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3M™ Scotch-Weld™ Epoxy Adhesive DP100NS



A non-sag, translucent version of 3M™ Scotch-Weld™ DP-100 Adhesive with a 1:1 mix ratio. Permits application on many vertical surfaces. NOTE: Make-To-Order with a lead time of 30-45 days.



Scotch-Weld™

Epoxy Adhesives

DP-100 Clear • DP-100 NS Translucent

Technical Data

Product Description

3M™ Scotch-Weld™ Epoxy Adhesives DP-100 and DP-100NS are two-part adhesives offering fast cure and machinability.

Available in larger containers like 3M™ Scotch-Weld™ Epoxy Adhesives 100 B/A or 100 NS B/A.

Features

- Easy mixing
- High Flow (Scotch-Weld DP-100 Clear)
- Non-Sag (Scotch-Weld DP-100 NS Translucent)
- Fast Cure
- Scotch-Weld DP-100 meets UL 94 HB

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 DP-100 Clear Adhesive	Scotch-Weld DP-100 NS Translucent Adhesive
Viscosity¹ @ 73°F (23°C)	Base Accelerator	8,000-15,000 cps 9,000-16,000 cps	90,000-150,000 cps 50,000-85,000 cps
Base Resin		Epoxy	Epoxy
Color		Clear/Lt. Amber	Translucent
Net Weight (Lbs./Gallon)	Base Accelerator	9.5-9.9 9.2-9.6	9.6-10.0 9.2-9.6
Mix Ratio (B:A)	Volume Weight	1 : 1 1 : 0.98	1 : 1 1 : 0.96
Worklife² @ 73°F (23°C)	10 g mixed	5 minutes	5 minutes (Gel time ³)

1. Viscosity determined using 3M test method C-1d. Procedure involves Brookfield RVF, #6 spindle, 20 rpm and 80°F (27°F). (100 Clear) and #6 spindle, 4 rpm and 80°F (27°F) (100 NS). Measurement taken after 1 minute.

2. Worklife determined using 3M test method C-548. Procedure involves periodically measuring a 10 gram mixed mass for spreading and wetting properties. This time approximates the usable worklife in an EPX applicator nozzle.

3. Gel time determined using 3M test method C-554. Procedure involves periodically checking a 10 gram mixed mass for flowing properties.

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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.

Product	Scotch-Weld DP-100 Clear Adhesive	Scotch-Weld DP-100 NS Translucent Adhesive
Physical:		
Color	Translucent	Translucent
Shore D Hardness (ASTM D 2240)	80-85	80-85
Time to Handling Strength ⁴	15-20 min. @ 23°C (73°F)	15-20 min. @ 23°C (73°F)
Cure Time ⁵	24-48 hours @ 23°C (73°F)	24-48 hours @ 23°C (73°F)

Thermal:		
Wt. loss by Thermal Gravimetric Analysis ⁶	5% @ 307°C (585°F)	
Glass Transition Temp ⁷	33°C (91°F)	34°C (86°F)
Coefficient of Thermal Expansion (in./in./°C) ⁸	60 x 10 ⁻⁶ (-40°C to +20°C) (-38°F to +68°F) 209 x 10 ⁻⁶ (60°C to 120°C) (+140°F to +248°F)	29 x 10 ⁻⁶ (-50°C to +30°C) (-56°F to +86°F) 149 x 10 ⁻⁶ (50°C to 110°C) (+122°F to +230°F)
Thermal Conductivity ⁹ (btu-ft./sq. ft.-hr. °F)	0.107 @ 46°C (115°F)	0.106 @ 45°C (113°F)

Electrical:		
Dielectric Strength (ASTM D 149)	860 volts/mil	1100 volts/mil
Volume Resistivity (ASTM D 257)	3.5 x 10 ¹² ohm-cm	2.2 x 10 ¹⁴ ohm-cm

