yield Strength	21 M Pa
Tensile Elongation	27%
Max. Wetting Force	0.31 mN/mm at 265°C
Time to Max. Wetting Force	0.25 seconds
Specific Heat Capacity	295 J/kg•K
Thermal Conductivity (at 25°C)	81.75 W/m•K
Thermal Diffusivity (at 25°C)	3.817 x 10 ⁻⁵ m ² /s
Thermal Shock -10 to +100°C	> 1000 cycles
Temperature/Humidity	85°C/85% RH with
- No Tin Whiskers observed	Bias > 500 hrs
Coefficient of Thermal Expansion	3.47x10 ⁻³ mm/mm°C
Electrical Resistivity (at 25°C)	0.0000123 Ohm-cm

Technical Specifications

	SC995e MRI Specification	J-STD-006 Alloy Specification
Sn	99.5000 ± 0.5	99.5000 ± 0.5
As	.0035 (max)	.0300 (max)
Sb	.0250 (max)	.2000 (max)
Au	.0020 (max)	.0500 (max)
Fe	.0080 (max)	.0200 (max)
Ni	.0080 (max)	.0100 (max)
Bi	.0100 (max)	.1000 (max)
Al	.0010 (max)	.0050 (max)
Cu	.5000 ± 0.1	.5000 ± 0.1
Ag	.0080 (max)	.1000 (max)
Zn	.0010 (max)	.0030 (max)
Cd	.0010 (max)	.0020 (max)
In	.0200 (max)	.1000 (max)
Pb	.0500 (max)	.0700 (max)
Co	< .1000	N/A



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