Eutectic Gold-Tin Solder Paste

Features
- High temperature solder
- Maximum solder joint strength
- Compatible with other precious metals
- More superior thermal conductivity when compared to standard solders
- Excellent wetting

Introduction
Eutectic gold-tin (Au/Sn) is 80% gold and 20% tin and has a eutectic melting temperature of 280°C (556°F). It can be made into solder paste form with various options to address specific applications. Gold-tin solder paste is generally used in applications that require a high melting temperature (over 150°C), which requires a hard solder alloy. It is also used in applications that require a high tensile strength and high corrosive resistance, or in step soldering applications where the paste will not melt during a subsequent low-temperature reflow process. For these reasons, Au/Sn solder paste is an ideal solution, and is the solder of choice for military, aerospace, consumer, and medical applications. In addition, Au/Sn solder paste yields are usually above 99.5%, which could lower the total cost of ownership and help achieve the goal of zero defects.

Flux Vehicles for Au/Sn Solder Paste
- RMA-SMQ51A
- RMA-SMQ51AC
- NC-SMQ51SC
* Product Data Sheets for these fluxes can be found at: http://www.indium.com/techlibrary/pds.php

Packaging
Standard packaging for dispensing applications include 10cc and 30cc syringes. Other packaging options are available upon request.

Storage and Handling Procedures
The shelf life of Au/Sn solder paste will differ depending upon which flux vehicle is used. Store syringes or cartridges tip down to prevent excessive flux separation.

Solder paste should be allowed to reach ambient working temperature prior to use. Generally, paste should be removed from refrigeration at least 4 hours before use. Actual time to reach thermal equilibrium will vary with container size. Do not use heat to quicken this process. Paste temperature should be verified before use. Syringes or cartridges should be labeled with the date and time of opening.

Dispensing
Au/Sn solder paste is formulated for automated high-speed, high-reliability, or single- or multi-point dispensing equipment. It also functions well in hand-held applications. Highly accurate volumes can be dispensed using either pneumatic or positive displacement devices. Optimal dispensing performance is dependent on storage conditions, equipment type, and set up.

Technical Support
Indium Corporation’s internationally experienced engineers provide in-depth technical assistance to our customers. Thoroughly knowledgeable in all facets of Material Science as it applies to the electronics and semiconductor sectors, Technical Support Engineers provide expert advice in solder properties, alloy compatibility and selection of solder preforms, wire, ribbon and paste. Indium Corporation’s Technical Support engineers provide Rapid Response to all technical inquiries.

Material Safety Data Sheets
The MSDS for this product can be found online at http://www.indium.com/techlibrary/msds.php

OVER
Eutectic Gold-Tin Solder Paste

Reflow

Recommended Profile:

Heating Stage (1):
A linear ramp rate of 1° - 2°C/second allows gradual evaporation of volatiles and helps minimize defects such as solder balling/beading and bridging as a result of hot slump. It also prevents unnecessary depletion of fluxing capacity when using higher temperature alloys.

Liquidus Stage (2):
A minimum peak temperature of 30° - 50°C above the melting point of the solder alloy is needed to achieve acceptable wetting and form a quality solder joint. The time above liquidus (TAL) should be 45-90 seconds. A peak temperature and TAL above these recommendations can result in excessive intermetallics formation that can decrease solder joint reliability. A ramp rate of 2.5°C – 3.5°C/second from liquidus to peak temperature is recommended.

Cooling Stage (3):
This stage refers to the temperature range from peak temperature to approximately 50°C below the liquidus temperature where the cooling rate has negligible effect. A rapid cool down of <4°C/second is desired to form a fine grain structure. Slow cooling will form a large grain structure, which typically exhibit poor fatigue resistance. If excessive cooling >4°C/second is used, both the components and the solder joint can be stressed due to a high TCE mismatch.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices.