

# 3M

## Scotch-Weld™

### Epoxy Adhesive

#### DP-460 EG

#### Technical Data

November, 2006

#### Product Description

3M™ Scotch-Weld™ Epoxy Adhesive DP-460 EG is designed to have lower outgassing and lower ionics than 3M™ Scotch-Weld™ Epoxy Adhesive DP-460. Laboratory testing has shown that Scotch-Weld Epoxy Adhesive DP-460 EG's curing and adhesive performance to be comparable to Scotch-Weld Epoxy Adhesive DP-460.

#### Application Ideas

- Hard Disk Drive Assembly
- Spindle Motor Assembly
- Magnet Bonding
- E-Block Assembly
- Bearing Cartridge Assembly
- Potting
- Rigidizing

#### Key Features

- Curing and bonding performance comparable to Scotch-Weld Epoxy Adhesive DP-460
- Total outgassing < 1000 µg/g (via GC/MS, 85°C for 3 hours)
- Siloxane outgassing ≤ 5 µg/g (via GC/MS, 85°C for 3 hours)
- Lower chloride ion content than standard epoxies

#### Typical Uncured Physical Properties

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

Product		Scotch-Weld Epoxy Adhesive DP-460 EG
Viscosity (at 72°F [23°C])	Base Accelerator Mixed	25,000 - 45,000 cps 10,000 - 15,000 cps 15,000 - 25,000 cps
Base Resin	Base Accelerator	Epoxy Amine
Color	Base Accelerator	White Amber
Net Weight (lb/gallon)	Base Accelerator	9.4 9.0
Mix Ratio (B:A)	Volume Weight	2:1 2:0 : 0.96
Worklife (72°F [23°C])		60 minutes

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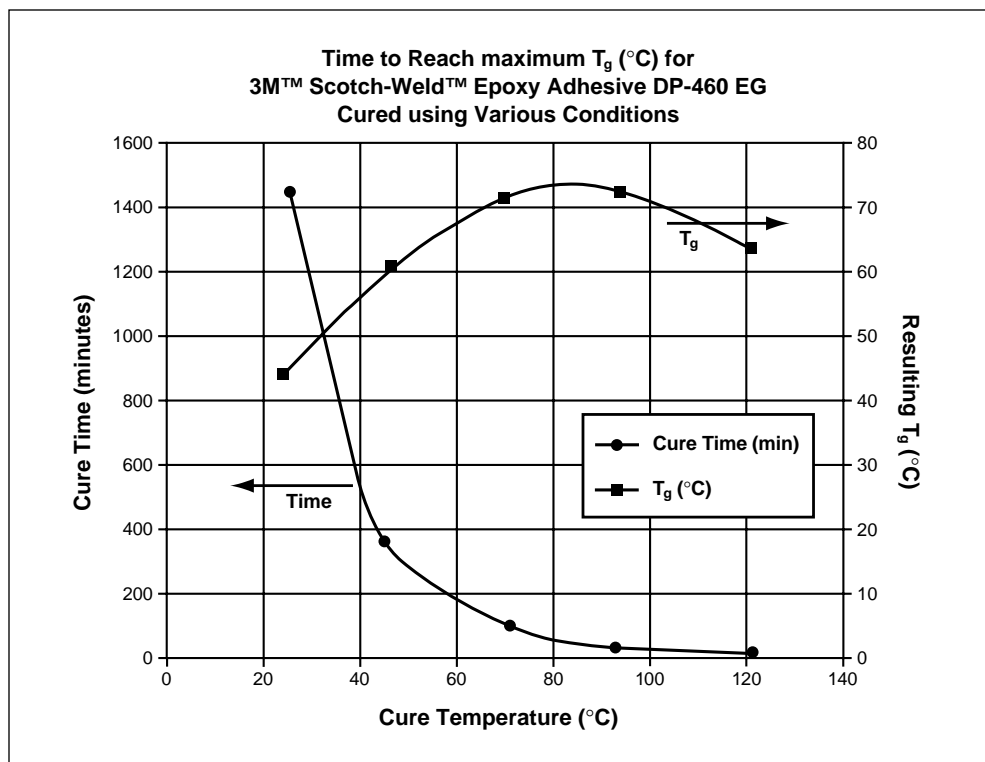
## Epoxy Adhesive

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#### Curing

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

This adhesive will cure in 24 hours at room temperature. Heating will accelerate the cure and can result in a higher  $T_g$  than room temperature curing yields. Curing data is shown in the figure below.



*Note: If the adhesive has become grainy or lumpy in appearance when dispensed, this may be due to crystallization of the adhesive. This can be corrected by heating the adhesive in the syringe to 120°F (49°C) for 30 minutes, then allowing the adhesive to cool before dispensing.*

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## Typical Performance Characteristics<sup>1</sup>

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

### Shear and Peel Strength vs. Cure Temperature/Time

	<b>72°F (23°C) 24 hours</b>	<b>120°F (49°C) 270 minutes</b>	<b>160°F (71°C) 90 minutes</b>	<b>200°F (93°C) 30 minutes</b>	<b>250°F (121°C) 10 minutes</b>
<b>Overlap Shear<sup>2</sup> (lbf/in<sup>2</sup>) (ASTM D-1002-72)</b>	> 5000	> 5000	> 5500	> 5500	> 5500
<b>T-Peel<sup>3</sup> (lbf/in) (ASTM D1876-61T)</b>	60 <sup>4</sup>	59 <sup>4</sup>	43 <sup>4</sup>	39 <sup>5</sup>	45 <sup>5</sup>

<sup>1</sup> - See Technical Data Sheet 3M™ Scotch-Weld™ Epoxy Adhesive DP-460 for additional typical performance characteristics.

<sup>2</sup> - 0.060 inch thick, etched aluminum pulled at 0.10 inches/minute.

<sup>3</sup> - 0.032 inch thick, anodized aluminum pulled at 20 inches/minute.

<sup>4</sup> - Cohesive failure mode.

<sup>5</sup> - Adhesive failure mode.

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## Storage and Shelf Life

**Storage:** Store 3M™ Scotch-Weld™ Epoxy Adhesive DP-460 EG at 60-80°F (15-27°C) or refrigerate for maximum shelf life.

**Shelf Life:** Scotch-Weld Epoxy Adhesive DP-460 EG has a shelf life of 12 months in its original container.

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#### Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

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#### 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 651-778-4244 or 1-877-369-2923. 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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#### Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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