

PRODUCT DESCRIPTION

Ormet 260C is a lead-free conductive paste used to create conductive interconnections in semiconductor packaging and printed circuit board applications. The innovative metal matrix incorporates Ormet Circuits' patented Thermal Liquid Phase Sintering (TLPS) technology to make robust fine line circuit traces and pads. Ormet Circuits' TLPS compounds enable lead-free metallic bonding at temperatures as low as 175°C. The metallurgy of **Ormet 260C** was specifically designed to maintain low and stable electrical resistance in lead-free component assembly cycles.

TYPICAL PROPERTIES

<u>Property</u>	<u>Test Method</u>	<u>Value</u>
Color 'As-received'	Visual	Copper color
Color 'Post-reaction'	Visual	Grey color ¹
Filler Type	Copper Filler and Tin Alloy Filler	
Nominal Particle Size	Hegman Gauge	< 10 microns
Maximum Particle Size		<25 microns
Viscosity	Cone & Plate viscosity (1/sec) Cone and Plate	500,000 cp
Approximate Specific Gravity		4.9 grams/cc
Electrical Resistivity	Volume Resistivity 4-point probe	50µm ohm*cm
Fine Line Electrical Resistivity	100um line width x 100um line height	200µm ohm*cm
Thermal Conductivity	Laser Flash Diffusivity	25 W/mK
CTE	TMA expansion mode	22 ppm/°C
Lap Shear	Copper to Copper (0.125 in ² overlap)	1300 psi ²
Weight Loss on Cure	TGA	4%
Work Life	Application testing after RT storage	24 hours @ 25°C
Dispensing Pot Life	Time on dispenser	24 hours @ 25°C
Estimated Screen Life	Via fill applications testing	8 hours
Estimated Storage Life		12 months < -10°C

¹ Surface may remain copper color if reacted in air or an atmosphere with sufficient oxygen to prevent fluxing of outer copper particles.

² SnPb solder paste tested as a control provided a value of 2200psi.

TYPICAL APPLICATIONS

Ormet 260C is used to enable highly reliable fine lines and traces on printed circuit boards. Line widths have been dispensed and cured to down to 80µm width with a low bulk resistance allowing better signal strength in commercial and industrial circuit layouts. Some applications that may be candidates for **Ormet 260C** include:

- Dispense based X/Y trace formation
- Screen Printed X/Y trace and pad formation
- Jet Dispensed fine Pillar Bumps

MATERIAL DEPOSITION GUIDELINES

Ormet 260C can be applied by several techniques. **Ormet 260C** is often applied using a metal mesh screen or stencil printing process. **Ormet 260C** can also be applied to form fine lines by dispensing or using an Asymtek dispense jet to enable fine conductive features. Please refer to Ormet's Applications Guide for additional detail.

SINTERING PROCESS GUIDELINES

	<u>Recommended Profile</u>	<u>Alternate Profiles</u>
Solvent Removal (Drying)	30 minutes @ 95°C	30 minutes @ 115°C 60 minutes @ 75°C
Sintering	60 minutes @ 190°C ³	120 minutes @ 165°C ⁴ 15 minutes @ 210°C

STORAGE AND HANDLING

Ormet 260C is supplied in 250 gram jars and a range of syringe and cartridge sizes. The storage temperature is -10°C MAX. **Ormet 260C** must be stabilized to room temperature for 30 minutes before opening the syringes or jars for use.

GENERAL INFORMATION

The Material Safety Data Sheet (MSDS) contains safe handling information for this product. Please read carefully before handling or using this product.

The information provided in this Technical Data Sheet is believed to be correct and reliable; however, Ormet Circuits, Inc. does not assume responsibility for the user's implementation. Ormet Circuits, Inc. specifically disclaims all warranties expressed or implied including warranties for merchantability or fitness for use for a particular purpose, arising from sale or use of our products.

This product is covered by United States and foreign patents, both issued and pending, for the material compositions, applications and techniques for use. Refer to www.ormetcircuits.com for detailed patent information.

³ Nitrogen Oven is recommended.

⁴ The ultimate conductivity of Ormet materials may not develop at very low temperatures, but will improve upon brief thermal conditioning. A post-sintering thermal exposure above 210°C will develop its final properties.