

Ultrapure® K100

Lead-free Bar Solder Alloy

Product Description

Pressure from marketing and legislation in both Europe and Asia have forced electronics manufacturers to move away from lead-based solders. Typical lead-free alloys contain 3-4% silver, which can be cost prohibitive for many wave soldering applications.

In response to demand for a highly reliable low cost solder alloy, Kester has developed **Ultrapure® K100, a low-cost bar solder**. Kester K100 is a near-eutectic Tin/Copper alloy with controlled metallic dopants to control the grain structure within the solder joint. This improves reliability of the joint and virtually eliminates the occurrence of common defects such as icicling and bridging. The improved grain structure also results in shinier solder joints than traditional lead-free alloy alternatives.

Kester K100 compares favorably to other low-cost, lead-free alloys of tin and copper in terms of wetting and flow characteristics. Kester K100 provides the lowest delivered price to the global market for wave soldering operations.

- Low cost, lead-free alloy
- Bright, smooth solder joints with no visible shrinkage effects
- Excellent through-hole penetration and topside fillet
- Low dissolution of copper from boards and components into solder pot
- Near eutectic alloy
- Low dross rate

Maximum Allowed Impurities

Kester uses the highest purity virgin metals to make Kester K100. Kester K100 substantially exceeds the requirements of current industry standards for allowable impurity requirements. Kester K100 meets or exceeds the requirements of J-STD-006 and ASTM B32.

Element	J-STD-006	K100 (Sn Cu0.6)
Gold	0.050	0.002
Antimony	0.050	0.050
Cadmium	0.002	0.001
Zinc	0.003	0.001
Aluminum	0.005	0.002
Iron	0.020	0.010
Arsenic	0.030	0.020
Bismuth	0.100	0.020
Silver	0.100	0.100
Indium	0.100	0.007
Lead	0.100	0.050

Pot Maintenance

Kester's Solder Analysis Program (Option C) should be utilized periodically to verify composition and purity. If the concentration of Copper increases beyond 0.85%, it is recommended to top-off the solder pot with K100a. K100a contains a lower copper concentration (0.2%) than K100 and will help stabilize the level of Copper at the nominal concentration (0.6%).

Physical Properties

Melting Temperature	~227°C (441°F)
Tensile Strength	32 MPa (4600 psi)
Thermal Conductivity	64 W/m-K
Electrical Resistivity	13 $\mu\Omega$ -cm

Storage and Shelf Life:

Kester K100 solder has no limited shelf life when handled properly. Storage must be in a dry, non-corrosive environment. The solder surface may lose its shine and appear a dull shade of gray. This is a surface phenomenon and is not detrimental to product functionality.

Health & Safety:

This product, during handling or use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

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