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3M™ Scotch-Weld™ Epoxy Adhesive DP460NS Off-White Duo-Pak, 400 mL, 6 duo-paks per case



High performance, non-sag, two-part epoxy adhesive offering outstanding shear and peel strengths and very high levels of durability. Ideal for vertical applications or any application requiring minimal adhesive flow from the bondline.

[Full Description](#) »

60 minute worklife and is a 2:1 mix ratio product. NOTE: Make-To-Order item with a 30-45 day lead time.

Products

| Product / 3M Id / UPC | Color | Product Form | Trademark Name 2 | |
|--|-----------|--------------|------------------|--|
| 3M™ Scotch-Weld™ Epoxy Adhesive DP460NS Off-White Duo-Pak, 400 mL, 6 duo-paks per case | Off-White | Each | Scotch-Weld | |
| 3M Id : 62-2792-3530-3 GTIN(UPC/EAN) : 0 00 21200 43672 7 | | | | |



Scotch-Weld™

Epoxy Adhesives

DP460 Off-White • DP460 NS

Technical Data

Product Description 3M™ Scotch-Weld™ Epoxy Adhesives DP460 Off-White and DP460 NS are high performance, two-part epoxy adhesives offering outstanding shear and peel adhesion, and very high levels of durability.

- Features**
- High shear strength
 - High peel strength
 - Outstanding environmental performance
 - Easy mixing
 - Controlled flow
 - 60 minute worklife
 - Non sag (Scotch-Weld DP460 NS)

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 DP460 Off-White | Scotch-Weld Epoxy Adhesive DP460 NS |
|--|--|--|---|
| Viscosity (approx.) @ 73°F (23°C) | Base Accelerator | 20,000-50,000 cps 8,000-14,000 cps | 150,000-275,000 cps 8,000-14,000 cps |
| Base Resin | Base Accelerator | epoxy amine | epoxy amine |
| Color | Base Accelerator | white amber | white amber |
| Net Weight Lbs./Gallon | Base Accelerator | 9.3-9.7 8.8-9.2 | 9.3-9.7 8.8-9.2 |
| Mix Ratio (B:A) | Volume Weight | 2:1 2:0.96 | 2:1 2:0.96 |
| Worklife, 73°F (23°C) | 20 g mixed 10 g mixed 5 g mixed | 60 minutes 75 minutes 90 minutes | 60 minutes 60 minutes 60 minutes |

Scotch-Weld™

Epoxy Adhesives

DP460 Off-White • DP460 NS

Typical Cured Thermal 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™ Scotch-Weld™ Epoxy Adhesive DP460 Off-White | 3M™ Scotch-Weld™ Epoxy Adhesive DP460 NS |
|---|---|--|
| Physical Color | Opaque, off-white | Off-white |
| Shore D Hardness | 75-80 | 78-84 |
| Thermal Coefficient of Thermal Expansion (in./in./°C) | Below Tg Above Tg 59 x 10 ⁻⁶ 159 x 10 ⁻⁶ | 74.44 x 10 ⁻⁶ 166 x 10 ⁻⁶ |
| Thermal Conductivity (btu - ft./ft. ² - hr. - °F) @ 45°C | 0.104 | 0.104 |
| Electrical Dielectric Strength (ASTM D 149) | 1100 volts/mil | 727 volts/mil |
| Volume Resistivity (ASTM D 257) | 2.4 x 10 ¹⁴ ohm-cm | 3.25 x 10 ¹⁵ ohm-cm |

Typical Curing Characteristics

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

Rate of Strength Build-Up

Aluminum, Overlap Shear (7 mil Bondline) (ASTM D 1002-72)

Bonds Tested at 73°F (23°C)

Scotch-Weld Epoxy Adhesive DP460 Off-White

| Time in Oven | Cure Temperature | | |
|--------------|----------------------|---------------------------|---------------------------|
| | 73°F (23°C) | 120°F ¹ (49°C) | 140°F ¹ (60°C) |
| 30 min. | — | <50 | 3000/60 ² |
| 60 | — | 1300 | 4500/60 ² |
| 90 | — | 4300/60 ² | — |
| 2 hr. | — | 4400/60 ² | 4800 |
| 3 | — | 4800/60 ² | — |
| 5 | 400 | — | — |
| 6 | 1000 | — | — |
| 7 | 3500 | — | — |
| 24 | 4000/60 ² | — | — |

Scotch-Weld Epoxy Adhesive DP460 NS

| Time in Oven | Cure Temperature | | |
|--------------|------------------|---------------------------|---------------------------|
| | 73°F (23°C) | 120°F ¹ (49°C) | 160°F ¹ (71°C) |
| 15 min. | — | — | 4860 |
| 30 | — | 10 | 5250 |
| 60 | — | 2800 | 5300 |
| 2 hr. | 1 | 5050 | 5470 |
| 4 | 46 | 5400 | 5320 |
| 6 | 970 | 5570 | 5140 |
| 24 | 4500 | — | 5210 |

¹This represents the oven temperature to which the bonds were subjected for the prescribed time. The average bondline temperature during the cure time will be somewhat lower than the oven temperature.

