

# Epoxies and Thermally Conductive Pastes



OMEGABOND® epoxy and OMEGATHERM® thermal conducting pastes are high temperature and high thermally conductive epoxies and silicone products. They are specially formulated for permanent and temporary bonding of thermocouples, thin film RTDs, thermistors and other temperature sensors. The pastes are also formulated to most surfaces—metals, ceramics, glass, plastics, and paper products.

OMEGABOND® and OMEGATHERM® products are compounded and packaged for convenient, easy mixing and application. Each formulation exhibits important characteristics necessary for accurate, fast, reliable temperature measurement. These are: good adhesion and strength, high temperature rating, high thermal conduction, high electric insulation, thixotropic consistency, fast cure, and easy application.

To assist in your selection, a summary of each product's properties are shown in the accompanying table.

"Twin pak" packaging is supplied to ensure the user with accurate proportioning of resin and catalyst, as well as to provide a clean, fast means of mixing. The "Twin Pak" is a flexible, transparent plastic pouch, separated into two isolated compartments by means of a removable external divider. In one compartment is the resin, in the other compartment is the pre-measured catalyst. To use, remove the divider, mix the two components by kneading the pouch, then snip-off a corner to dispense. Each "Twin Pak" comes with an instruction sheet, enclosed in a clear, heat-sealed plastic envelope.

## Typical Properties

Model No.	OB-100	OB-101	OB-102	OB-200	OT-201
<b>Material</b>	Fast set epoxy adhesive	Epoxy adhesive	Epoxy adhesive	Epoxy adhesive	Silicone grease
<b>Max. Continuous Temperature</b>	130°C (265°F)	105°C (221°F)	130°C (266°F)	260°C (500°F)	200°C (392°F)
<b>Cure</b>	8 to 12 min set room temp	Room temp	Room temp or Heat 16 to 24 hrs @ 25°C/77°F 4 to 6 hrs @ 45°C/113°F 1 to 2 hrs @ 65°C/149°F	Elevated temp	Not required
<b>Working Life</b>	8 min at room temp	30 min at room temp	45 min @ 25°C/77°F	24 hr at room temp	—
<b>Adheres to Most*</b>	M, C, PL, PA, W	M, C, PL, PA, W	M, C, and some PL with proper surface prep (cleaning / abrasion)	M, C, PL, PA, W	Wets most surfaces
<b>Thermal conductivity (k) (BTU) (in)/(hr) (ft<sup>2</sup>) (°F)</b>	Low	High 7.2	Very High 9.99	Very high 9.6	Extremely high 16
<b>Electrical Insulation Volume Resistivity ohm-cm</b>	High 10 <sup>12</sup>	Very high 10 <sup>15</sup>	Very High 10 <sup>15</sup>	Very high 10 <sup>15</sup>	Very high 10 <sup>14</sup>
<b>Tensile Shear PSI MIN</b>	2000	2200	Low stress bonding	2700	—
<b>Flexure Strength PSI MIN</b>	—	12,000	Low stress bonding	17,000	—
<b>Coefficient of Thermal Expansion in/in/°F</b>	51 x 10 <sup>-6</sup>	20 x 10 <sup>-6</sup>	—	21 x 10 <sup>-6</sup>	—

\*M = Metal  
C = Ceramic  
PL = Plastic  
PA = Paper Products  
W = Wood

The above information, while determined by tests and evaluation, is offered only as a general guide. Actual suitability for a particular purpose must be determined by material user. This information is not to be taken as a warranty for which we assume legal responsibility.



OB-200-2



## OMEGABOND® 100 (OB-100)

**OMEGABOND® 100**—a fast (8 to 12 minute setting time), room temperature, two-part epoxy. Recommended for easy temporary and permanent bonding of beaded wire and “cement-on” thermocouples. Adheres to metals, ceramics, epoxy laminates, glass, wood, concrete and many other materials—for temperature measurements up to 129°C (265°F). It is not recommended for those endeavoring to achieve the ultimate in precision and speed of response, since this unfilled system has a relatively low thermal conductivity.

Temporary installation of beaded wire thermocouples can be achieved by using a very small amount of OMEGABOND® 100 to tack the bead to the surface and packing OMEGATHERM® 201 around the exposed surface to improve heat transfer. This clear syrup consistency—100% solid adhesive — contains no solvents and has good strength and electrical insulation characteristics. Note: The working time after mixing the 2-part system at room temperature is only 6 to 8 minutes. OMEGABOND 100 is available in “Twin Pak” packs and 1- and 2-pound kits.

