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## 3M™ Scotch-Weld™ Epoxy Potting Compound DP270 Black, 400 mL Duo-Pak, 6 per case

An electrical grade two-part epoxy for potting and bonding electronic components, and is electrolytically non-corrosive to copper. It has a 1:1 mix ratio and is a non-exotherming, high flow, opaque black product with a 70 minute worklife.

GTIN(UPC/EAN) : 0 00 21200 87837 4  
3M Id : 62-3266-3530-7

### Characteristics

<b>Color</b>	Black
<b>Product Form</b>	Each
<b>Trademark Name 1</b>	3M
<b>Trademark Name 2</b>	Scotch-Weld

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## 3M™ Scotch-Weld™ Epoxy Potting Compound DP270 Black, 400 mL Duo-Pak, 6 per case Packaging

**3M Id:** 62-3266-3530-7

**Minimum Order Quantity:** 6.0 EACH

**Case Quantity:** 6.0 EACH

	English	Metric
Length	8.2 INCH	0.208 MTR
Width	6.3 INCH	0.159 MTR
Height	9.9 INCH	0.251 MTR
Gross Weight	10.1200 LBS	4.5904 KG

# 3M Scotch-Weld™ Epoxy Potting Compound/Adhesive DP270 Clear and Black

Technical Data

February, 2004

## Product Description

3M™ Scotch-Weld™ Epoxy Potting Compound/Adhesive DP270 (or 3M™ Scotch-Weld™ Epoxy Potting Compound/Adhesive 270 B/A) is a two-part, low viscosity epoxy resin system designed primarily for potting, sealing, and encapsulation of many electronic components and is available in clear or black. Scotch-Weld epoxy potting compound/adhesive DP270 is noncorrosive to copper and offers good thermal shock resistance and excellent retention of electrical insulation properties under high humidity conditions.

Scotch-Weld epoxy potting compound/adhesive DP270 has a work life of approximately 70 minutes, a tack-free time of about 3 hours and is fully cured after 48 hours at 73°F (23°C). This product produces no exotherm in 5-10 gram masses and a very slight exotherm in larger masses.

Scotch-Weld epoxy potting compound/adhesive DP270 is ideal for the potting and encapsulation of many heat sensitive or delicate components such as glass diodes and sensors as well as for transformers, coils, chokes, relays, etc. It is available in the convenient 3M™ EPX™ Applicator System for multi-station usage and in bulk containers for larger volume applications.

Available in bulk containers as Scotch-Weld epoxy potting compound/adhesive 270 B/A.

## Features

- Good Thermal Shock Resistance
- Meets UL 94 HB (File No. E61941)
- Long Worklife
- Excellent Electrical Properties
- Noncorrosive to Copper
- Negligible Exotherm

## 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.**

<b>Color:</b>	Clear or Black
<b>Base Resin:</b>	Epoxy/amine
<b>Mix Ratio:</b>	1:1 by volume (1:0.85 B:A by weight)
<b>Net Weight: Lbs./Gal.</b>	Base 9.6 - 9.8 Accelerator 8.0 - 8.2
<b>Worklife:</b>	60-70 minutes @ 23°C (73°F)
<b>Viscosity: @ 23°C (73°F)</b>	Base 7000 - 16,000 cps Accelerator 6000 - 12,000 cps

# Scotch-Weld™

## Epoxy Potting Compound/Adhesive

### DP270 Clear and Black

#### Typical Cured Properties

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

<b>Physical:</b>	
Color	Clear or Black
Refractive Index @ 25°C (77°C)	Clear 1.656
Cure Shrinkage	.08%
Shore D Hardness (ASTM D-2240)	83
Tack-free Time	Approx. 3 hrs. @ 23°C (73°F)
UL Rating	94 HB (File No. E61941)
Cure Time	48 hrs. @ 23°C (73°F)
<b>Thermal:</b>	
Weight Loss by TGA (in air)	1% @ 122°C (252°F) 5% @ 175°C (347°F) 10% @ 210°C (410°F)
Thermal Coefficient of Expansion by TMA	
Below Tg	80 x 10 <sup>-6</sup> units/unit/°C 5-30°C range (10-86°F range)
Above Tg	180 x 10 <sup>-6</sup> units/unit/°C 60-125°C range (140-257°F)
Glass Transition Temperature by DSC	
Onset	43°C (109°F)
Mid-Point	49°C (120°F)
Thermal Conductivity (@ 110°F on .250" samples)	
BTU - ft./ft. <sup>2</sup> - hr. - °F	.103
Cal./sec. - cm - °C	.426 x 10 <sup>3</sup>
Watt/m - °C	.177
Thermal Shock Resistance	
Potted Washer Olyphant Test	Pass 5 Cycles without cracking
3M Test Method C-3174	
+100°C (air) to -50°C (liquid)	
<b>Electrical:</b>	
Dielectric Constant (ASTM D-150)	3.5 @ 1 KHz @ 23°C (73°F)
Dissipation Factor (ASTM D-150)	.018 @ 1 KHz @ 23°C (73°F)
Dielectric Strength (ASTM D-149)	850 volts/mil
Volume Resistivity (ASTM D-257)	4.1 x 10 <sup>14</sup> ohm-cm
Insulation Resistance (.8 mm/.8 mm comb pattern on FR-4) 60°C/96% R.H./100 volts d.c.)	
Initial	3 x 10 <sup>13</sup> ohms
1000 hrs.	2 x 10 <sup>11</sup> ohms

# Scotch-Weld™

## Epoxy Potting Compound/Adhesive

### DP270 Clear and Black

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<b>Storage</b>	Store product at 60-80°F (16-27°C) for maximum storage life.
<b>Shelf Life</b>	These products when stored in original, unopened container have a shelf life of two years for bulk containers and 15 months in duo-pak containers.
<b>Precautionary Information</b>	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.
<b>For Additional Information</b>	To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550 or visit <a href="http://www.3M.com/adhesives">www.3M.com/adhesives</a> . Address correspondence to: 3M Industrial Adhesives and Tapes Division, Building 21-1W-10, 900 Bush Avenue, St. Paul, MN 55144-1000. Our fax number is 651-778-4244. 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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This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.