²The value in the denominator is the expected minimum 73°F (23°C) T-peel strength (piw) measured after the indicated cure cycle.

NOTE: The data in this Technical Data Sheet were generated using the 3M™ EPX™ Applicator System equipped with an EPX static mixer, according to manufacturer's directions. Thorough hand-mixing will afford comparable results.

Scotch-Weld™

Epoxy Adhesives

DP460 Off-White • DP460 NS

Storage Store products at 60-80°F (15-27°C) or refrigerate for maximum shelf life.

Shelf Life These products have a shelf life of 15 months in original containers.

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 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.

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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This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

3M
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 Adhesive, DP-460 NS (Part B) or 3M(TM) Scotch-Weld(TM) Epoxy Adhesive, 460 B/A NS (Part B)

MANUFACTURER: 3M

DIVISION: Industrial Adhesives and Tapes Division

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

Issue Date: 01/31/2007

Supersedes Date: 01/30/2007

Document Group: 09-0979-6

Product Use:

Specific Use: part B of 2 part adhesive

Intended Use: Industrial use

SECTION 2: INGREDIENTS

| <u>Ingredient</u> | <u>C.A.S. No.</u> | <u>% by Wt</u> |
|---|-------------------|----------------|
| Epoxy Resin | 25068-38-6 | 60 - 100 |
| Methyl Methacrylate-Butadiene-Styrene Polymer | 25053-09-2 | 7 - 13 |
| Amorphous Silica | 67762-90-7 | 1 - 5 |
| BHT | 128-37-0 | 0.1 - 1 |
| 3-(Trimethoxysilyl)Propyl Glycidyl Ether | 2530-83-8 | 0.1 - 1 |

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Paste

Odor, Color, Grade: White, epoxy odor.

General Physical Form: Liquid

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

3.2 POTENTIAL HEALTH EFFECTS

7.2 STORAGE

Store away from heat. Store out of direct sunlight. Keep container in well-ventilated area. Keep container tightly closed. Store away from oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide appropriate local exhaust for cutting, grinding, sanding or machining. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control dust, fume, or airborne particles. If ventilation is not adequate, use respiratory protection equipment.

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.

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: Neoprene, Nitrile Rubber.

8.2.3 Respiratory Protection

Avoid breathing of vapors. 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> |
|--|------------------|-----------------------------------|--------------|-------------------------------|
| BHT | ACGIH | TWA, inhalable fraction and vapor | 2 mg/m3 | Table A4 |
| BHT | OSHA | TWA | 10 mg/m3 | Table Z-1A |
| 3-(Trimethoxysilyl)Propyl Glycidyl Ether | CMRG | TWA | 5 ppm | |
| 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: | Paste |
| Odor, Color, Grade: | White, epoxy odor. |
| General Physical Form: | Liquid |
| Autoignition temperature | <i>No Data Available</i> |
| Flash Point | 480 °F [<i>Test Method:</i> Closed Cup] |
| Flammable Limits - LEL | <i>Not Applicable</i> |
| Flammable Limits - UEL | <i>Not Applicable</i> |
| Boiling point | >=260 °C |
| Density | 1.17 g/ml |
| Vapor Density | <i>Not Applicable</i> |
| Vapor Pressure | <i>Not Applicable</i> |
| Specific Gravity | 1.17 [<i>Ref Std:</i> WATER=1] |
| pH | <i>Not Applicable</i> |
| Melting point | <i>No Data Available</i> |
| Solubility in Water | Nil |
| Evaporation rate | <i>Not Applicable</i> |
| Volatile Organic Compounds | <i>Not Applicable</i> |
| Percent volatile | 0 % |
| VOC Less H2O & Exempt Solvents | <i>Not Applicable</i> |
| Viscosity | 160000 - 260000 centipoise [@ 73.4 °F] |

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Strong oxidizing agents

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 |

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