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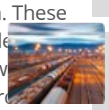
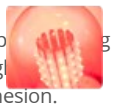
Thermal Adhesives & Epoxies

Thermal adhesives and epoxies offer high heat transfer and high voltage isolation. These compounds offer low shrinkage coefficients of thermal expansion comparable to copper or aluminum. They bond readily to metals, ceramics, most plastics and a wide variety of other materials. They can also eliminate the need for mounting hardware or attachments.



Ther-O-Bond 1500
Extremely versatile epoxy casting mix developed for high performance and adhesion.



Ther-O-Bond 1600
Durable, thermally conductive, high-impact bonding agent designed for smaller applications.

Thermalbond
High strength epoxy thermally conductive adhesives optimized adhesion to aluminum, steel, glass, ceramics and most plastics.

Need assistance?

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Ther-O-Bond 1500

MSDS Safety Sheet for Ther-O-Bond 1500 Resin
MSDS Safety Sheet for Ther-O-Bond 1500 Hardener

Ther-O-Bond 1500 utilizes versatile two-part epoxy casting system developed for high performance, production potting and encapsulating applications where low shrinkage and rapid air evacuation are required. This formulation has a flowable viscosity and a very low surface tension which affords excellent air release. It can be readily machined and shaped with ordinary shop tools and bonds easily to rigid plastics, laminates, metals and ceramics. When fully cured this epoxy system is an excellent electrical insulator and conductor of heat while providing resistance to electrolysis, leakage, corrosion, water damage, weather, gases, chemicals and most hazards associated with harsh environments.

AVAILABLE SIZES

Ther-O-Bond 1500 is available in a .946 liter (1 QT) jar

Part Number	RoHS	PCN	Package/Kit	Size
159900F00000G	RoHS Compliant	Product Change Notice	Resin and Hardener	.946 liter (1 Qt.)

Handling Characteristics

Mix Ratio by Weight, Resin to Hardener:	100 to 15
Mixed Viscosity @ 25°C, cps:	1000 - 1500
Work-Life @ 25°C	45 Minutes
Gel Time @ 25°C	3-6 Hours
Cure Schedule @ 25°C	8 Hours
Cure Schedule @ 65°C	1 Hour
Cure Schedule @ 100°C	0.5 Hour

Physical Properties

Color	Black
Specific Gravity	1.50
Operating Temp, °C	-60 to 155
Heat Distortion Temp, °C	100
Hardness, Shore D:	88

Thermal Conductivity W/(m°C)	1.26
Compressive Strength, psi	14,000
Dissipation Factor, 100 Kllz @25°C	0.01
Self Extinguishing?:	yes
C.T.E. (ppm/°C)	25
Tensile Strength (@25°C)	9200 psi
Dielectric Strength (volts/mil)	800
Shelf Life (DOM)	8 months(1)

(1) Stated shelf life is from date of manufacture. To allow for inventory cycle, product shipped from Aavid will have less than 12 months remaining shelf life. Aavid guarantees a minimum of 3 months remaining shelf life. Please adjust order quantity so all product will be consumed with in 3 months of date of shipment.

Ther-O-Bond 1500 Resistance Calculator

Enter the area of the device that will contact the heat sink:	mm^2
Enter the grease thickness:	mm
	Calculate
Interface Resistance =	

Formula

$$\text{interface resistance} = \frac{\text{interface thickness (mm)} * 1000}{\text{thermal conductivity (W/m-K)} * \text{contact area (mm}^2\text{)}}$$

Ther-O-Bond 1600

MSDS Safety Sheet for Ther-O-Bond 1600 Resin in PDF format
MSDS Safety Sheet for Ther-O-Bond 1600 Hardener in PDF format

Ideal for smaller applications, Ther-O-Bond 1600 is a two part system that produces a stable, high-impact bond at room temperature with good heat transfer characteristics and electrical isolation. Once mixed, it becomes a thermally conductive thixotropic compound that can be used for potting thermistors, diodes, resistors, integrated circuits and other heat sensitive components into printed circuit boards. The compound bonds readily to itself, metals, ceramics, silica, steatite, alumina, sapphire, glass, plastics and a number of other materials due to its compatible coefficient for thermal expansion.

AVAILABLE SIZES

Ther-O-Bond 1600 is available in a 10g (0.35oz) and 40g (1.40oz) bi-pack.

Ordering Information

Description	Part Number	RoHS	PCN	Package/Kit	Size
Ther-O-Bond 1600	161000F00000G	RoHS ✓ Compliant	Product Change Notice	2-Part Plastic Kit	10gm (.35 oz.)
Ther-O-Bond 1600	164000F00000G	RoHS ✓ Compliant	Product Change Notice	2-Part Plastic Kit	40gm (1.40 oz.)

