

ALPHA[®] VACULOY Sn42Bi57.6Ag0.4

Low Temperature Lead-Free Solder Alloy

DESCRIPTION

ALPHA Vaculoy Sn42Bi57.6Ag0.4 solder alloy is designed to enable low temperature processes. As with all Alpha bar solders, Alpha's proprietary Vaculoy alloying process is used to remove certain impurities, particularly oxides. This alloy may also be made into solid wire for use in auto-feed and rework applications.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

Features	Benefits
Low Temperature Processing	<ul style="list-style-type: none"> Enables soldering process with sensitive components or connectors Reduces energy consumption in soldering process versus standard lead-free alloys Enables the use of less expensive printed circuit board materials, when appropriate
Excellent Solderability	<ul style="list-style-type: none"> Compatible with all commonly used Lead-Free surface finishes
Low Dross Generation	<ul style="list-style-type: none"> Low dross generation delivered by Vaculoy alloy conditioning reduces soldering defects such as solder bridging

PRODUCT INFORMATION

0.10% of Pb complies with the requirement of RoHS Directive (Article 4.1 of the European Directive 2015/963/EU). Alloy specification for maximum Lead (Pb) Content = 0.07%.

Element	Specification %
Sn	Balance
Bi	57.6 +/- 0.5
Ag	0.4 +/- 0.1

APPLICATION GUIDELINES

ALPHA Vaculoy Sn42Bi57.6Ag0.4 solder alloy is suitable for electronic assemblers interested in implementing a low temperature lead-free process. A solder pot temperature of 165 to 195 °C is good starting point. However, ultimate solder pot temperature will depend on what you're soldering, and how thermally demanding the assembly is. This alloy may also be used in solid wire form in solder pot auto feed systems and a variety of rework applications.

All components and PCB substrates used with ALPHA Vaculoy Sn42Bi57.6Ag0.4 must be lead-free to eliminate the formation of tin/lead/bismuth intermetallic which has a melting point under 100 °C.

Note: Before considering using a low temperature solder in equipment with a solder “pot” it’s important to recognize that bismuth expands when it transitions from a molten liquid to a solid state. Please contact your equipment supplier to understand your machine condition for the compatibility to use in low temperature solder application.

For additional guidelines, please refer to our Reference Bulletin Alpha Solid Solders in Low Temperature Applications.

TECHNICAL DATA

Material Properties	Sn42Bi57.6Ag0.4
Melting Point	137.1 °C
Coefficient of Thermal Expansion	17.1 ppm/°C
Thermal Conductivity (W/mK)	24.5
Tensile Strength (As cast)	67 MPa

RECYCLING SERVICES

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams. Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



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.**

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
 Assembly@MacDermidAlpha.com
www.macdermidalpha.com**

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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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