TBP Converting, Inc.
3M Scotch-Weld Low Odor Acrylic Adhesive DP8710NS

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Technical Data Sheet

3M™ Scotch-Weld™ Low Odor Acrylic Adhesive DP8710NS

Product Description

3M™ Scotch-Weld™ DP8710 Adhesive is a low odor, non-flammable, two-part acrylic structural adhesives with a 10:1 mix ratio.

Product Features

- Low-odor, non-flammable acrylic formulation
- Non-sag formulation resists running and slumping of adhesive
- Room temperature cure
- Contains spacer 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.
Note: The following data is taken from tests conducted on limited production runs. 3M will continue to test samples from additional product runs and will issue a new data page if the test results change.

Typical Uncured Physical Properties

Property	Values	Additional Information
Color	Black	View
Notes: Colors may vary from nearly white to yellow/amber. Adhesive performance is not affected by color variation.		
Base Color	Black	
Accelerator Color	Gray	
Base Density	1 g/cm³	View
Notes: Density measured using pycnometer.		
Accelerator Density	1.1 g/cm³	View
Notes: Density measured using pycnometer.		
Base Viscosity	15000 - 80000 cP	View
Notes: Viscosity measured using cone-and-plate viscometer; reported viscosity at 4 sec^-1 shear rate.		
Accelerator Viscosity	5000 - 20000 cP	

View

Notes: Viscosity measured using cone-and-plate viscometer; reported viscosity at 4 sec^-1 shear rate.

Base Viscosity	40000 cP	View

Notes: Viscosity measured using cone-and-plate viscometer; reported viscosity at 3.8 sec^-1 shear rate.

Accelerator Viscosity	15000 cP	View

Notes: Viscosity measured using cone-and-plate viscometer; reported viscosity at 3.8 sec^-1 shear rate.

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

Typical Mixed Physical Properties

Property	Values	Additional Information
Open Time (min)	10 to 12 min	View

Notes: 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.

Time to Structural Strength	15 to 20 min	View

Notes: Minimum time required to achieve 1,000 psi of overlap shear strength. Cure times are approximate and depend on adhesive temperature.

Viscosity	40000 cP
Density (mixed)	1 g/cm³

Worklife	8 to 10 min	View

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.

Set Time (min)	12 to 14 min	View

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.

Time to Full Cure	24 hr	View

Temp C: 23C
Temp F: 73F

Typical Physical Properties

Property	Values	Additional Information
Color	Black	View
Test Name: Mixed		
Color	Black	View
Test Name: Cured		

Typical Performance Characteristics

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 acrylic structural adhesives. Therefore, any exposed surfaces of the mixed adhesive will cure much more slowly than adhesive contained within the bond line. With methyl methacrylate (MMA) acrylic adhesives, any uncured adhesive on the surface flashes off immediately, leaving a surface that feels dry to the touch. With this low odor acrylic adhesive, uncured adhesive on exposed surfaces does not evaporate away as quickly, leaving a tacky film of partially cured material. For manufacturing processes that need a tack-free surface quickly, such as for subsequent sanding or painting operations, consider instead using a standard MMA acrylic adhesive.

Property	Values	Additional Information
Environmental Resistance 30min 200C Aluminum	100 %	View
Test Method: ASTM D1002 Test Name: Overlap Shear Strength Dwell/Cure Time: 30.0 Dwell Time Units: min Temp C: 200C Temp F: 392F Substrate: Aluminum Notes: Performance % to control sample @RT, tested after 24hr dwell @RT. Cured adhesives can handle short contact to most chemicals or env. cond. Avoid long exposure to: Temp >100°F + water Ketone-type solvents (acetone, MEK) Gasoline and similar liquids		
Environmental Resistance -40°C (-40°F) Aluminum	100 %	View
Test Name: Overlap Shear Strength Notes: Performance % to control sample @RT, tested after 24hr dwell @RT. Cured adhesives can handle short contact to most chemicals or env. cond. Avoid long exposure to: Temp >100°F + water Ketone-type solvents (acetone, MEK) Gasoline and similar liquids		
Environmental Resistance 85°C (185°F) 85%RH Aluminum	81 %	View
Test Name: Overlap Shear Strength Notes: Performance % to control sample @RT, tested after 24hr dwell @RT. Cured adhesives can handle short contact to most chemicals or env. cond. Avoid long exposure to: Temp >100°F + water Ketone-type solvents (acetone, MEK) Gasoline and similar liquids		
Environmental Resistance 23°C (72°F) Salt water (5 wt% in water) Aluminum	71 %	View
Test Name: Overlap Shear Strength Notes: Performance % to control sample @RT, tested after 24hr dwell @RT. Cured adhesives can handle short contact to most chemicals or env. cond. Avoid long exposure to: Temp >100°F + water Ketone-type solvents (acetone, MEK) Gasoline and similar liquids		

Bell Peel 23°C (72°F) Aluminum	60 lb/in width	View

Substrate: Etched Aluminum

Notes: 6 in/min, 1in wide, 1/16in thick Data from 3M™ EPX™ Applicator System with an EPX static mixer according to manufacturer's directions. Thorough hand-mixing will afford comparable results. Cohesive (CF), Adesive (AF) and Substrate (SF) Failure

Overlap Shear Strength 7day Aluminum	2101 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

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	2031 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

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 ABS	846 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: ABS
Surface Preparation: IPA Wipe

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

Overlap Shear Strength 7day Polyvinyl chloride (PVC)	524 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: Polyvinyl chloride (PVC)
Surface Preparation: IPA Wipe

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)

Overlap Shear Strength 7day Polycarbonate (PC)	168 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: Polycarbonate (PC)
Surface Preparation: IPA Wipe

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)

Typical Cured Characteristics

Property	Values	Additional Information
Modulus	6410 lb/in²	View

Notes: 1/8" thick Type I test specimens; samples pulled at 0.2 in/min.
ASTM D638 2 week dwell at 23°C (72°F)

Tensile Strength	1051 lb/in²	View

Notes: 1/8" thick Type I test specimens; samples pulled at 0.2 in/min.

