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## 3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear Duo-Pak, 1.7 oz, 12 per case



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A water clear, fast cure, very flexible epoxy adhesive with excellent peel strength.

[Full Description](#) »

A fast setting, very flexible 1:1 mix ratio epoxy adhesive/sealant. Its flexibility when cured makes it ideal for applications involving dissimilar surfaces where thermal coefficient of expansion may be a problem. Retains its clear, colorless properties when cured.

### Products

Product / 3M Id / UPC	Color	Product Form	Trademark Name 2	
3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear Duo-Pak, 1.7 oz, 12 per case	Clear	Each	Scotch-Weld	
3M Id : 62-3287-1435-7 GTIN(UPC/EAN) : 0 00 21200 87203 7				

# 3M

# Scotch-Weld™

## Epoxy Adhesives

### DP-105 Clear

#### Technical Data

#### Product Description

3M™ Scotch-Weld™ Epoxy Adhesive DP-105 Clear is available in larger containers like 3M™ Scotch-Weld™ Epoxy Adhesive 105 B/A Clear.

Scotch-Weld DP-105 Clear is a fast setting, very flexible 1:1 mix ratio epoxy adhesive/sealant. Its flexibility when cured makes it ideal for applications involving dissimilar surfaces where thermal coefficient of expansion may be a problem. It is also unique in that it retains its clear, colorless properties even when cured in larger masses where many clear epoxy systems will often turn amber from the reaction exotherm.

#### Features

- 4 minute worklife
- Flexible
- Clear
- High peel strength
- 1:1 mix ratio

#### 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.**

##### Footnotes:

1. Viscosity determined using 3M test method C-1d. Procedure involves Brookfield RVF, #7 spindle, 20 rpm and 80°F (27°C). Measurement taken after 1 minute rotation.
2. Worklife determined using 3M test method C-3180. Procedure involves periodically measuring a 2 gram mixed mass for self-leveling and wetting properties. This time will also approximate the usable worklife in an EPX mixing nozzle.

Product	Scotch-Weld DP-105 Clear	
<b>Base Resins</b>		Epoxy/Mercaptan
<b>Color</b>	Base (B) Accelerator (A)	Clear Clear
<b>Net Weight (Lbs./Gallon)</b>	Base (B) Accelerator (A)	9.1 - 9.5 9.4 - 9.8
<b>Viscosity<sup>1</sup>, Approximate @ 80°F (27°C)</b>	Base (B) Accelerator (A)	1,000 - 5,000 cps 8,000 - 16,000 cps
<b>Mix Ratio (B:A)</b>	By Volume By Weight	1:1 1:0.97
<b>Worklife<sup>2</sup> @ 73°F (23°C)</b>	2 gram 20 gram	5 minutes 4 minutes

# Scotch-Weld™ Epoxy Adhesives DP-105 Clear

## Typical Cured Properties

### Footnotes:

2. Worklife determined using 3M test method C-3180. Procedure involves periodically measuring a 2 gram mixed mass for self-leveling and wetting properties. This time will also approximate the usable worklife in an EPX mixing nozzle.
3. Tack-free determined per 3M test method C-3173. Involves dispensing 0.5 gram amount of adhesive onto substrate and testing periodically for no adhesive transfer to metal spatula.
4. Handling strength determined per 3M test method C-3179. Time to handling strength taken to be that required to achieve a 50 psi OLS strength using aluminum substrates.
5. The cure time is defined as that time required for the adhesive to achieve a minimum of 80% of the ultimate strength as measured by aluminum-aluminum OLS.
6. Tensile and Elongation. Used procedure in 3M test method C-3094/ASTM D 882. Samples were 2" dumbbells with .0125" neck and .030" sample thickness. Separation rate was 2 inches per minute. Samples cured 2 hrs RT plus 2 hrs/160°F (71°C).
7. Weight loss by TGA reported as that temperature at which 5% weight loss occurs by TGA in air at 5°C (4°F) rise per minute per ASTM 1131-86.
8. TCE determined using Dupont TMA Analyzer using a heating rate of 50°F (10°C) per minute. Second heat values given.
9. Glass Transition Temperature (Tg) determined using Perkin Elmer DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.
10. Thermal conductivity determined using ASTM C177 and C-matic Instrument using 2 inch diameter samples.
11. Thermal shock resistance run per 3M test method C-3174. Involves potting a metal washer into a 2" x 0.5" thick section and cycling this test specimen to colder and colder temperatures.

