SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

현장을 이해하고, 필요한 솔루션을 연결합니다.

산업안전 · 추락방지 시스템
산업용 소재 · 건축자재
제품 제안부터 공급·시공·설치·교육까지



COMPANY INFORMATION

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TECHNICAL DOCUMENTS

인증서 · 데이터시트 · 기술자료

제품의 규격과 성능, 인증 및 적용 조건을 확인하기 위한 자료입니다.

ABOUT SNAPSHOOT

제품 공급을 넘어, 현장에 맞는 해결책으로

스냅슛은 산업현장의 작업 환경과 요구 조건을 바탕으로
적합한 제품과 시스템을 제안합니다. 현장 실사를 통해 설치 조건을 확인하고,
공급부터 시공·설치 및 사용 교육까지 필요한 과정을 함께합니다.

추락방지 시스템

안전대부착설비 · 수평·수직 라이프라인
레일 시스템 · 리지드 포스트

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산업안전 보호구

전신형 안전대 · 랜야드 · 안전블록
작업 환경에 맞춘 개인보호구

산업용 소재·건축자재

산업용 테이프 · 접착제 · 기능성 소재
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본 페이지는 스냅슛의 자료 제공 안내용 표지입니다. 첨부된 인증서 및 기술자료의 발행 주체, 인증 대상과 적용 범위는 해당 원문을 기준으로 확인해 주세요.



English-US

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Technical Data Sheet

3M™ Scotch-Weld™ Acrylic Adhesive DP820

Product Details

Regulatory Info/SDS

Product Description

3M™Scotch-Weld™ Acrylic Adhesive DP820 is a two-part, 1:1 mix ratio, toughened acrylic structural adhesive. It exhibits excellent shear and peel strength along with good impact and durability, and bonds well to many metals, ceramics, wood and most plastics.

Product Features

- Excellent shear and peel strengths
- Easy mixing
- 20 minute worklife
- Non-sag
- Minimal surface preparation
- 1:1 mix ratio

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

Attribute Name	Temperature	Value
Base Color		Off-White
Accelerator Color		Yellow
Base Resin		Acrylic
Base Net Weight		8.6 lb/gal
Accelerator Net Weight		8.1 lb/gal
Base Viscosity	23 °C (73 °F)	70,000 cP [1]
Accelerator Viscosity	23 °C (73 °F)	45,000 cP [1]

[1] Brookfield RVF #7 spindle at 20 rpm.

Typical Mixed Physical Properties

Rate of Strength Buildup

Substrate: Etched Aluminum
Temperature: 23 °C (73 °F)
Test Method: ASTM D1002, ISO 4587

Dwell Time	Value
30 min	40 lb/in² [1]
1 h	900 lb/in² [1]
2 h	1,700 lb/in² [1]
4 h	2,750 lb/in² [1]
24 h	3,400 lb/in² [1]

Dwell Time	Value
48 h	3,450 lb/in² [1]
7 d	3,450 lb/in² [1]

[1] 25 mm (1 in) wide 12.7 mm (0.5 in) overlap specimens with 25 mm x 102 mm (1 in x 4 in) substrates. 13 - 20 µm (0.005-0.008 in) bondline.
Jaw separation 2.5 mm/min (0.1 in/min)
Substrate thickness 1.3 - 1.6 mm (0.05-0.064 in)
Cohesive (CF), Adhesive (AF), Substrate (SF) Failure

Attribute Name	Temperature	Value
Applied Open Time		15 min [1]
Worklife	23 °C (73 °F)	15 — 20 min [2]
Set Time (min)	23 °C (73 °F)	30 — 40 min [3]
Time to Full Cure	23 °C (73 °F)	24 — 48 h [4]

[1] Approximate time after application of adhesive that bonds can be made without adversely affecting wetting out of adhesive and ultimate performance levels.

[2] 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.

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

[4] The cure time is defined as that time required for the adhesive to achieve a minimum of 80% of the ultimate strength as measured by aluminum-aluminum OLS.

Typical Physical Properties

Attribute Name	Value
Cured Color	Pale Yellow

Typical Cured Characteristics

Attribute Name	Test Method	Temperature	Value
Shore D Hardness	ASTM D2240	23 °C (73 °F)	75
Weight Loss by Thermal Gravimetric Analysis (TGA)		130 °C (266 °F)	1 % [1]
Weight Loss by Thermal Gravimetric Analysis (TGA)		230 °C (446 °F)	5 % [1]

[1] By TGA in air at 50°F (10°C)/min. TGA-7.

