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English-US

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Technical Data Sheet

3M™ Scotch-Weld™ Epoxy Adhesive DP110 Translucent

Product Details

Regulatory Info/SDS

Product Description

3M™ Scotch-Weld™ Epoxy Adhesive DP110 Translucent is a two-part epoxy adhesive which combines a fast cure with flexibility.

Product Features

- Controlled flow
- 20 minute handling strength
- Duo-Pak cartridge dispensing system
- Good adhesion to many plastics and metals

Technical Information Note

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

Typical Uncured Physical Properties

Attribute Name	Value
Color	Yellow Translucent [1]
Mix Ratio by Weight (B:A)	100:99
Mix Ratio by Volume (B:A)	100:100

[1] Colors may vary from nearly white to yellow/amber. Adhesive performance is not affected by color variation.

Attribute Name	Temperature	Value
Base Color		Translucent White
Accelerator Color		Light Yellow
Base Resin		Modified Epoxy
Accelerator Resin		Amine
Base Net Weight		1.09 — 1.13 g/cm³ (9.1 — 9.4 lb/gal)
Accelerator Net Weight		1.08 — 1.11 g/cm³ (9.0 — 9.3 lb/gal)
Base Viscosity	23 °C (73 °F)	30,000-70,000 cP
Accelerator Viscosity	23 °C (73 °F)	30,000-70,000 cP

Typical Mixed Physical Properties

Attribute Name	Temperature	Value
Open Time		8 min [1]
Worklife	23 °C (73 °F)	8 — 13 min
Time to Full Cure	23 °C (73 °F)	20 min [2]

[1] Max time allowed after applying adhesive to a substrate before bond must be closed and fixed. Cure times approximate and depend on adhesive temperature. Hotmelts: The approx. bonding range of a 3.2 mm (1/8 in) bead of molten adhesive on a non-metallic surface.

[2] 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.

Typical Physical Properties

Attribute Name	Value
Cured Color	Yellow Translucent

Typical Cured Characteristics

Temperature: 23 °C (73 °F)

Attribute Name	Test Method	Value
Shore D Hardness	ASTM D2240	40

Typical Performance Characteristics

Overlap Shear Strength

Substrate: Aluminum
Temperature: 23 °C (73 °F)
Dwell Time: 48 h
Test Method: ASTM D1002, ISO 4587

Test Condition	Value
	17 MPa (2500 lb/in²) [1]
-55 °C (-67 °F)	17 MPa (2500 lb/in²) [1]
71 °C (160 °F)	1.9 MPa (270 lb/in²) [1]
82°C (180 °F)	1.4 MPa (200 lb/in²) [1]

[1] 25 mm (1") wide, 12.7 mm (1/2") overlap samples, 25 mm (1") x 102 mm (4") substrates, bondline thickness: 0.13-0.20 mm (5-8 mil)
Separation rate 2.5 mm/min (0.1 in/min) metal, 51 mm/min (2 in/min) plastic, 510 mm/min (20 in/min) rubber.
Substrate thickness: steel 1.5 mm (60 mil), other metal 1.3-1.6 mm (50-64 mil), rubber and plastic 3.2 mm (125 mil)
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

Temperature: 23 °C (73 °F)
Dwell Time: 48 h

Attribute Name	Test Method	Value
T-Peel Adhesion	ASTM D1876	35 N/cm (20 lb/in) [1]

[1] T-Peel bonds were measured on 25 mm (1 in) wide specimens cut from two FPL etched 203 x 203 x 0.8 mm (8 x 8 x 0.032 in), 2024 T3 clad aluminum panels bonded together. The separation note of the testing jaws was 508 mm/min (20 in/min).

Attribute Name	Value
Elongation at Break	40 %

Electrical and Thermal Properties

Attribute Name	Test Condition	Value
Glass Transition Temperature (Tg)	Mid-Point	13 °C (55 °F) [1]
Coefficient of Thermal Expansion	-50 ~ 0 °C	80 x 10^{-6}
Coefficient of Thermal Expansion	-50 ~ 110 °C	200 x 10^{-6}

[1] Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 20 °C (68 °F) per minute. Second heat values given.

