Technical Data Sheet

3M™ Scotch-Weld™ Low Odor Acrylic Adhesive DP8810NS Green

Product Description

3M™ Scotch-Weld™ Low Odor Acrylic Adhesives are high performance, two-part acrylic adhesives that offer excellent shear, peel, and impact performance. These toughened products provide improved adhesion to many plastics and metals, including those with slightly oily surfaces. These durable products feature a fast rate of strength build, providing structural strength in minutes. Their low odor and non-flammability features also make them easier to incorporate into a manufacturing process. Review UL File QOQW2. MH17478 and Sign Components Manual (SAM) File E464624 for certification of these adhesive systems in electrical equipment.
DP8810NS Green has been tested for surface flammability, smoke, toxic gas generation, and caloric content per ASTM E162, ASTM E662, ASTM E1354, Bombardier SMP 800-C, and Boeing BSS 7239 test methods. DP8805NS Green and DP8825NS Green should yield similar results.

Product Features

- Toughened
- Excellent shear strength
- High peel and impact strength
- 10:1 mix ratio control bond line thickness
- Variety of open times available
- Increased cure speed with applied heat
- Contain glass beads (0.010” diameter) to control bond line thickness

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

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 (min)	10 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	19 to 23 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	45000 cP	
Density (mixed)	1.06 g/cm³	
Worklife	8 to 12 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)	16 to 20 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	Blue-Green	View

Test Name: Mixed

Color	Blue-Green	View

Test Name: Cured

Typical Uncured Physical Properties

Property	Values	Additional Information
Base Color	Off-White	
Accelerator Color	Blue	
Base Density	1.06 g/cm³	View

Notes: Density measured using pycnometer.

Accelerator Density	1.08 g/cm³	View

Notes: Density measured using pycnometer.

Base Viscosity	45000 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 Performance Characteristics

Additional Test notes

Note: Environmental aging tests have shown that these adhesives may accelerate the corrosion of certain bare metals (such as cold rolled steel, copper, brass, and bronze), leading to low bond strength values and early bond failure. These adhesives also have 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 these low odor acrylic adhesives, uncured adhesive on exposed surfaces does not evaporate away quickly, leaving a wet film of partially cured material. For manufacturing processes that need a dry surface quickly, such as for subsequent sanding or painting operations, consider instead the standard acrylic adhesives (DP8405NS Green, DP8410NS Green, DP8425NS Green, and Metal Bonder DP8407NS Green).

Property	Values	Additional Information
Environmental Resistance 49C 100%RH Aluminum	35 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 49C
Temp F: 120F
Environmental Condition: 100%RH
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 32C 100%RH Aluminum	55 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 32C
Temp F: 90F
Environmental Condition: 100%RH
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 66C 80%RH Aluminum	70 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 66C
Temp F: 150F
Environmental Condition: 80%RH
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	95 %	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 149C Aluminum	100 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 149C
Temp F: 300F
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 49C 80%RH Aluminum	65 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 49C
Temp F: 120F
Environmental Condition: 80%RH
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 85°C (185°F) 85%RH Aluminum	50 %	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 100%RH Aluminum	75 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 100%RH
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 23°C (72°F) Salt water (5 wt% in water) Aluminum	75 %	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 Diesel Fuel Aluminum	90 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Diesel Fuel
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 Motor Oil Aluminum	95 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Oil 10W30
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 Antifreeze (50 wt% in water) Aluminum	90 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Antifreeze (50 wt% in water)
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 Isopropyl Alcohol (IPA) Aluminum	50 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Isopropyl Alcohol (IPA)
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 Bleach (10 wt% in water) Aluminum	65 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Bleach (10 wt% in water)
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 -40C Polyvinyl chloride (PVC)	100 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: -40C
Temp F: -40F
Substrate: Polyvinyl chloride (PVC)

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 49C Polyvinyl chloride (PVC)	95 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 49C
Temp F: 120F
Substrate: Polyvinyl chloride (PVC)

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 66C Polyvinyl chloride (PVC)	100 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 66C
Temp F: 150F
Substrate: Polyvinyl chloride (PVC)

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 100%RH Polyvinyl chloride (PVC)	100 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 100%RH
Substrate: Polyvinyl chloride (PVC)

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 Salt water (5 wt% in water) Polyvinyl chloride (PVC)	100 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Salt water (5 wt% in water)
Substrate: Polyvinyl chloride (PVC)

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 Hydrochloric acid (16 wt% in water) Polyvinyl chloride (PVC)	95 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Hydrochloric acid (16 wt% in water)
Substrate: Polyvinyl chloride (PVC)

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 Sodium hydroxide (10 wt% in water) Polyvinyl chloride (PVC)	95 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: Sodium hydroxide (10 wt% in water)
Substrate: Polyvinyl chloride (PVC)

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 85C 85%RH Polyvinyl chloride (PVC)	100 %	View

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 1000.0
Dwell Time Units: hr
Temp C: 85C
Temp F: 185F
Environmental Condition: 85%RH
Substrate: Polyvinyl chloride (PVC)

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	35 lb/in width	View

Substrate: Etched Aluminum
Failure Mode: CF

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

Typical Cured Characteristics

Property	Values	Additional Information
Modulus	125000 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	1650 lb/in²	View

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

Tensile Strain at Break	6.5 %	View

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

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™ Low Odor Acrylic Adhesives have a shelf life of 24 months from date of manufacture in unopened original containers kept at recommended storage conditions.

Industry Specifications

Review UL File QOQW2. MH17478 and Sign Components Manual (SAM) File E464624 for certification of these adhesive systems in electrical equipment.
Bombardier SMP 800-C
Boeing BSS 7239
EN 45545 test report details (ISO 5659-2, ISO 9239-1, ISO 5660-1, ISO 5658-2)
NFPA 130 test report details (ASTM E162, ASTM E662, SMP 800-C, BSS 7239)

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 equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability. In no event shall 3M be liable for any damages in excess of the purchase price paid for the product.

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Bottom Matter

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Trademarks

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™ Low Odor Acrylic Adhesives are designed to be used on painted or coated metals, most plastics, glass, and some bare metals. 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.*

Aluminum/stainless steel:

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:

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.*

Glass:

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

2. Apply a thin coating of silane adhesion promoter to the glass surface and allow to dry completely before adhesive 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/b40066426/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=DP8810NS Green

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

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

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