Typical Performance Characteristics

Substrate: Aluminum
Surface Prep: Solvent Wipe
Temperature: 23 °C (73 °F)
Dwell Time: 7 d

Attribute Name	Test Method	Value
Overlap Shear Strength	ASTM D1002, ISO 4587	300 lb/in² [1]

[1] 25 mm (1") wide, 12.7 mm (1/2") overlap samples, 25 mm (1") x 102 mm (4") substrates, bondline thickness: 0.13-0.20 mm (5-8 mil)
Separation rate 2.5 mm/min (0.1 in/min) metal, 51 mm/min (2 in/min) plastic, 510 mm/min (20 in/min) rubber.
Substrate thickness: steel 1.5 mm (60 mil), other metal 1.3-1.6 mm (50-64 mil), rubber and plastic 3.2 mm (125 mil)
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

T-Peel Adhesion

Test Method: 3M C439

Temperature	Substrate	Surface Prep	Value
-55 °C (-67 °F)	Aluminum to Etched Aluminum		19 lb/in width [1]
23 °C (73 °F)	Aluminum to Etched Aluminum		22 lb/in width [1]
23 °C (73 °F)	Black SBR to Cold Rolled Steel	Acetone/Abrade/Acetone	9 lb/in width [1]
23 °C (73 °F)	Neoprene Rubber to Steel	Acetone/Abrade/Acetone	11 lb/in width [1]
23 °C (73 °F)	Nirtile Steel	Acetone/Abrade/Acetone	22 lb/in width [1]
38 °C (100 °F)	Aluminum to Etched Aluminum		22 lb/in width [1]
54 °C (130 °F)	Aluminum to Etched Aluminum		22 lb/in width [1]
66 °C (150 °F)	Aluminum to Etched Aluminum		22 lb/in width [1]
82 °C (180 °F)	Aluminum to Etched Aluminum		22 lb/in width [1]

[1] Metal/metal bonds tested @ 20 in/min. Metal/rubber bonds pulled at 10 in/min.

Attribute Name	Test Method	Value
Elongation	ASTM D882	50 — 75 % [1]

[1] Tensile and Elongation. Samples were 5 cm (2") dumbbells with 3 mm (0.125") neck and 0.76 mm (0.030") sample thickness. Separation rate was 5 cm/min (2 in/min).

Electrical and Thermal Properties

Attribute Name	Test Method	Temperature	Test Condition	Value
Glass Transition Temperature (Tg)			Mid-Point	58 °C (136 °F) [1]
Surface Resistivity	ASTM D257	23 °C (73 °F)		1.6 x 10^{14} Ω

[1] Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 20 °C (68 °F) per minute. Second heat values given.

Temperature: 23 °C (73 °F)

Attribute Name	Test Method	Test Condition	Value
Dielectric Constant	ASTM D150	500 Hz	3.1
Dielectric Constant	ASTM D150	1 KHz	3
Dielectric Constant	ASTM D150	10 KHz	2.8
Dielectric Constant	ASTM D150	100 KHz	2.8
Dissipation Factor	ASTM D150	500 Hz	0.083
Dissipation Factor	ASTM D150	1 KHz	0.065
Dissipation Factor	ASTM D150	10 KHz	0.032
Dissipation Factor	ASTM D150	100 KHz	0.022
Volume Resistivity	ASTM D257		2.2 x 10^{12} Ω-cm

Handling/Application Information

Directions for Use

The urethane foam tapes are generally ideal for interior applications or for exterior applications where the tape will be protected from the environment. The urethane foam is open cell.
3M™ Double Coated Urethane Foam Tape 4085 – Attach wire clips, Attach air fresheners

Directions for Use

1. For high 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, 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
3M™ Scotch-Weld™ Acrylic Adhesives DP805 and DP820 are supplied in a dual syringe plastic duo-pak cartridge as part of the 3M™ EPX™ Applicator System. To use, simply insert the duo-pak cartridge into the EPX applicator and start the plunger into the cylinders using light pressure on the trigger. Next, remove the duo-pak cartridge cap and expel a small amount of adhesive to be sure both sides of the duo-pak cartridge are flowing evenly and freely. If automatic mixing of Part A and Part B is desired, attach the EPX mixing nozzle to the duo-pak cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of adhesive and mix thoroughly. Mix approximately 15 seconds after uniform color is obtained.

