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Technical Data Sheet

3M™ Scotch-Weld™ Acrylic Adhesive DP8910NS

V-12 | English-US

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Supersedes: December, 2025

Additional Info

Regulatory Info/SDS

Product Description

3M™ Scotch-Weld™ Structural Adhesive DP8910NS is a black, non-sag, two-part structural acrylic adhesive. 8910 creates a structural bond to nylon (polyamides) and other engineered plastics as well as aluminum and other metals without the need for extensive surface preparation such as plasma or flame treatment

Product Features

- Excellent bond strength, durability, and environmental resistance on Nylon and metals
- Contains ceramic beads to control bond line thickness

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)	10:1
Mix Ratio by Volume (B:A)	10:1

Attribute Name	Temperature	Value
Base Color		Black
Accelerator Color		Grey
Base Viscosity	23 °C (73 °F)	35000 - 87000 cps cP [1]
Accelerator Viscosity	23 °C (73 °F)	8000 - 18000 cps cP [1]
Base Density		1.02 g/cm³
Accelerator Density		1.08 g/cm³

[1] Viscosity measured using cone-and-plate viscometer; reported viscosity at 3.8 sec^{-1} shear rate.

Typical Mixed Physical Properties

Attribute Name	Value
Viscosity	32000 - 80000 cps @ 3.8 sec-1 cP

Attribute Name	Temperature	Value
Open Time		10 min [1]
Time to Handling Strength	23 °C (73 °F)	20 min [2]
Time to Structural Strength	23 °C (73 °F)	25-30 min [3]
Time to Full Cure	23 °C (73 °F)	24 h

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

[3] Minimum time required to achieve 6.9 MPa (1,000 psi) of overlap shear strength. Cure times are approximate and depend on adhesive temperature.

Typical Physical Properties

Attribute Name	Value
Cured Color	Black
Mixed Color	Black

Typical Cured Characteristics

Test Method: ASTM D638, ISO 527

Attribute Name	Dwell Time	Temperature	Value
Peak Stress	7 d	23 °C (73 °F)	28.7 MPa (4,166 lb/in²) [1]
Modulus		23 °C (73 °F)	1648 MPa (239,051 lb/in²) [2]
Elongation at Break	7 d		6 % [3]

[1] Tested in accordance with ASTM D638 test method, Type IV dogbone. Jaw separation 100 mm/min. Sample removed from a dry condition and tested after equilibriation at 25 °C / 50%RH for 40 hrs.

[2] 1.5 mm (1/16") thick Type IV dog-bone specimens, samples pulled at 100 mm/min (4 in/min). 2 week dwell in CTH room at 22 °C (72 °F)

[3] Tested in accordance with ASTM D638 test method, Type IV dogbone. Jaw separation 102 mm/min. Sample removed from a dry condition and tested after equilibriation at 25 °C / 50%RH for 40 hrs.

Temperature: 23 °C (73 °F)
Dwell Time: 7 d

Attribute Name	Test Method	Value
Shore D Hardness	ASTM D2240	79

Typical Performance Characteristics

Overlap Shear Strength

Temperature: 23 °C (73 °F)
Test Condition: 23 °C
Dwell Time: 24 h
Test Method: ASTM D1002, ISO 4587

Substrate	Surface Prep	Value
ABS	Solvent Wipe	6.9 MPa (1008 lb/in²) [1]
Polycarbonate (PC)	Solvent Wipe	1.4 MPa (208 lb/in²) [1]
Polyvinyl chloride (PVC)	Solvent Wipe	8.1 MPa (1176 lb/in²) [2]
Acrylic (PMMA)	Solvent Wipe	5 MPa (722 lb/in²) [1]
Cold Rolled Steel	Light Abrasion and Solvent Clean	17.2 MPa (2498 lb/in²) [2]
Epoxy Resin (fiber-reinforced)	Light Abrasion and Solvent Clean	16 MPa (2321 lb/in²) [1]
Polyester resin (fiber-reinforced)	Light Abrasion and Solvent Clean	6.8 MPa (993 lb/in²) [1]
Aluminum	Light Abrasion and Solvent Clean	24.6 MPa (3573 lb/in²) [2]

[1] 25 mm by 12.7 mm (1" x 1/2"), bondline thickness: 0.07-0.25 mm (3-10 mil). Substrate size: 102mm x 25mm (1" x 4"). Separation rate 1.2 mm/min (0.05 in/min) for metal, 51 mm/min (2 in/min) for plastic, 510 mm/min (20 in/min) for rubber.
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

[2] 25 mm by 12.7 mm (1" x 1/2"), bondline thickness: 0.07-0.25 mm (3-10 mil). Substrate size: 102mm x 25mm (1" x 4"). Separation rate 1.2 mm/min (0.05 in/min) for metal, 51 mm/min (2 in/min) for plastic, 510 mm/min (20 in/min) for rubber.

Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

Overlap Shear Strength

Temperature: 23 °C (73 °F)
Test Condition: 23 °C
Dwell Time: 24 h
Test Method: ASTM D1002, ISO 4587

Substrate	Value
Nylon 6	3.7 MPa (540 lb/in²) [1]
Nylon 6,6	3.4 MPa (493 lb/in²) [1]
Nylon 12	4 MPa (582 lb/in²) [1]

[1] 1 min open time, 12.7 mm (0.5 in) overlap, 0.25 mm (0.010 in) bond line thickness, separation rate 2.5 mm/min (0.1 in/min) metals, 51 mm/min (2 in/min) plastics, abraded and solvent wiped substrates, 1.6 mm (1/16 in) metals, 0.8 mm (1/8 in) plastics
Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Substrate: Aluminum
Surface Prep: MEK/Abrade/MEK
Test Condition: Pendulum Impact

