TIMTRONICS
THERMAL INTERFACE MATERIALS

Thermally Conductive Epoxy Adhesives

Product Description: **TIM-800** series are thermally conductive, electrically insulating epoxies engineered with highly conductive ceramic fillers and non-silicone resins. They are designed for the demanding needs of die-attach heat sink bonding and surface mount applications. Rapid heat transfer properties eliminate hot spots and the low epoxy shrinkage factor minimizes the risk of damage to fragile components, resulting in increased operating efficiencies. Available in one part, two parts, heat curable and room temperature cure systems.

Typical Applications: Fabricating heat sink, bonding semiconductors, substrate attach, lid seal, SMD attach, stacking components and die attach applications.

One Part Thermally Conductive Epoxy Adhesives

Property	813	813LV	813HTC	811HP
Type	One Part/Heat Cure	One Part/Heat Cure	One Part/Heat Cure	One Part/Heat Cure
Special Future	Thixotropic. No Sag. High Bond Strength at high temperature.	Low viscosity. Thixotropic. No Sag. High Bond Strength at high temperature.	High Thermal Conductivity. Thixotropic. No Sag. High Bond Strength at high temperature.	Low Temp Cure. High temp resistance. Excellent water, solvent & chemical resistance.
Application	LEDs, Thermal die attach, damming.	LEDs, Thermal die attach, damming	Laser diodes, photovoltaic, high power RF amplifiers	Aerospace/high temperature applications
Mix Ratio by volume				
Color	Black	Black	Black	Gray
Shelf Life	4 months@ 25°C 6 months@ 5°C	4 months@ 25°C 6 months@ 5°C	4 months@ 25°C 6 months@ 5°C	4 months@ 25°C 6 months@ 5°C
Viscosity @25°C cp	1,200,000	800,000	900,000	Paste
Gel Time (Pot Life) (100 grams)	30 Min@ 80°C	30 Min@ 80°C	30 Min@ 80°C	>180 Min@ 80°C
Cure Schedule	30 min@ 150°C or 60 min@ 125°C	30 min@ 150°C or 60 min@ 125°C	30 min@ 150°C or 60 min@ 125°C	10 min@ 150°C or 45 min@ 125°C
Fixture Time	5-10 min@ 150°C	5-10 min@ 150°C	5-10 min@ 150°C	5-10 min@ 150°C
Hardness (Shore D)	90	90	90	84
Glass Transition Temperature	145°C	145°C	145°C	130°C
Lap Shear Strength. Aluminum	2620psi	2620psi	2620psi	4500psi
Service Temperature Range	-55°C to 200°C	-55°C to 200°C	-55°C to 200°C	-55°C to 230°C
THERMAL				
Thermal Conductivity (W/m-K)	**1.8**	**1.8**	**2.7**	**1.5**
ELECTRICAL				
Dielectric Strength (Volts/Mil)	460	460	460	??
Volume Resistivity (Ohm-cm)	10^15	10^15	10^15	10^15

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Two Parts Thermally Conductive Epoxy Adhesives

Property	827TC	885	816TC	816HTC	818	802F
Special Future	High Strength. Crack Resistance.	Non-Hazmat	Vibration resistance, low temperature flexibility.	Very High Thermal Conductivity. Superior metal to metal bonding.	Flash Cure in 5 minutes. No mix type	Structure bonding. Vibration & Shock Resistance. Variety mix ratio offers desire hardness
Type	Two Parts	Two Parts	Two Parts	Two Parts	Two Parts /No Mix	Two Parts
Hardener	N/A	EH-22	N/A	N/A	63	EH-14
Mix Ratio by Wt (A/H)	100/46	100/7	100/100	100/100	No Mix type	100/100(see TDS to choose mix ratio
Color	Gray	Black	Black	Gray	White	Clear/Amber
Shelf Life	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C	4 months@ 25°C 6 months@ 5°C
Mixed Viscosity @25°C cp	120,000	Paste	>250,000	Paste	Paste	See TDS
Gel Time (Pot Life) (100 grams)	60 Min @ 25°C	40 Min@ 25°C	45 Min@ 25°C	80 Min@ 25°C	N/A	120 Min@ 25°C
Cure Schedule	24 hrs@ 25°C or 30 min@ 90°C	24 hrs@ 25°C or 30 min@ 100°C	24 hrs@ 25°C or 60 min@ 80°C	24 hrs@ 25°C or 30 min@ 90°C	5 minutes @ 25°C. Flash cure.	24 hrs @ 25°C or 60 min@ 100°C
Cured Properties						
Hardness (Shore D)	86	91	81	86	91	80
Glass Transition Temperature	62°C	>70°C	90°C	90°C	N/A	85°C
Lap Shear Strength. Alumimum	>3500psi	>3000psi	3000psi	>3500psi	1860psi	3200psi
Service Temperature Range	-55°C to 100°C	-55°C to 150°C	-55°C to 150°C	-55°C to 160°C	-55°C to 150°C	-55°C to 230°C
THERMAL						
Thermal Conductivity (W/m-K)	**0.9**	**1.3**	**1.6**	**2.7**	**0.8**	**N/A**
ELECTRICAL						
Dielectric Strength (Volts/Mil)	420	430	420	420	570	430
Volume Resistivity (Ohm-cm)	10^11	10^15	10^14	10^11	10^13	10^15

TIMTRONICS
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Thermally Conductive Potting Compounds(TIM-PC Series)

Product Description: **TIM-PC** series are pourable, filled Silicone Free epoxy resin or silicone resin systems offering excellent heat transfer, high voltage insulation, low exothermic and minimum shrinkage. These compounds transfer heat rapidly, thereby eliminating hot spots and increasing the operating efficiency of most encapsulated devices. The low shrinkage design feature minimizes risk of damage to fragile components.

