



Technical Data Sheet

3M™ Scotch-Weld™ Multi-Material & Composite Urethane Adhesives DP6330NS



[Product Details](#)



[Regulatory Info/SDS](#)

Product Description

3M™ Scotch-Weld™ Multi-Material & Composite Urethane Adhesive DP6330NS is a multi-purpose urethane adhesive for bonding a variety of composites, plastics, metals and wood. It is a high-strength bonder with some flexibility to accommodate thermal expansion and contraction differences with dissimilar material bonding

3M™ Scotch-Weld™ Multi-Material & Composite Urethane Adhesive DP6330NS can replace rivets and screws in attaching composites to other substrates, providing a more aesthetically-pleasing, fatigue-resistant bond line. It also bonds well to most metals without requiring priming.

Note: Unless otherwise indicated, all properties measured at 72°F (22°C).

Product Features

- Ability to bond most composites and dissimilar substrates
- Primerless to most surfaces
- Non-sag formulation resists running and slumping of adhesive
- 3M™ Scotch-Weld™ Multi-Material & Composite Urethane Adhesive DP6330NS meets the following OEM strength requirements:
 - o Freightliner; Standard No. 49-00093 Revision C
 - o PACCAR; Specification No. CMT0038
- Excellent water and humidity resistance, very good chemical resistance.
- Solvent-free adhesive system
- Convenient hand-held applicator
- Room temperature cure
- Cure can be accelerated with heat
- 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)	1:1.09
Mix Ratio by Volume (B:A)	1:1
Viscosity	Non-sag paste

Attribute Name	Temperature	Value
Base Color		Green
Accelerator Color		Off-White
Base Density		10 to 11 lb/gal
Accelerator Density		10.5 to 11.5 lb/gal
Base Viscosity	27 °C (80 °F)	15,000-35,000 cP ¹
Accelerator Viscosity	27 °C (80 °F)	9,000-25,000 cP ¹

¹ Viscosity measured using Brookfield RTV, spindle #7, 20 RPM

Typical Mixed Physical Properties

Attribute Name	Temperature	Value
Worklife		15 min ¹
Open Time		30 min ²
Time to Handling Strength	22 °C (72 °F)	2 h ³

¹ Maximum time that adhesive can remain in a static mixing nozzle and still be expelled without undue force on the applicator. Cure times are approximate and depend on adhesive temperature.

² 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 1/8" bead of molten adhesive on a non-metallic surface.

³ Minimum time required to achieve 50 psi of overlap shear strength. Cure times are approximate and depend on adhesive temperature.

Typical Physical Properties

Attribute Name	Value
Full Strength	168 h

Typical Cured Characteristics

Temperature: 22 °C (72 °F)

Attribute Name	Test Method	Value
Shore D Hardness	ASTM D2240	70

Typical Performance Characteristics

Overlap Shear Strength

Temperature: 22 °C (72 °F)

Dwell Time: 7 d

Test Method: ASTM D1002

Substrate	Surface Prep	Value
Aluminum	MEK/Abrade/MEK	2612 lb/in ² (CF) ¹
Cold Rolled Steel	MEK/Abrade/MEK	2068 lb/in ² (AF) ¹
Stainless Steel	MEK/Abrade/MEK	2946 lb/in ² (CF) ¹
Galvanized Steel	MEK/Abrade/MEK	1700 lb/in ² (AF) ²
Polycarbonate (PC)	MEK/Abrade/MEK	1100 lb/in ² (SF) ³
Fiber-Reinforced Plastic	IPA Wipe/Abrade/IPA Wipe	1000 lb/in ² (SF) ¹
ABS	MEK/Abrade/MEK	650 lb/in ² (AF) ¹
Glass Filled Epoxy LW	IPA Wipe/Abrade/IPA Wipe	3000 lb/in ² (SF) ³
Glass Filled Polyester	IPA Wipe/Abrade/IPA Wipe	1200 lb/in ² (SF) ³

¹ 1" wide 1/2" overlap samples, 1" x 4" substrates, bondline thickness 0.005-0.008in
Separation rate 0.1in/min metal, 2in/min plastic, 20in/min rubber.
Substrate thickness: steel 0.060in, other metal 0.05-0.064in, rubber 0.125in, plastic 0.125in
Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

² 0.5in overlap, pulled at 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, 1/16in aluminum and 1/8in plastics, composites varied.
Substrate (SF), Adhesive (AF), Cohesive (CF), Mixed (MF) Failure modes

³ 0.5in overlap, pulled at 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, 1/16in aluminum and 1/8in plastics, composite thickness varied.
Substrate (SF), Adhesive (AF), Cohesive (CF), Mixed (MF) Failure modes

Substrate: Etched Aluminum

Temperature: 22 °C (72 °F)

Dwell Time: 24 h

Attribute Name	Test Method	Value
Bell Peel	ASTM D3167	30 lb/in width ¹

¹ 1" wide samples; 0.017" bond line thickness. The testing jaw separation rate was 6 in. per minute. The bonds are made with 0.064 in. bonded to 0.025 in. thick adherends.

Electrical and Thermal Properties

Attribute Name	Value
Glass Transition Temperature (Tg)	41 °C ¹

¹ Measured at six weeks via DMA

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

3MTM Scotch-Weld™ Multi-Material & Composite Urethane Adhesive DP6330NS is designed to be used on composites, 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.

Industry Specifications

Freightliner; Standard No. 49-00093 Revision C
PACCAR; Specification No. CMT0038
[EN 45545 test report details \(ISO 5659-2, ISO 9239-1, ISO 5660-1, ISO 5658-2\)](#)

Storage and Shelf Life

Store product at 73°F (21°C). Do not freeze. Allow product to reach room temperature prior to use. 3MTM Scotch-Weld™ Multi-Material & Composite Urethane Adhesives DP6310NS and DP6330NS have a shelf life of 12 months from date of manufacture in unopened, original containers kept at recommended storage conditions.

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.

Information

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Automotive Disclaimer:

Intended Use: 3M™ Scotch-Weld™ Multi-Material & Composite Urethane Adhesive DP6310NS and DP6330NS are intended for use in general industrial bonding applications to metals, high surface energy plastics, and composites, when used in accordance with the guidance provided by 3M in this 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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