

Technical Data Sheet

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

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:
 - Freightliner; Standard No. 49-00093 Revision C
 - 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 Mixed Physical Properties

Property	Values	Additional Information
Open Time	30 min	View 

Notes: POR=Pop Off Rubber

Worklife	15 min	View 
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Notes: 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.

Time to Handling Strength	2 hr	View 
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Temp C: 23C
Temp F: 73F

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

Typical Uncured Physical Properties

Property	Values	Additional Information
Base Color	Green	
Accelerator Color	Off-White	
Base Density	10 to 11 lb/gal	
Accelerator Density	10.5 to 11.5 lb/gal	
Viscosity	Non-sag paste	
Base Viscosity	15,000-27,000 cP	View 
Temp C: 27C Temp F: 80F Notes: Viscosity measured using Brookfield RTV, spindle #7, 20 RPM		
Accelerator Viscosity	12,000-20,000 cP	View 
Temp C: 27C Temp F: 80F Notes: Viscosity measured using Brookfield RTV, spindle #7, 20 RPM		
Mix Ratio by Volume (B:A)	1:1	
Mix Ratio by Weight (B:A)	1:1.09	

Typical Cured Characteristics

Property	Values	Additional Information
Modulus	142000 lb/in ²	View 
Dwell/Cure Time: 2.0 Dwell Time Units: month Temp C: 23C Temp F: 72F		
Shore D Hardness	77	

View 

Test Method: ASTM D2240

Temp C: 23C
Temp F: 73F

Stress at Break

2900 lb/in²

View 

Dwell/Cure Time: 2.0
Dwell Time Units: month
Temp C: 23C
Temp F: 73F

Elongation at Break

7 %

View 

Dwell/Cure Time: 2.0
Dwell Time Units: month
Temp C: 23C
Temp F: 72F

Typical Performance Characteristics

Property

Values

Additional Information

Bell Peel

20 lb/in width

View 

Test Method: ASTM D3167

Dwell/Cure Time: 24.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Substrate: Etched Aluminum

Notes: 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.

Overlap Shear Strength 7day Aluminum

3300 lb/in²

View 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 7.0
Dwell Time Units: day
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Aluminum
Surface Preparation: MEK/Abrade/MEK
Failure Mode: CF

Notes: 1in wide 1/2in overlap specimens. 2 panels of 0.05-0.064in x 4in x 7in 2024T-3 clad aluminum bonded and cut to 1in wide samples after 24hr. Jaw separation 0.1 in/min, 0.005-0.008in bondline. Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Overlap Shear Strength 7day Cold Rolled Steel






2100 lb/in²

View 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 7.0
Dwell Time Units: day
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Cold Rolled Steel
Surface Preparation: MEK/Abrade/MEK
Failure Mode: AF


Notes: Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x .060in substrates. Jaw separation 0.1 in/min. 0.005-0.008in bondline. Cohesive (CF), Adhesive(AF), and Substrate(SF) Failure


Overlap Shear Strength 7day Stainless Steel	3000 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: Stainless Steel Surface Preparation: MEK/Abrade/MEK Failure Mode: CF</p> <p>Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1" x 4" x 0.060" substrate Jaw Separation 0.1in/min Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)</p>		
Overlap Shear Strength 7day Fiber-Reinforced Plastic	1000 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: Fiber-Reinforced Plastic Surface Preparation: IPA Wipe/Abrade/IPA Wipe Failure Mode: SF</p> <p>Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. 1" x 4" x 0.125" substrate Jaw separation 2 in/min; 0.005-0.008in bondline. Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)</p>		
Overlap Shear Strength 7day Galvanized Steel	1700 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: Galvanized Steel Surface Preparation: MEK/Abrade/MEK Failure Mode: AF</p> <p>Notes: 0.5in overlap, 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, substrates used were 1/16in thick, 0.010in bondline Substrate (SF), Adhesive (AF), Cohesive (CF), and Mixed (MF) Failure modes</p>		
Overlap Shear Strength 7day Glass Filled Epoxy LW	3000 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: Glass Filled Epoxy LW Surface Preparation: IPA Wipe/Abrade/IPA Wipe Failure Mode: SF</p> <p>Notes: 1/2" overlap; samples pulled at 0.1 in/min for metals and 2 in/min for plastics; all surfaces prepared with light abrasion and solvent clean; 0.005-0.008in bondline. SF: Substrate Failure AF: Adhesive Failure CF: Cohesive Failure MF: Mixed failure modes</p>		
Overlap Shear Strength 7day Glass Filled Polyester	1200 lb/in ²	View 

Test Method: ASTM D1002


Test Name: Overlap Shear Strength
Dwell/Cure Time: 7.0
Dwell Time Units: day
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Glass Filled Polyester
Surface Preparation: IPA Wipe/Abrade/IPA Wipe
Failure Mode: SF

Notes: ½" overlap; samples pulled at 0.1 in/min for metals and 2 in/min for plastics; all surfaces prepared with light abrasion and solvent clean; 0.005in bondline AF: Adhesive Failure CF: Cohesive Failure MF: Mixed failure modes

Overlap Shear Strength 7day Polycarbonate (PC)	1100 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: Polycarbonate (PC) Surface Preparation: MEK/Abrade/MEK Failure Mode: SF</p> <p>Notes: 0.5in overlap, 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, substrates used were 1/16in thick, 0.010in bondline Substrate (SF), Adhesive (AF), Cohesive (CF), and Mixed (MF) Failure modes</p>		

Overlap Shear Strength 7day ABS	650 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: ABS Surface Preparation: MEK/Abrade/MEK Failure Mode: AF</p> <p>Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. Bonds made with 1 in x 4 in x 0.125in pieces of substrate with a 0.005-0.008in bondline. Jaw Separation 2in/min Cohesive (CF), Adhesive (AF), Substrate (SF) Failure</p>		

Electrical and Thermal Properties

Property	Values	Additional Information
Glass Transition Temperature (Tg)	55 °C	View 
Notes: Measured at six weeks via DMA		

Typical Physical Properties

Property	Values	Additional Information
Full Strength	168 hr	

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.

Industry Specifications

Freightliner; Standard No. 49-00093 Revision C

PACCAR; Specification No. CMT0038

[EN 45545 test report details \(ISO 5659-2, ISO 9239-1, ISO 5660-1, ISO 5658-2\)](#)

Bottom Matter

3M

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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.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40072316/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=DP6330NS

Family Group

Link Tags:

- DP6310NS
- DP6330NS

Products	Open Time	Worklife	Set Time (min)	Shore D Hardness	Time to Handling Strength
DP6310NS	10 min	9 min	45 min	77	N/A

DP6330NS	30 min	15 min	N/A	N/A	2 hr
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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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