Typical Applications

These products are designed for protecting components in applications such as densely packaged power supplies and heat generating components, integrated circuits, power and operational amplifiers, transformers and many types of semiconductors

Epoxy-Resin based (Silicone Free) Potting Compounds

Property	8006M-4	8015	8017	8018	8850FT	8850FT-NH
Special Future	Flame Retardant Excellent Adhesion. Flexible impact resistance.	High Temp Stable up to 230°C. Long pot life. High TG	DOT/IATA Non-Hazmat High Thermal Conductivity.	DOT/IATA Non-Hazmat High Thermal Conductivity	Available with selective hardeners for desire viscosity, TG, pot life & cure temp.	DOT/IATA Non-Hazmat
Type	Two Parts	Two Parts	Two Parts	Two Parts	Two Parts	Two Parts
Hardener	**A&B Mix**	**TH-10**	**TH-40**	**TH-22**	**TH-9**	**TH-22**
Mix Ratio by Wt (A/H)	100/12	100/25	100/12	100/8	100/3.5	100/4.5
Color	Black	Black	Black	Gray	Black	Black
Shelf Life	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C
Mixed Viscosity @25°C cp	4000	3000	20,000	40,000	50,000	50,000
Gel Time (Pot Life) (100 grams)	1 hr @ 25°C	>8 hrs @ 25°C	3 hrs @ 25°C	1 hr @ 25°C	1 hr @ 25°C	1 hr @ 25°C
Cure Schedule	24-48 hrs@ 25°C or 2 hrs @ 100°C	2 hrs @ 150°C or 4 hrs @ 100°C	24-48 hrs@ 25°C or 2 hrs @ 65°C	24 hrs@ 25°C or 2 hrs@ 100°C	24-48 hrs@ 25°C or 2 hrs@ 70°C	24-48 hrs@ 25°C or 2 hrs@ 70°C
Cured Properties						
Hardness (Shore)	A-85	D-92	D-93	D-91	D-90	D-90
Glass Transition Temperature	28°C	145°C	75°C	>80°C	86°C	86°C
Flexural Strength	N/A	12,300psi	13,800psi	12,300psi	14,700psi	14,700psi
Service Temperature Range	-55°C to 120°C	-55°C to 230°C	-55°C to 150°C	-55°C to 150°C	-55°C to 150°C	-55°C to 150°C
THERMAL						
Thermal Conductivity (W/m-K)	**0.7**	**1.4**	**1.6**	**2.5**	**1.6**	**1.6**
ELECTRICAL						
Dielectric Strength (Volts/Mil)	480	473	460	473	430	430
Volume Resistivity (Ohm-cm)	10^14	10^16	10^15	10^15	10^15	10^15

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Silicone Potting Compounds

Product Description:

Thermally Conductive, two parts, low viscosity potting compound that cures at room temperature to a soft pliable rubber. Will cure in deep sections. Designed to achieve primerless adhesion to many substrates, including metals, plastics, and ceramics. The excellent electrical properties make it a candidate material for both high and low voltage electrical assemblies.

Typical Applications:

Potting and encapsulating of**:**

- Equipment modules, Power supplies, relays and amplifiers, Transformers, coils and ferrite cores
- Fiber optic wave guide coatings
- Encapsulation of circuit boards

Property	8550TC	8550AC	8556
Special Future	Flame Retardant Self-Bonding Flexible, impact and thermal shock resistance.	Low Viscosity Long pot life High Dielectric	High Temperature rated up to 240°C Meets UL94V0 Long pot life Fast cure
Type	Two Parts	Two Parts	Two Parts
Mix Ratio by Wt (A/H)	1:1	1:1	1:1
Color	Gray	Gray	Black
Shelf Life	12 months@ 25°C	12 months@ 25°C	12 months@ 25°C
Mixed Viscosity @25°C cp	4000	1300	2000
Gel Time (Pot Life) (100 grams)	1 hr @ 25°C	2 hr @ 25°C	2 hr @ 25°C
Cure Schedule	24-48 hrs@ 25°C or 2 hrs @ 70°C	24-48 hrs@ 25°C or 30 minutes @ 100°C	24 hrs@ 25°C or 15 minutes@ 150°C
Cured Properties			
Hardness (Shore)	A-42	A-62	A-46
Tensile Strength	>250psi	450psi	>280psi
Service Temperature Range	-55°C to 200°C	-55°C to 200°C	-55°C to 240°C
THERMAL			
Thermal Conductivity (W/m-K)	**1.2**	**0.65**	**0.40**
ELECTRICAL			
Dielectric Strength (KV/mm)	17.5	26	17.5
Volume Resistivity (Ohm-cm)	10^14	10^15	10^15