

AO1000 Anti-Oxidant Additive for SN100C

Introduction

AO1000 Anti-Oxidant is designed to replenish germanium (Ge) in SN100C solder pots. Germanium is the primary anti-oxidant in SN100C solder which inhibits oxidation of the tin thereby reducing the rate of dross formation. When Ge is maintained at the recommended level in SN100C solder, the dross rate can be reduced by as much as 50%. Germanium improves fluidity and drainage of the SN100C solder, which minimizes the potential for bridging and icling. AO1000 is a concentrate of 1% Ge by weight in tin.

Attributes

- Reduced dross formation and reduced solder usage.
- Improved wetting and drainage.
- Smooth, bright solder fillets.

Additive Packaging	Part Number	Net Weight
Jar of discs	AO1000J	1 Kg
Box of bars	AO1000B	25 Lbs

Compatible Products

SN100C bar solder.
Ni10 nickel additive.

Storage and Handling

- Shelf life is 5 years when the additive is stored between 50 to 90 °F (10 and 32 °C) in a standard warehouse or office environment.
- Store inside of the original packaging to prevent contamination from dust or moisture.

Application

AO1000 protects the molten SN100C solder with a thin, colorless film at temperatures up to 370 °C (700 °F). Germanium protects the tin from oxidation by being preferentially oxidized and becoming part of the dross. Higher temperatures increase the rate of germanium consumption. It is recommended to reduce the solder temperature when the system is not in use. This will minimize the rate of germanium consumption and reduce the frequency of AO1000 additions.

AO1000 should be added to the SN100C solder bath based on analysis of the germanium concentration and the weight of solder in the solder pot. Calculations to determine the addition of AO1000 are shown below:

$$\begin{aligned} \text{AO1000 addition (lbs)} &= ((\text{Desired Ge \% wt}) - (\text{Actual Ge \% wt})) \times (\text{Solder pot weight in lbs}) \times 1.72 \\ \text{AO1000 addition (grams)} &= ((\text{Desired Ge \% wt}) - (\text{Actual Ge \% wt})) \times (\text{Solder pot weight in lbs}) \times 781 \end{aligned}$$

Desired Ge % wt = 0.0060% (typical)

Static solder pots:

Allow 10-15 minutes for the AO1000 to completely dissolve before use. Mixing will speed dissolution of the AO1000 into the molten solder. Mixing will also help to distribute the germanium uniformly throughout the solder pot.

Wave and selective solder pots:

Additions should be made to the side pot and not directly into the wave when possible. Allow 10-15 minutes for the AO1000 to completely dissolve before use. The wave or selective solder pump should be run to speed dissolution, and to help distribute the germanium uniformly throughout the solder pot.

Bars and discs of AO1000 may contain more mass than what is required for smaller selective solder pots. In this case, we recommend that AO1000 be cut, chipped, shaved, drilled, or melted to reduce the mass of the material to a quantity appropriate for addition.

FCT Solder provides solder analysis and reporting services to our customers. Regular analysis of SN100C solder is recommended. Contact customer service at cs@fctassembly.com for more details.

Safety

Wear heat resistant gloves and safety glasses when working around hot solder. Be careful to avoid splashing molten solder during additions. Follow the guidelines in the Safety Data Sheet (SDS).

Limited Liability and Warranty Disclaimer
--

All information, statements, technical data, and recommendations contained in this Technical Data Sheet are based on testing we believe to be reliable. However, the accuracy or completeness thereof is not guaranteed. It is impossible for our lab to account for all manufacturing conditions and variables. Products are warranted to be free from defects at the time sold. To the full extent consistent with applicable law, the exclusive remedy of the user or buyer is to receive replacement product for any product defective at the time sold. FCT Assembly, Inc. makes NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Further, FCT Assembly, Inc. makes no other express, implied, or statutory warranties unless otherwise specified in writing and signed by officers of the corporation.