Handling Characteristics

Mix Ratio by Weight, Resin to Hardener:	100 to 5
Mixed Viscosity @ 25°C, cps:	33,000
Work-Life @ 25°C	45 Minutes
Gel Time @ 25°C	3-6 Hours
Cure Schedule @ 25°C	8 Hours
Cure Schedule @ 65°C	1 Hour
Cure Schedule @ 100°C	0.5 Hour

Physical Properties

Color	Blue
Specific Gravity:	2.30
Operating Temp, °C	-70 to 115
Hardness, Shore D:	90
Izod impact, F1 Lbs/Inch of Notch	0.49
Thermal Conductivity W/(m-°C)	0.85
C.T.E. (ppm/°C)	25
Tensile Strength (@25°C)	9200 psi
Tensile Lap Shear, psi	2900
Dielectric Strength (volts/mil)	410
Dielectric Constant (1 KHz @ 25°C)	5.9
Dissipation Factor, KH@ 25°C	5.9
Shelf Life (DOM)	18 months1

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Ther-O-Bond 1600 Resistance Calculator

Enter the area of the device that will contact the heat sink:	mm2
Enter the grease thickness:	mm
	Calculate
Interface Resistance =	

Formula

$$\text{interface resistance} = \frac{\text{interface thickness (mm)} * 1000}{\text{thermal conductivity (W/m-K)} * \text{contact area (mm}^2\text{)}}$$

Thermalbond

Thermalbond is a compound created using a two part epoxy resin system. It provides exceptional adhesion to copper, aluminum, steel, glass, ceramics and most plastics while possessing a coefficient of thermal expansion that is extremely compatible with aluminum, copper and brass. Once cured, Thermalbond is exceptionally resistant to environmental hazards.

AVAILABLE SIZES
Thermalbond is avaliable in single use packets of 25 g (.875 oz), 100 g (3.5 oz) and 200 g (7.0 oz) as well as a 3.25 lbs can.

Part No.	RoHS	PCN	Net Weight	MSDS Safety Sheets
4949G	RoHS ✓ Compliant	Product Change Notice	25 grams (.875 oz) in single use package	Hardener Epoxy
4950G Part Discontinued	RoHS ✓ Compliant	Product Change Notice	50 grams (1.75 oz) in single use package	Hardener Epoxy
4951G	RoHS ✓ Compliant	Product Change Notice	100 grams (3.5 oz) in single use package	Hardener Epoxy
4952G	RoHS ✓ Compliant	Product Change Notice	200 grams (7.0 oz) in single use package	Hardener Epoxy
4953G	RoHS ✓ Compliant	Product Change Notice	3.25 lbs.	Hardener Epoxy

Note: Matched quantity of RT-7 hardener is included.

Mixing Instructions:
Mix resin thoroughly before removing material. Add 7.1 parts of RT-7 hardner to 100 parts of resin by weight, or 17 parts of RT-7 hardener to 100 parts of resin by volume. Adhesive will set up in:
24 hrs at 25°C (77°F) 1 hr. at 100C (212°F)
2 hrs. at 65°C (149°F) 30min. at 130°C (266°F)

Note: For maximum electrical and physical properties, a post cure is necessary. Post cure at room temperature for 4 days or for 4 hours at 93°C (200°F).

Typical Electrical and Physical Properties at Room Temperature with RT-7 Hardener

Characteristics	Typical Values
Specific gravity	2.35
Working viscosity	25,000 cps
Thermal conductivity	1.34Wm-1°C-1 (.77 Btu/hr ft °F)
Thermal resistivity	29.4°C in/watt
Tensile strength	6.34 x 107Pa(9,200 psi)
Compressive strength	1.44 x 108Pa(20,900 psi)
Bond shear strength	3.17 x 107Pa(4,600 psi)
aluminum to aluminum, 25.4mm (1") overlap @ 25°C, (77°F)	
Thermal coefficient of expansion	24 x 10-6/°C (13.2 x 10-6/°F
Water absorption, % after 10 days@ 25°C (77°F)	.20
Hardness, Shore D	86
Volume resistivity	1.0 x 1016
Dielectric strength	59.1 x 103volts/mm (1500 volts/mil)
Dielectric constant@25°C (77°F) 100KHz	6.1
Dielectric factor@25°C (77°F) 100KHz	0.020
Operating temperatures	-65°C to 155°C (-85°F to 311°F)
Linear shrinkage	0.002 in/in
Shelf life (DOM)	12 months1
Pot life@25°C (77°F)	2-3 hours
Suggested stripping agent	Miller-Stephenson MS 111
Cleaning solvent	Acetone

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Thermalbond Resistance Calculator

Enter the area of the device that will contact the heat sink:	mm2
Enter the grease thickness:	mm
	Calculate
Interface Resistance =	

Formula

$$\text{interface resistance} = \frac{\text{interface thickness (mm)} * 1000}{\text{thermal conductivity (W/m-K)} * \text{contact area (mm}^2\text{)}}$$

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