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

	Scotch-Weld DP-105 Clear
<b>Physical</b>	
<b>Color</b>	Clear
<b>Hardness Shore D (ASTM D 2240)</b>	39
<b>Worklife<sup>2</sup></b>	3-4 minutes
<b>Tackfree Time<sup>3</sup></b>	10 minutes
<b>Time to Handling Strength<sup>4</sup></b>	20 min. @ 23°C (73°F)
<b>Cure Time<sup>5</sup></b>	48 hrs. @ 23°C (73°F)
<b>Elongation<sup>6</sup></b>	120%
<b>Tensile Strength<sup>6</sup></b>	600 psi

<b>Thermal</b>	
<b>Weight Loss by Thermal Gravimetric Analysis (TGA)<sup>7</sup></b>	1% @ 117°C (243°F) 5% @ 289°C (552°F)
<b>Thermal Coefficient of Expansion (TCE) by TMA<sup>8</sup></b> (∞ x 10 <sup>-6</sup> units/unit/°C) <b>Below Tg</b> <b>Above Tg</b>	— 181 (40-140°C range)
<b>Glass Transition Temperature (Tg) by DSC<sup>9</sup></b> <b>Onset</b> <b>Mid-Point</b>	8°C (46°F) 15°C (59°F)
<b>Thermal Conductivity<sup>10</sup></b> (@ 110°F on .250" samples) <b>BTU-ft./ft.<sup>2</sup> - hr.-°F</b> <b>Cal./sec -cm-°C</b> <b>Watt/m-°C</b>	.085 .35 x 10 <sup>-3</sup> .147
<b>Thermal Shock Resistance<sup>11</sup></b> <b>Potted Washer Olyphant Test</b> <b>(3M/AdhD Test Method C-3174</b> <b>+100°C [air] to -50°C [liquid])</b>	Pass 5 cycles without cracking

<b>Electrical</b>	
<b>Dielectric Constant @ 1 KHz</b> <b>@ 23°C (73°F) [ASTM D 150]</b>	9.2
<b>Dissipation Factor @ 1 KHz</b> <b>@ 23°C (73°F) [ASTM D 150]</b>	0.22
<b>Dielectric Strength (ASTM D 149)</b> <b>Sample Thickness Approx. 30 mil</b>	465 volts/mil
<b>Volume Resistivity (ASTM D 257)</b>	1.5 x 10 <sup>10</sup> ohm-cm

# Scotch-Weld™

## Epoxy Adhesives

### DP-105 Clear

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#### **Surface Preparation** *(continued)*

- For small or intermittent applications the 3M™ Scotch-Weld™ EPX™ Applicator is a convenient method of application.
- For larger applications, these products may be applied by use of flow equipment.
- Two part meter/mixing/dispensing equipment is available for intermittent or production line use. These systems may be desirable because of their variable shot size and flow rate characteristics and are adaptable to many applications.

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#### **Storage and Shelf Life**

Store 3M™ Scotch-Weld™ Epoxy Adhesive DP-105 Clear at 60-80°F (15-27°C) for maximum shelf life. These epoxy adhesive products have a shelf life of 2 years in their unopened containers and 15 months in Duo-Pak containers.



## Material Safety Data Sheet

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** 3M(TM) Scotch-Weld(TM) Epoxy Adhesive DP-105, Clear (Part B)  
**MANUFACTURER:** 3M  
**DIVISION:** Industrial Adhesives and Tapes Division

**ADDRESS:** 3M Center  
 St. Paul, MN 55144-1000

**Issue Date:** 01/25/2007  
**Supersedes Date:** 09/09/2005

**Document Group:** 05-6781-8

#### Product Use:

**Specific Use:** part B of 2 part adhesive  
**Intended Use:** Structural adhesive

### SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
EPOXY RESIN	30583-72-3	70 - 80
EPOXY RESIN	25068-38-6	20 - 30
ORGANOSILANE	2530-83-8	0.5 - 1.5

### SECTION 3: HAZARDS IDENTIFICATION

#### 3.1 EMERGENCY OVERVIEW

**Specific Physical Form:** Viscous Liquid

**Odor, Color, Grade:** slight epoxy odor, clear

**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.

enclosures must be exhausted to outdoors or to a suitable emission control device.

## 8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

### 8.2.1 Eye/Face Protection

Avoid eye contact with vapors, mists, or spray.

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

### 8.2.2 Skin Protection

Avoid skin contact.

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 vapors created during cure cycle. 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.

## 8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
ORGANOSILANE	CMRG	TWA	5 ppm	

### 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>Specific Physical Form:</b>	Viscous Liquid
<b>Odor, Color, Grade:</b>	slight epoxy odor, clear
<b>General Physical Form:</b>	Liquid
<b>Autoignition temperature</b>	<i>No Data Available</i>
<b>Flash Point</b>	>=240 °F [ <i>Test Method:</i> Pensky-Martens Closed Cup]
<b>Flammable Limits - LEL</b>	<i>No Data Available</i>
<b>Flammable Limits - UEL</b>	<i>No Data Available</i>
<b>Boiling point</b>	>=240 °F
<b>Vapor Density</b>	<i>No Data Available</i>
<b>Vapor Pressure</b>	<=27 psia [@ 131 °F]
<b>Specific Gravity</b>	1.11 [ <i>Ref Std:</i> WATER=1]

pH	<i>Not Applicable</i>
Melting point	<i>Not Applicable</i>
Solubility in Water	Nil
Evaporation rate	<i>No Data Available</i>
Volatile Organic Compounds	0 g/l
Percent volatile	0 % weight
VOC Less H2O & Exempt Solvents	0 g/l
Viscosity	1,000 - 5,000 centipoise

## SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable.

**Materials and Conditions to Avoid:** Strong acids; Strong oxidizing agents; Amines; 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

**Waste Disposal Method:** Incinerate in an industrial or commercial facility. As a disposal alternative, dispose of waste product in a