



Thermally Conductive Epoxy Adhesive

TC 2810

Technical Data

March, 2004

Product Description

3M™ Thermally Conductive Epoxy Adhesive TC 2810 is a boron nitride filled, two-part, thermally conductive epoxy adhesive.

Key Features

- Improved thermal conductivity.
- Curing performance comparable to 3M™ Scotch-Weld™ Epoxy Adhesive DP-460 and 3M™ Scotch-Weld™ Epoxy Adhesive DP-460 EG.
- Lower outgassing than Scotch-Weld epoxy adhesive DP-460 or Scotch-Weld epoxy adhesive DP-460 EG.
- Lower chloride ion content than standard epoxies.

Typical Uncured Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Product		3M thermally conductive epoxy adhesive TC 2810
Viscosity	Base Accelerator Mixed	70,000-80,000 cps 30,000-40,000 cps 50,000-70,000 cps
Base Resin	Base Accelerator	Epoxy Amine
Filler	Boron Nitride	24% by weight
Mix Ratio (B:A)	Volume	2:1
Worklife		60 minutes at 72°F (23°C)
Net Weight (lb/gal)	Base Accelerator Mixed	10.84 10.28 10.63

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Typical Cured Properties

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Product	3M™ Thermally Conductive Epoxy Adhesive TC 2810
Color	Cream
Glass Transition Temperature	See Chart on page 3
Thermal Coefficient of Expansion	62 x 10 ⁻⁶ /°C (below T _g) 205 x 10 ⁻⁶ /°C (above T _g)
Thermal Conductivity*	0.80-1.4 W/m-°K
Thermal Impedance**	0.05°C in ² /W (2 mil)
Volume Resistivity	7.58 x 10 ¹² ohm-cm
Dielectric Strength	750 volts/mil
Dielectric Constant	4.6
Dissipation Factor	.09
Total Outgassing	<25 µg/g (GC/MS, 85°C/3 hours)
Hydrocarbon Outgassing	<25 µg/g (GC/MS, 85°C/3 hours)
Siloxane Outgassing	<2 µg/g (GC/MS, 85°C/3 hours)
Extractable Siloxane	<10 µg/g (hexane extraction)
Extractable Chloride	<10 µg/g (hexane extraction)

*Test method dependent.

**Impedance value corrected for interfacial impedance of test method.

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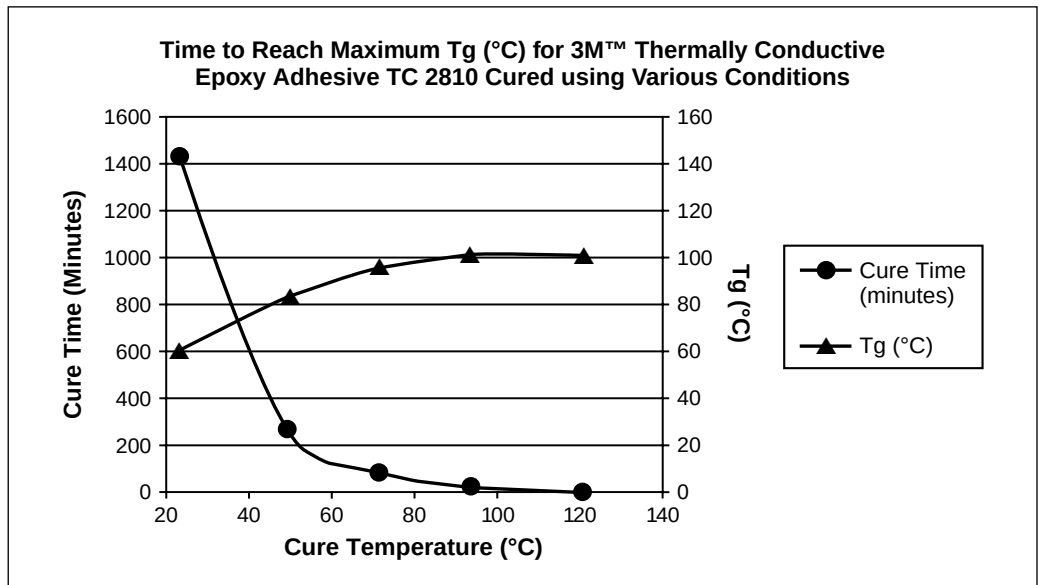
Curing

Cure Schedule: 23°C/24 hours
50°C/270 minutes
70°C/90 minutes
90°C/30 minutes
120°C/10 minutes

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Shear Strength, Peel Strength, Tg vs. Cure Temperature/Time

	72°F (23°C) 24 hours	194°F (90°C) 30 minutes	248°F (120°C) 10 minutes
Overlap Shear (psi) (ASTM D-1002)	3000	3000	3000
T-Peel (piw) (ASTM D-1876)	12	12	12
Shore D Hardness	75	80	80
Tg (°C) Tan Delta	60	100	100



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Storage	Store 3M™ Thermally Conductive Epoxy Adhesive TC 2810 at 60-80°F (15-27°C) or refrigerate for maximum shelf life and to reduce filler settling.
Shelf Life	3M thermally conductive epoxy adhesive TC 2810 has a shelf life of 12 months after date of manufacture in its original container.
Precautionary Information	Refer to product label and Material Safety Data Sheet for health and safety information before using the product.
For Additional Information	To request additional product information or to arrange for sales assistance, call toll free 1-800-251-8634. Address correspondence to: 3M Electronics Markets Materials Division, Building 21-1W-10, 900 Bush Avenue, St. Paul, MN 55144-1000. Our fax number is 651-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.
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