Temperature: 23 °C (73 °F)

Attribute Name	Test Method	Value
Volume Resistivity	ASTM D257	4.5 x 10^{10} Ω-cm

Handling/Application Information

Directions for Use

1. For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed from substrates to be bonded. However, the amount of surface preparation necessary directly depends on the user's required bond strength, environmental aging resistance and economic practicalities. For specific surface preparations on common substrates, see the section on surface preparation.
2. These products consist of two parts.
Mixing
For Duo-Pak Cartridges
3M™ Scotch-Weld™ Epoxy Adhesive DP110 Translucent and Gray are supplied in a dual syringe plastic duo-pak cartridge as part of the 3M™ EPX™ Applicator system. To use, simply insert the duo-pak cartridge into the EPX applicator and start the plunger into the cylinders using light pressure on the trigger. Next, remove the duo-pak cartridge cap and expel a small amount of adhesive to be sure both sides of the duo-pak cartridge are flowing evenly and freely. If automatic mixing of Part A and Part B is desired, attach the EPX mixing nozzle to the duo-pak cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of adhesive and mix thoroughly. Mix approximately 15 seconds after a uniform color is obtained.
For Bulk Containers
Mix thoroughly by weight or volume in the proportions specified on the product label or in the uncured properties section. Mix approximately 15 seconds after a uniform color is obtained.
3. For maximum bond strength apply product evenly to both surfaces to be joined.
4. Application to the substrates should be made within 8 minutes. Larger quantities and/or higher temperatures will reduce this working time.
5. Join the adhesive coated surfaces and allow to cure at 60°F (16°C) or above until completely firm. Heat up to 200°F (93°C), will speed curing. These products will fully cure in 48 hours @ 75°F (24°C).
6. Keep parts from moving during cure. Contact pressure necessary. Maximum shear strength is obtained with a 3-5 mil bond line.
7. Excess uncured adhesive can be cleaned up with ketone type solvents.*
*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.
Adhesive Coverage:A 0.005 in. thick bondline will typically yield a coverage of
320 sqft/gallon.

Surface Preparation

For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed from substrate to be bonded. However, the amount of surface preparation necessary directly depends on the user's required bond strength, environmental aging resistance and economic practicalities.
The following cleaning methods are suggested for common surfaces:
Steel:
1. Wipe free of dust with oil-free solvent such as acetone or isopropyl alcohol solvents.*
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with solvent to remove loose particles.*
4. If a primer is used, it should be applied within 4 hours after surface preparation.
Aluminum:
1. Alkaline Degrease: Oakite 164 solution (9-11 oz./gallon water) at 190°F ± 10°F (88°C ± 23°C) for 10-20 minutes. Rinse immediately in large quantities of cold running water.
2. Acid Etch: Place panels in the following solution for 10 minutes at 150°F ± 5°F (66°C ± 23°C).
Sodium Dichromate 4.1 - 4.9 oz./gallon
Sulfuric Acid, 66°Be 38.5 o 41.5 oz./gallon
2024-T3 aluminum (dissolved) 0.2 oz./gallon minimum
Tap water as needed to balance
3. Rinse: Rinse panels in clear running tap water.
4. Dry: Air dry 15 minutes; force dry 10 minutes at 150°F ± 10°F (66°C ± 23°C).
5. If primer is to be used, it should be applied within 4 hours after surface preparation.
Plastics/Rubber:
1. Wipe with isopropyl alcohol.*
2. Abrade using fine grit abrasives.
3. Wipe with isopropyl alcohol.*
*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.

Application Equipment

These products may be applied by spatula, trowel or flow equipment.

Two part mixing/proportioning/dispensing equipment is available for intermittent or production line use. These systems are ideal because of their variable shot size and flow rate characteristics and are adaptable to many applications.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) in the original, unopened packaging, out of direct sunlight. For best performance, use this product within 24 months from date of manufacture.

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

Automotive Disclaimer

Select Automotive Applications:
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

Information

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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