## OMEGABOND® 101 and 102 (OB-101 and OB-102)

**OMEGABOND® 101** (White epoxy) and **Omegabond 102** (black epoxy) are very versatile room-temperature curing, highly thermally conductive, 2-part epoxy adhesives designed specifically to bond permanently “cement-on” and beaded wire thermocouples and other sensors to a wide variety of material. At room temperature, the epoxy will be fully cured within 24 hours, but curing time can be accelerated by applying moderate heat.

## OMEGABOND® 200 (OB-200)

**OMEGABOND® 200**—is a black, high temperature, high thermally conductive, 2-part epoxy system which will bond sensors to most materials, including metals, glass, ceramics and most plastics. It is recommended for bonding of “cement-on” and beaded wire thermocouples for accuracy and fast temperature measurement to 260°C (500°F). This epoxy system cures at elevated temperatures. Curing time is 8 hours at 120°C (250°F), 2 hours at 205°C (400°F). It has excellent strength and electrical insulating characteristics. Its thixotropic paste consistency virtually ensures freedom from sag during curing when applied to vertical surfaces.

OMEGABOND® 200 is mixed 100 parts resin to 10 parts catalyst by weight, and is supplied in “Twin Paks” to ensure proper formulating.

1- and 2-pound kits are also available.

OB-100-1



OB-101-2

F-23

## OMEGATHERM® 201 (OT-201)

**OMEGATHERM® 201**—is a very high thermally conductive filled silicone paste, ideally suited for many temperature measurement applications. This thick, grey, smooth paste wets most surfaces and will not harden on long exposure to elevated temperatures. It is rated for continuous use between -40 and 200°C (-40 and 392°F).

OMEGATHERM® 201 provides an excellent means of conducting heat and expanding the heat-path area from a surface to a temperature measurement sensor, thus increasing the speed of response and improving accuracy. Some applications are:

- Surface Measurement Probes** — dab a small amount on the surface and push the sensor into this area.
- Temporary bonding and encapsulating of temperature sensors** — simply dab OMEGATHERM® 201 onto the surface or in the cavity, plant the sensor in the paste, and tape to hold in place.

This highly versatile paste is supplied in ½- and 2-ounce jars, as well as in 1- and 2-pound containers.

To Order	
Model No.	Description
OB-100-1/4	OMEGABOND 100 epoxy, one ¼ oz twin pak
OB-100-1	OMEGABOND 100 epoxy, one 1 oz twin pak
OB-100-16	OMEGABOND 100 epoxy, 8 oz resin, 8 oz catalyst kit
OB-101-1/2	OMEGABOND 101 epoxy, one ½ oz twin pak
OB-101-2	OMEGABOND 101 epoxy, one 2 oz twin pak
OB-101-16	OMEGABOND 101 epoxy, 8 oz resin, 8 oz catalyst kit
OB-102-16	OMEGABOND 102 epoxy, 16 oz resin, 1 oz catalyst (mix ratio 100 parts material to 3.5 parts catalyst by weight)
OB-102-1/2	OMEGABOND 102 epoxy, ½ oz resin, ½ oz catalyst (mix ratio 100 parts material to 3.5 parts catalyst by weight)
OB-102-2	OMEGABOND 102 epoxy, 2 oz resin, ½ oz catalyst (mix ratio 100 parts material to 3.5 parts catalyst by weight)
OB-200-2	OMEGABOND 200 epoxy, one 2 oz twin pak
OB-200-16	OMEGABOND 200 epoxy, 1 lb resin, 2 oz catalyst kit
OT-201-1/2	Thermally conductive paste, ½ oz jar
OT-201-2	Thermally conductive paste, 2 oz jar
OT-201-16	Thermally conductive paste, 16 oz can

### Multi-Purpose OMEGABOND® and OMEGATHERM® Kit

This versatile kit is recommended as a convenient way to determine the best means to bond sensors before ordering in quantity. Each kit contains:

- 4 — ¼ oz “Twin Paks” of OMEGABOND® 100
- 2 — ½ oz “Twin Paks” of OMEGABOND® 101
- 1 — 2 oz “Twin Pak” of OMEGABOND® 200
- 2 — ½ oz Jars of OMEGATHERM® 201

When ordering, specify “MPK-1”

