



Technical Data Sheet

3M™ Scotch-Weld™ Urethane Adhesive DP6610NS

Product Description

3M™ Scotch-Weld™ Urethane Adhesive DP6610NS is a black, rapid setting, two-component polyurethane. It is packaged as 1:1 ratio liquid in a Duo-Pak cartridge. With the squeeze of the trigger, the components are automatically mixed and easily dispensed as a non-sag paste.

Note: Unless otherwise indicated, all properties measured at 73.4 °F (23 °C).

Product Features

- Fast setting
- 1:1 mix ratio, Easy mixing
- Low modulus with aggressive adhesion
- Low temperature flexibility
- Available in bulk

Note: The data in this 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.

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
Mix Ratio by Weight (B:A)	1□1.03
Mix Ratio by Volume (B:A)	1:1
Viscosity	Non-sag paste

Attribute Name	Value
Base Color	Black
Accelerator Color	White
Color (solid)	Black
Base Density	1.10 g/cm ³ (9.18 lb/gal)
Accelerator Density	1.13 g/cm ³ (9.43 lb/gal)
Base Viscosity	15000-65000 cP ¹
Accelerator Viscosity	15000-65000 cP ¹

¹ RV, #7 spindle, 50rpm, 23 °C

Typical Mixed Physical Properties

Attribute Name	Temperature	Value
Worklife, 5g mixed	23 °C (73 °F)	7-15 min
Applied Open Time	23 °C (73 °F)	10 min ¹
Time to Handling Strength	23 °C (73 °F)	30-40 min ²
Time to Full Cure		24 h

¹ Approximate time after application of adhesive that bonds can be made without adversely affecting wetting out of adhesive and ultimate performance levels.

² Minimum time required to achieve 0.3 MPa (50 psi) of overlap shear strength. Cure times are approximate and depend on adhesive temperature.

Typical Cured Characteristics

Attribute Name	Test Method	Dwell Time	Temperature	Test Condition	Value
Elongation	ASTM D638, ISO 527	7 d	23 °C (73 °F)	10 mm/min	>300 % ¹
Storage Modulus: DMA Temp Ramp	ASTM D4065		-40 °C (-40 °F)	1 Hz	323 MPa ²
Storage Modulus: DMA Temp Ramp	ASTM D4065		25 °C (77 °F)	1 Hz	26 MPa ²
Storage Modulus: DMA Temp Ramp	ASTM D4065		100 °C (212 °F)	1 Hz	8 MPa ²

¹ Type IV dogbone

² □0.50±0.15mm film, fully cured based on stable mechanical properties or another documented/non-standard cure schedule. Sample dimension 5.6 mm x 20 mm strips. 1 Hz tensile oscillation in a DMA rheometer. Temperature ramped from -40°C to 105°C at 5°C/min

Typical Performance Characteristics

Overlap Shear Strength

Surface Prep: IPA wipe

Temperature: 23 °C (73 °F)

Dwell Time: 1 d

Test Method: ASTM D1002, ISO 4587

Substrate	Value
PC/ABS to ink glass	9.4 MPa (Most CF) ¹
Mg/Al to ink glass	7.0 MPa (AF on Mg/Al) ¹

¹ Overlap shear (OLS) strengths were measured on 25mm wide 5mm overlap specimens. The thickness of the bond line was 0.3mm. All strengths were measured at 73F (23°C) except where noted. The separation rate of the testing jaws was 10mm per minute.
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

Typical Environmental Performance

Overlap Shear Strength

Surface Prep: IPA wipe

Temperature: 23 °C (73 °F)

Dwell Time: 7 d

Test Method: ASTM D1002, ISO 4587

Environmental Condition: 85 °C + 85 %RH: 1000 hrs

Substrate	Value
PC/ABS to ink glass	5.8 MPa ¹
Mg/Al to ink glass	6.1 MPa ¹

¹ Overlap shear (OLS) strengths were measured on 25mm wide 5mm overlap specimens. The thickness

of the bond line was 0.3mm. All strengths were measured at 73F (23°C) except where noted. The separation rate of the testing jaws was 10mm per minute.
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

Handling/Application Information

Directions for Use

1. To obtain the highest strength structural bonds, paint, oxide films, oils, dust, mold release agents, and all other surface contaminants must be completely removed. The amount of surface preparation depends on the required bond strength and environmental aging resistance desired by user. For suggested surface preparations on common substrates, see the section on surface preparation.

2. Mixing

For Duo-Pak Cartridges

Store cartridges with cap end up to allow any air bubbles to rise towards the tip. To use, simply insert the cartridge into the EPX applicator and start the plunger into the cylinders using light pressure on the trigger. Then remove the cap and expel a small amount of adhesive to ensure material flows freely from both sides of cartridge. For automatic mixing, attach an EPX mixing nozzle to the cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of adhesive and mix thoroughly. Mix approximately 15 seconds after obtaining a uniform color.

For Bulk Containers

Mix thoroughly by weight or volume in the proportion specified on the product label or in the typical uncured properties section. Mix approximately 15 seconds after obtaining a uniform color.

3. Apply adhesive and join surfaces within the open time listed for the specific product. Larger quantities and/or higher temperatures will reduce this working time.

4. Allow adhesive to cure at 60 °F (16 °C) or above until completely firm. Applying heat up to 200 °F (93 °C) will increase cure speed.

5. Keep parts from moving during cure. Apply contact pressure or fixture in place if necessary. Optimum bond line thickness ranges from 0.005 to 0.020 inch; shear strength will be maximized with thinner bond lines, while peel strength reaches a maximum with thicker bond lines.

6. 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.

Surface Preparation

3M™ Scotch-Weld™ Urethane Adhesive DP6610NS is designed to be used on composites, coated metal, wood, and most plastic surfaces. The following cleaning methods are suggested for common surfaces:

Steel:

1. Wipe free of dust and dirt with pure solvent such as acetone or isopropyl alcohol.*
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with clean solvent to remove loose particles.*
4. For best results, apply a primer to bare steel before bonding, such as an epoxy-based primer or 3M™ Adhesion Promoter 111.

Aluminum:

1. Wipe free of dust and dirt with pure solvent such as acetone or isopropyl alcohol.*
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with clean solvent to remove loose particles.*

Plastics/Rubbers/Paints/Coatings:

1. Wipe with isopropyl alcohol.*
2. Abrade using fine grit abrasives.
3. Wipe with isopropyl alcohol.*

Glass:

1. Solvent wipe surface using acetone or MEK.*
2. Apply a thin coating of a silane adhesion promoter to the glass surfaces to be bonded and allow to dry completely before bonding.

*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. Do not freeze or store in <5°C environment. This product has a shelf life of 12 months from date of manufacture in unopened original containers kept at recommended storage conditions.

Product Family

This product is a part of the flexible Urethane Family which includes: 3M™ Scotch-Weld™ Urethane Adhesive DP6605NS, 3M™ Scotch-Weld™ Urethane Adhesive DP6610NS

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

Information

Intended Use: This product is intended for bonding of materials specified and described in its Technical Data Sheet, when used in accordance with the guidance provided by 3M in such Technical Data Sheet and other product instructions. Since there are many factors that can affect a product's use, the customer remains responsible for determining whether the 3M product is suitable and appropriate for the customer's specific application and system, including customer conducting an appropriate risk assessment and evaluating the 3M product in customer's application and system.

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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/compositebonding.

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