

# ALPHA<sup>®</sup> Sn60Pb40 PLUS

## Solder Alloy Engineered for PV Ribbon Tinning

### DESCRIPTION

**ALPHA Sn60Pb40 Plus** is designed for PV Ribbon Tinning applications but is also suitable for use in wave solder, selective soldering and lead tinning processes. **ALPHA Sn60Pb40 Plus** improves a users reliability and total cost of ownership two ways. First, it has been engineered to minimize copper dissolution as compared to the generic Sn60Pb40 alloy. Second, it has been made using Alpha's proprietary Vaculoy manufacturing process which removes certain impurities and is further enhanced with additives that reduce oxide (dross) formation.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

### FEATURES & BENEFITS

#### Features:

- Copper Erosion – Low Cu erosion rates compared to conventional alloys.
- Dross Generation – Lowest in class due to the Vaculoy process in conjunction with the addition of a dross reducing agent.
- Solder Fillet Surface – Smooth and bright.

#### Benefits:

- Lowers Total Cost of Ownership due to high yields and low dross generation.
- Provides good solderability due to good wettability.
- Reduces erosion of copper plating which improving assembly reliability.
- Delivers good performance across different soldering processes.

The proprietary Vaculoy process is a highly effective method for removing included oxides from solder. This is extremely important because included oxides generate excessive drossing and increase the viscosity of the solder. Solder with higher viscosity can result in increased soldering defects (i.e solder bridging).

### APPLICATION GUIDELINES

ALPHA Sn60Pb40 Plus is suitable for wave soldering, selective soldering, lead tinning and PV Ribbon tinning applications. A solder pot temperature of >240 °C (>464 °F) is recommended, depending on the soldering applications. Appropriate liquid Alpha fluxes should be selected based on the application.

**TECHNICAL DATA**

Material Property	Units	Sn60Pb40 Plus
Solidus	Celsius	183
Liquidus	Celsius	183
Density	g/cc	8.53
Electrical Resistivity	$\mu\Omega$ -m	0.145
Thermal Conductivity	w/m.K	50

## Alloy Composition Specification

Alpha Sn60Pb40 Plus (% by weight)			
Sn	60.0 +/- 0.5	As	0.020 max
Pb	Balance	Ni	0.050 max
Ag	0.100 max	Bi	0.100 max
Cu	0.050 max	Cd	0.001 max
Sb	0.200 max	Al	0.001 max
Zn	0.001 max	In	0.050 max
Fe	0.010 max	Au	0.050 max

**AVAILABILITY**

ALPHA Sn60Pb40 Plus is available in 1kg (2.2lb) Bar, chunks, Feeder Ingots and Autofeed Wire.

**SAFETY & WARNING**

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available at [MacdermidAlpha.com/assembly-solutions/knowledge-base](http://MacdermidAlpha.com/assembly-solutions/knowledge-base)**

**STORAGE**

Store the solder bar in a cool, dry and non-corrosive environment. Wrap up the solder bar when not in use to reduce exposure to environment.

**CONTACT INFORMATION**

**To confirm this document is the most recent version, please contact  
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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