For Bulk Containers
Mix thoroughly by weight or volume in the proportions specified on the product label or in the typical uncured properties section. Mix approximately 15 seconds after uniform color is obtained.

3. For maximum bond strength, apply adhesive evenly to both surfaces to be joined.

4. Application to the substrates should be made within 2 minutes for Scotch-Weld acrylic adhesive DP805 or 15 minutes for Scotch-Weld acrylic adhesive DP820. Larger quantities and/or higher temperatures will reduce this working time.

5. Join the adhesive coated surfaces and allow to cure at 60°F (16°C) or above until completely firm. Heat up to 120°F-150°F (49°C-66°C) will speed up curing. Scotch-Weld acrylic adhesive DP805 will fully cure in 8-24 hours @ 73°F (23°C) and Scotch-Weld acrylic adhesive DP820 will fully cure in 24-48 hours @ 73°F (23°C).

6. Keep parts from moving during cure. Contact pressure necessary. Maximum shear strength is obtained with a 3-5 mil bond line.

7. Excess uncured adhesive can be cleaned up with ketone type solvents.*

8. Once Scotch-Weld acrylic adhesive DP805 has been applied to a surface, it is best to join the two mating surfaces together as soon as possible. The reason for this is that after approximately one minute Scotch-Weld acrylic adhesive DP805 may begin to form a very thin “skin” over the exposed surface. If left exposed long enough (2-3 minutes), a thick enough “skin” may form which will inhibit the proper wetting needed to achieve maximum performance. In instances where an extended exposed open time is required, it is still possible to achieve excellent bonds by coating both substrates to be joined and making the bond in such a manner as to rupture the “skin” surface. Scotch-Weld acrylic adhesive DP820 does not exhibit this skinning characteristic.

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

Adhesive Coverage:A 0.005 in thick bondline will yield a coverage of 320 sqft/gallon (typical).

Surface Preparation

For high 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, environmental aging resistance desired by the user.

The following cleaning methods are suggested for common surfaces:

Steel:
1. Wipe free of dust with oil-free solvents such as acetone or isopropyl alcohol solvents.*
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with solvent to remove loose particles.*
4. If a primer is used, it should be applied within 4 hours after surface preparation.

Aluminum:
1. Alkaline Degrease: Oakite 164 solution (9-11 oz./gallon water) at 190°F ± 10°F (88°C ± 5°C) for 10-20 minutes. Rinse immediately in large quantities of cold running water.
2. Acid Etch: Place panels in the following solution for 10 minutes at 150°F ± 5°F (66°C ± 2°C).
Sodium Dichromate 4.1 - 4.9 oz./gallon
Sulfuric Acid, 66°Be 38.5 o 41.5 oz./gallon
2024-T3 aluminum (dissolved) 0.2 oz./gallon minimum
Tap water as needed for balance
3. Rinse: Rinse panels in clear running tap water.
4. Dry: Air dry 15 minutes; forced air dry 10 minutes at 190°F ± 10°F (88°C ± 5°C).
5. If primer is to be used, it should be applied within 4 hours after surface preparation (or see instruction pertaining to a specific primer).

Plastics/Rubber:
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 (0.0001 in. or less) of 3M™ Scotch-Weld™ Metal Primer EC3901 to the glass surfaces to be bonded and allow the primer to dry before bonding.

*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.

Storage and Shelf Life

Store product in cool, dry area where temperature is less than 80°F (27°C). Refrigerated storage (40°F to 55°F [4°C to 13°C]), but not frozen, is recommended to extend the shelf life of the products further. When stored in its original unopened cartridges at temperatures below 80°F (27°C), the product has a shelf life of 12 months from the date of manufacture from 3M. Within this time period, short term exposure (less than two weeks) to temperatures greater than 80°F (27°C), but less than 120°F (49°C), are acceptable. If product handling does not meet these conditions then a visual inspection of the product during dispensing is recommended. Any appearance of gels in the mixing nozzle or abnormally high viscosity that makes adhesive delivery difficult indicates that the product should not be used.

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

Automotive Disclaimer

Select Automotive Applications:
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

Information

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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