Industrial Business  
Industrial Adhesives and Tapes Division



Recycled Paper  
40% pre-consumer  
10% post-consumer



## Material Safety Data Sheet

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** 3M(TM) Scotch-Weld(TM) Epoxy Potting Compound/Adhesive DP-270, Black (Part B)  
**MANUFACTURER:** 3M  
**DIVISION:** Industrial Adhesives and Tapes Division

**Document Group:** 11-1418-0

**Product Use:**

Specific Use: base component two part epoxy adhesive  
 Intended Use: Structural adhesive

### SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
EPOXY RESIN	25068-38-6	90 - 99
HYDROCARBON RESIN	9003-53-6	3 - 7
CARBON BLACK	1333-86-4	0.5 - 1.5

### SECTION 3: HAZARDS IDENTIFICATION

#### 3.1 EMERGENCY OVERVIEW

**Odor, Color, Grade:** black, very mild odor.

**General Physical Form:** Liquid

**Immediate health, physical, and environmental hazards:** May cause allergic skin reaction.

#### 3.2 POTENTIAL HEALTH EFFECTS

**Eye Contact:**

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

**8.2.1 Eye/Face Protection**

The following eye protection(s) are recommended: Safety Glasses with side shields, Indirect Vented Goggles.

**8.2.2 Skin Protection**

Wear appropriate gloves, such as Nomex, when handling this material to prevent thermal burns. Avoid skin contact. Avoid skin contact with hot material. Gloves are not required.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

Gloves made from the following material(s) are recommended: Polyethylene/Ethylene Vinyl Alcohol.

**8.2.3 Respiratory Protection**

Avoid breathing of dust created by cutting, sanding, grinding or machining.

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half mask R95 particulate respirator, Half mask or full facepiece air-purifying respirator with N100 particulate filters, Half facepiece or fullface air-purifying respirator with P100 particulate filters, Half facepiece or fullface air-purifying respirator with P95 particulate filters, Half facepiece or fullface air-purifying respirator with N95 particulate filters. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

**8.2.4 Prevention of Swallowing**

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

**8.3 EXPOSURE GUIDELINES**

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
CARBON BLACK	ACGIH	TWA	3.5 mg/m3	Table A4
CARBON BLACK	CMRG	TWA	0.5 mg/m3	
CARBON BLACK	OSHA	TWA	3.5 mg/m3	Table Z-1

SOURCE OF EXPOSURE LIMIT DATA:

- ACGIH: American Conference of Governmental Industrial Hygienists
- CMRG: Chemical Manufacturer Recommended Guideline
- OSHA: Occupational Safety and Health Administration
- AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Odor, Color, Grade:</b>	black, very mild odor.
<b>General Physical Form:</b>	Liquid
<b>Autoignition temperature</b>	<i>No Data Available</i>
<b>Flash Point</b>	>=370.00 °F [ <i>Test Method: Cleveland Open Cup</i> ]
<b>Flammable Limits - LEL</b>	<i>Not Applicable</i>
<b>Flammable Limits - UEL</b>	<i>Not Applicable</i>
<b>Boiling point</b>	> 300 °F
<b>Vapor Density</b>	<i>Not Applicable</i>
<b>Vapor Pressure</b>	<=27 psia [@ 131 °F]
<b>Specific Gravity</b>	1.150 [ <i>Ref Std: WATER=1</i> ]

<b>pH</b>	<i>Not Applicable</i>
<b>Melting point</b>	<i>No Data Available</i>
<b>Solubility in Water</b>	Nil
<b>Evaporation rate</b>	<i>Not Applicable</i>
<b>Volatile Organic Compounds</b>	<i>Not Applicable</i>
<b>Percent volatile</b>	<i>Not Applicable</i>
<b>VOC Less H2O &amp; Exempt Solvents</b>	<i>Not Applicable</i>
<b>Viscosity</b>	13000.0 - 16000.0 centipoise [ <i>Details: CONDITIONS: (@ Room Temperature)</i> ]

## SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable.

**Materials and Conditions to Avoid:** Strong acids; Strong oxidizing agents; Heat is generated during cure. Do not cure a mass larger than 50 grams in a confined space to prevent a premature reaction (exotherm) with production of intense heat and smoke.

**Hazardous Polymerization:** Hazardous polymerization will not occur.

### Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Aldehydes	During Combustion
Hydrocarbons	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Ketones	During Combustion
Toxic Vapor, Gas, Particulate	During Combustion

## SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

## SECTION 12: ECOLOGICAL INFORMATION

### ECOTOXICOLOGICAL INFORMATION

Not determined.

### CHEMICAL FATE INFORMATION

Not determined.

## SECTION 13: DISPOSAL CONSIDERATIONS