4. Handling strength determined per 3M test method C-3179. Time to handling strength is the time required to achieve 50 psi OLS strength to aluminum.
5. The cure time is defined as the time required for the adhesive to achieve a minimum of 80% of its ultimate OLS on aluminum.
6. Weight loss by Thermal Gravimetric Analysis reported as that temperature at which 5% weight loss occurs by TGA in air at 5°C (41°F) rise per minute per ASTM 1131-86 Test Procedures.
7. Glass transition temperature (T_g) determined using Perkin Elmer (DSC) Analyzer with a heating rate of 20°C (68°F) per minute. Second heat values given.
8. Coefficient of thermal expansion determined using DuPont (TMA) using a heating rate of 10°C (50°F) per minute. Second heat values given.
9. Thermal conductivity determined using ASTM C177 and C-matic Instrument with 2 in. diameter samples.

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Storage and Shelf Life **Storage:** Store products at 60-80°F (16-27°C) for maximum storage life. Rotate on “first in-first out” basis.

Shelf Life: When stored as recommended in original unopened container, this product has a shelf life of 15 months.

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.

For Additional Information To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550 or visit www.3M.com/adhesives. Address correspondence to: 3M Engineered Adhesives Division, 3M Center, Building 220-7E-01, 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.

Important Notice 3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which 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.

Limitation of Remedies and Liability If the 3M product is proved to be defective, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including, but not limited to, contract, negligence, warranty, or strict liability.



This Engineered Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Scotch-Weld(TM) Epoxy Adhesive DP-100 NS, Translucent (Part B)
MANUFACTURER: 3M
DIVISION: Industrial Adhesives and Tapes Division

Document Group: 11-2401-5

Product Use:

Specific Use: Base for 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	80 - 90
EPOXY RESIN	30499-70-8	7 - 13
AMORPHOUS SILICA	67762-90-7	3 - 7

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Viscous

Odor, Color, Grade: light straw colored, epoxy 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.

5.1 FLAMMABLE PROPERTIES

3M MATERIAL SAFETY DATA SHEET Scotch-Weld(TM) Epoxy Adhesive DP-100 NS, Translucent (Part B)

Autoignition temperature
Flash Point
Flammable Limits - LEL
Flammable Limits - UEL

No Data Available
 ≥ 240 °C [Test Method: Estimated]
Not Applicable
Not Applicable

5.2 EXTINGUISHING MEDIA

Ordinary combustible material. Use fire extinguishers with class A extinguishing agents (e.g., water, foam).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Contain spill. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid breathing of vapors, mists or spray. Avoid breathing of dust created by cutting, sanding, grinding or machining. Avoid contact with oxidizing agents. Do not cure up a mass of combined material larger than 50 grams to prevent the possibility of exotherm.

7.2 STORAGE

Store away from acids. Store away from heat. Store out of direct sunlight. Store away from oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide ventilated enclosure for heat curing. Provide appropriate local exhaust for cutting, grinding, sanding or machining. Curing 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.

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, mists or spray. 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 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>
AMORPHOUS SILICA	CMRG	CEIL	5 mg/m3	

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

Specific Physical Form:	Viscous
Odor, Color, Grade:	light straw colored, epoxy odor
General Physical Form:	Liquid
Autoignition temperature	<i>No Data Available</i>
Flash Point	>=240 °C [<i>Test Method: Estimated</i>]
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
Boiling point	<i>Not Applicable</i>
Density	1.18
Vapor Density	<i>Not Applicable</i>
Vapor Pressure	<=0.03 mmHg [@ 25 °C]
Specific Gravity	1.18 [<i>Ref Std: WATER=1</i>]
pH	<i>Not Applicable</i>
Melting point	<i>No Data Available</i>
Evaporation rate	<i>Not Applicable</i>
Hazardous Air Pollutants	0 % weight
Volatile Organic Compounds	0 % weight
Percent volatile	0.00 % weight
VOC Less H2O & Exempt Solvents	0 g/l

Viscosity

90000 - 150000 centipoise

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
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Ketones	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: Dispose of completely cured (or polymerized) wastes in a sanitary landfill.

As a disposal alternative, incinerate uncured product in an industrial or commercial incinerator in the presence of a combustible material.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION