



PRODUCT INFORMATION

HIGH TECHNOLOGY MATERIALS

METADUCT 1216 SERIES

ONE-PART ELECTRO-CONDUCTIVE EPOXY SOLDER FOR CHIP DIE-BONDING AND MICRO-CIRCUIT ELEMENT INTERCONNECT APPLICATIONS

The **METADUCT 1216 SERIES** offers a selection of three convenient easy-to-use electro-conductive epoxy one-part solders for microelectronic applications. These are supplied as pastes suitable for either micro-dot dispensers or for simple hand application by knifeblade, spatula, roller or dental amalgam carrier. Short simple, moderate temperature cures convert **METADUCT 1216 SERIES** compounds to highly conductive solder-like connectives of exceptional bond strength suited to high speed production techniques.

METADUCT 1216 SERIES compounds require only simple contact to bond metals, ceramics, laminated circuit boards, plastics and glass; and readily dissipate heat where high thermal conductivity is required.

The **METADUCT 1216 SERIES** may be converted to screenable conductive coatings by thinning with suitable solvents such as lacquer thinner, VM&P naphtha or toluol. The reduced compounds may then also be applied by brushing, spraying, or dipping to provide excellent shielding for radio frequency interference filtering and static charge dissipation.

OUTSTANDING FEATURES OF METADUCT 1216 SERIES

- **High electrical conductivity**
- **Excellent bond strength**
- **High thermal dissipation**
- **Good static shielding, RFI filtering**
- **Single package, no mix, no hardeners**

SELECTION OF COMPOUND

METADUCT 1216 SERIES compounds differ mainly in degree of electrical conductivity and useful operating temperature range as summarized below.

PRODUCT NUMBER	RECOMMENDED OPERATING RANGE °C	VOLUME RESISTIVITY OHM-CM	PHYSICAL FORM	PRECURE TIME* AT 165°C
1216	-60 to 175	0.08	Putty like	12 min.
1216-1 (HTC)	-70 to 250	1.3×10^{-3}	Cream	6 min.
1216-2 (HEC)	-65 to 225	1.8×10^{-4}	Paste	4 min.

Technical information and recommendations made by Mereco Division and Metachem Resins Corporation concerning products and uses or applications thereof, are based on reliable laboratory tests and are believed to be accurate. No warranty, however, is expressed or implied, nor is any warranty expressed or implied as to results to be obtained from use of said materials, whether used singly or in combination with other products. No statements made are to be construed as constituting a license under any existing patent.

FORM 1105 REV. 0

DIRECTIONS FOR USE

A. AS A CONDUCTIVE ADHESIVE

1. Select the appropriate **METADUCT 1216 SERIES** compound.
2. Apply **Metaduct 1216 SERIES** compound to the face of chip.**
3. Bring mating parts together and although no pressure is required during cure, parts may be “fixtured” to eliminate possibility of shifting.
4. Cure as suggested under “Selection of Compound”. Post cure as directed or alternately for one-half hour at 150°C. (A controlled oven or hot plate is preferable. **METADUCT 1216** compounds may be cured at temperatures up to 260°C for only 2 to 3 minutes, but post curing is required for optimization of properties.)

B. AS A CONDUCTIVE COATING

1. Select the appropriate **METADUCT 1216 SERIES** compound.
2. Add any convenient solvent such as lacquer thinner, methyl ethyl ketone, toluol or VM&P naphtha. Apply by brush, spray, dip or other convenient method.
3. To prevent bubbling before heat curing allow solvents to dry at room temperature several hours or, alternatively, for 2 hours at 85°C then cure as for adhesion.

*Post curing for 1 to 2 hours at 125°C recommended for optimization of properties.

**MEREKO Technical Advisory Bulletin 3-626 details the preparation of surfaces for bonding.

PROPERTIES OF METADUCT 1216 SERIES

<u>PROPERTY</u>	<u>METADUCT 1216</u>	<u>METADUCT 1216-1 (HTC)</u>	<u>METADUCT 1216-2 (HEC)</u>
Color	Silver	Silver	Silver
Physical Form	Putty-like	Cream	Paste
Specific Gravity	2.9	2.9	2.9
Shelf Life*/25°C, months	4	3	3
Gel Time, 150°C, minutes	12	6	4
Operating Range, °C	-60 to 175	-70 to 250	-65 to 225
Tensile Shear Strength, psi 25°C, (Al/Al)	1500	1900	2000
Lead Bond Pull Test	Passes	Passes	Passes
Volume Resistivity, 25°C, ohm-cm	0.08	1.3 x 10 ⁻³	1.8 x 10 ⁻⁴

*Storage stability of **METADUCT 1216 SERIES** compounds can be extended by refrigeration.