Tensile Strain at Break	113 %	View

Notes: 1/8" thick Type I test specimens; samples pulled at 0.2 in/min.

Shore D Hardness	65	View

Test Method: ASTM D2240

Temp C: 23C
Temp F: 73F

Overlap Shear Strength 24hour Acrylic	582 lb/in²	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 24.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Acrylic (PMMA)
Surface Preparation: Light Abrasion and Solvent Clean

Notes: 1min open time, 1/2in overlap, 0.010in bond line thickness, separation rate 0.1 in/min metals, 2 in/min plastics, abraded and solvent wiped substrates, 1/16in metals, 1/8in plastics Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Overlap Shear Strength 24hour Polyester (FIbre-Reinforced)	651 lb/in²	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 24.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Polyester (PET)
Surface Preparation: Light Abrasion and Solvent Clean

Notes: 1min open time, 1/2in overlap, 0.010in bond line thickness, separation rate 0.1 in/min metals, 2 in/min plastics, abraded and solvent wiped substrates, 1/16in metals, 1/8in plastics Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Overlap Shear Strength 24hour Epoxy Resin (Fibre Reinforced)	1948 lb/in²	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 24.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Epoxy Resin (Fibre Reinforced)
Surface Preparation: Light Abrasion and Solvent Clean

Notes: 1min open time, 1/2in overlap, 0.010in bond line thickness, separation rate 0.1 in/min metals, 2 in/min plastics, abraded and solvent wiped substrates, 1/16in metals, 1/8in plastics Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Overlap Shear Strength 24hour Aluminum (Tested at -40°C/F)	4787 lb/in²	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 24.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Test Condition: @ -40°F(-40°C)
Substrate: Aluminum
Surface Preparation: Light Abrasion and Solvent Clean

Notes: 1min open time, 1/2in overlap, 0.010in bond line thickness, separation rate 0.1 in/min metals, 2 in/min plastics, abraded and solvent wiped substrates, 1/16in metals, 1/8in plastics Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Overlap Shear Strength 24hour Aluminum (Tested at 82°C/180°F)	690 lb/in²	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 24.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Test Condition: @ 180°F(82°C)
Substrate: Aluminum
Surface Preparation: Light Abrasion and Solvent Clean

Notes: 1min open time, 1/2in overlap, 0.010in bond line thickness, separation rate 0.1 in/min metals, 2 in/min plastics, abraded and solvent wiped substrates, 1/16in metals, 1/8in plastics Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure

Storage and Shelf Life

Store product at 80°F (27°C) or below. Refrigeration at 40°F (4°C) will help extend shelf life. Do not freeze. Allow product to reach room temperature prior to use. 3M™ Scotch-Weld™ Acrylic Adhesives have a shelf life of 12 months from date of manufacture in unopened original containers kept at recommended storage conditions.

Automotive Disclaimer

Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, including, but not limited to, automotive electric powertrain battery or high voltage applications. This product does not fully adhere to typical automotive design or quality system requirements, such as IATF 16949 or VDA 6.3. This product may not be manufactured in an IATF certified facility and may not meet a Ppk of 1.33 for all properties. The product may not undergo an automotive production part approval process (PPAP). Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's automotive application and for conducting incoming inspections before use of the product. Failure to do so may result in injury, death, and/or harm to property. No written or verbal statement, report, data or recommendation by 3M related to automotive use of the product shall have any force or effect unless in an agreement signed by the Technical Director of 3M's Automotive Division. Customer assumes all responsibility and risk if customer chooses to use this product in an automotive electric powertrain battery or high voltage application, and 3M will not be liable for any loss or damage arising from or related to the 3M product or customer's use of the product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity or recall costs), regardless of the legal or

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Dispense Properties

Property	Values	Additional Information
Thixotropic Index	3.8	
Mixing Nozzle Recommendation	Quadro Mixing Nozzle Mix Elements: 16 Length (mm): 90 Volume (ml): 1.72 3M Stock #:7100202930	View
Notes: 50ml Cartridge		
Mixing Nozzle Recommendation	Helical Mixing Nozzle Mix Elements: 18 Length (mm): 221.9 Volume (ml): 12.96 3M Stock #: 7100015959	View
Notes: 400ml Cartridge		
Mixing Nozzle Recommendation	Helical Low waste Mixing Nozzle Mix Elements: 24 Length (mm): 136.7 Volume (ml): 6.28 3M Stock #:7100066351	View
Notes: 400ml Cartridge		
Fillers	Product contains ceramic particles from 0.002" to 0.010"	
Cleaning Recommendation	Excess uncured adhesive can be cleaned with methyl ethyl ketone (MEK)	
Packaging	45ml & 490ml cartridges 5 gallon pails 55 gal drums	

Trademarks

3M, Scotch-Weld and EPX are trademarks of 3M Company.

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 150°F (66°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™ 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.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b5005197013/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=DP8710NS

Family Group

Link Tags:

DP8710NS

Products	Color	Worklife	Set Time (min)	Time to Full Cure	Modulus	Tensile Strain at Break	Shore D Hardness
DP8710NS	Black	8 to 10 min	12 to 14 min	24 hr	6410 lb/in²	113 %	65

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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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