Attribute Name	Test Method	Value
Impact Shear Strength	ASTM D950	12 J [1]

[1] 21.7J Hammer

Substrate: Aluminum
Surface Prep: Light Abrasion and Solvent Clean
Temperature: 23 °C (73 °F)
Test Condition: 23 °C

Attribute Name	Test Method	Value
Bell Peel	ASTM D3167	5,25 N/mm (30 lb/in²) [1]

[1] Bonds are made with a 1.6mm thick, 178 mm long (1/16" thick, 7" long) substrate, bonded to a 0.5 mm thick, 254 mm long (20 mil thick, 10" long) substrate. 25 mm (1") wide bonds. Bondline thickness: 0.04 mm (17 mil). Separation rate 1.2 mm/min (6 in/min pull rate)
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

Attribute Name	Value
Additional Test notes	Note: This adhesive also has relatively low adhesion to low surface energy plastics (such as polypropylene, polyethylene, TPO, and PTFE). Applications involving any of these materials should be carefully evaluated by the end user for suitability. Note: The presence of oxygen inhibits the cure of some acrylic structural adhesives. Therefore, any exposed surfaces of the mixed adhesive will cure more slowly than adhesive within the bond line. With this acrylic adhesive, uncured adhesive that remains on exposed surfaces, will leave a tacky film of partially cured material.

Typical Environmental Performance

Overlap Shear Strength

Test Condition: 23 °C
Dwell Time: 500 h
Test Method: ASTM D1002, ISO 4587

Temperature	Environmental Condition	Substrate	Value
23 °C (73 °F)	Diesel Fuel Submersion	Aluminum	95 % [1]
23 °C (73 °F)	Gasoline Submersion	Aluminum	56 % [1]
23 °C (73 °F)	Water Submersion	Aluminum	89 % [1]
23 °C (73 °F)	Salt water (5 wt% in water)	Aluminum	94 % [1]
85 °C (185 °F)	85 %RH	Aluminum	55 % [1]
49 °C (120 °F)	80 %RH	PVC	43 % [1]

[1] Performance % to control sample @RT. Samples were cured @RT for at least 24h prior to Environmental Exposure.
Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x .060in substrates.
Jaw separation 0.05 in/min. 10 mil bondline.

Overlap Shear Strength

Substrate: Aluminum
Dwell Time: 30 min
Test Method: ASTM D1002, ISO 4587

Temperature	Test Condition	Value
-40 °C (-40 °F)	-40 °C	76 % (18.7 MPa) (2707 lb/in²) [1]
49 °C (120 °F)	49 °C	66 % (16.2 MPa) (2345 lb/in²) [1]
82 °C (180 °F)	82 °C	44 % (10.9 MPa) (1581 lb/in²) [1]
200 °C (392 °F)	200 °C	4 % (0.9 MPa) (129 lb/in²) [1]

[1] Performance % to control sample @RT. Samples were cured @RT for at least 24h prior to Environmental Exposure.
Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x .060in substrates.
Jaw separation 0.05 in/min. 10 mil bondline.

Electrical and Thermal Properties

Attribute Name	Value
Glass Transition Temperature (Tg)	133 ºC [1]

[1] Measured at one week via DMA

Coefficient of Thermal Expansion

Test Condition	Value
Below Tg	113.9 µm/(m° C) [1]
Above Tg	189.9 µm/ (m° C) [1]

[1] CTE determined using TMA Analyzer using a heating rate of 3 °C per minute. Second heat values given.

Attribute Name	Value
Surface Resistivity	Resistivity: 7.07E-03 m²K/W
Thermal Conductivity	Conductivity: 0.210 W/mK

Dispense Properties

Attribute Name	Value
45-50ml Cartridge Nozzle	Quadro (Orange), 16 element, 90mm, 1.7ml, #7100202930
490ml Cartridge Nozzle	Helical (Orange), 18 element, 222mm, 13.0ml, #7100304367

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. Nylon surfaces to be bonded must be thoroughly cleaned with isopropyl alcohol.

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 16 °C (60 °F) or above until completely firm. Applying heat up to 66 °C (150 °F) 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™ Acrylic Adhesives are designed to be used on painted/coated metals, most bare metals, and most plastics and composite materials. The following cleaning methods are suggested for common surfaces:

Painted/coated metals:

1. Wipe surface free of dust and dirt with clean cloth and pure isopropyl alcohol.

2. Sandblast or lightly abrade using clean fine grit abrasives. Do not completely remove the paint layer or coating down to bare steel. 3. Wipe again with clean cloth and pure isopropyl alcohol to remove loose particles.

Bare metals:

1. Wipe surface free of dust and dirt with clean cloth and pure acetone.

2. Sandblast or lightly abrade using clean fine grit abrasives.

3. Wipe again with clean cloth and pure acetone to remove loose particles.

Plastics and composite materials:

1. Wipe surface free of dust and dirt with clean cloth and pure isopropyl alcohol.

2. Lightly abrade using fine grit abrasives. 3. Wipe again with clean cloth and pure isopropyl alcohol to remove loose particles.

* *Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer’s

precautions and directions for use. To prepare nylon surfaces, flood the surfaces to be bonded with isopropyl alcohol, let sit for a few seconds, then wipe in a single direction with a clean cloth. Repeat this step. Allow the surfaces to completely dry before applying adhesive.

Storage and Shelf Life

Store under normal conditions of 16° to 27 °C (60° to 80 °F) in the original packaging, out of direct sunlight. Refrigeration at 4 °C (40 °F) will help extend shelf life. Do not freeze. Allow product to reach room temperature prior to use. Use duo-pak containers within 18 months from date of manufacture. Bulk shelf life may vary; please consult your local 3M contact.

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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