



Scotch-Weld™ Acrylic Adhesives

DP8405NS Green

Product Data Sheet

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Product Description

3M™ Scotch-Weld™ Acrylic Adhesives are high performance, two-part acrylic adhesives that offer good shear, peel, and impact performance. These toughened adhesives 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.

Key Features

- Toughened
- Work life approximately 5 minutes
- Good shear strength
- Structural strength in about 19 minutes
- High peel strength
- Contain glass beads to control bond line thickness
- 10:1 mix ratio
- Increased cure speed with applied heat
- Contain glass beads (250µ diameter) to control bond line thickness

Note:

Unless otherwise indicated, all properties measured at 22°C.

Physical Properties

Property	DP8405NS Green	
Colour	Base (B) Accelerator (A)	Brown Blue
Viscosity ¹	Base (B) Accelerator (A)	75000 mPas 35000 mPas
Density ²	Base (B) Accelerator (A)	1.03 g/cm ³ 1.08 g/cm ³
Mix ratio	By volume By weight	10 Parts B : 1 Part A 9.5 Parts B : 1 Part A
Note: Cure speed times are approximate and depend on adhesive temperature.		
Work life ³		4-6 min
Open time ⁴		2-4 min
Time to handling strength ⁵		14-16 min
Time to structural strength ⁶		18-20 min
Full cure time		24 hours

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

2. Density measured using pycnometer.

3. Maximum time that adhesive can remain in a static mixing nozzle and still be expelled without undue force on the applicator.

4. Maximum time allowed after applying adhesive to one substrate before bond must be closed and fixed in place.

5. Minimum time required to achieve 50 psi of overlap shear strength.

6. Minimum time required to achieve 1,000 psi of overlap shear strength.

**Typical Mixed
Physical Properties**

Property	DP8405NS Green
Colour	Green
Full cure time	24 hours
Viscosity	75,000 cP
Density	1.03 g/cm ³

**Typical Cured
Physical Properties****Overlap Shear (MPa)⁷**

Substrate	DP8405NS Green
Aluminium	28.5 CF
Stainless steel	25 CF
PVC	12.5 SF
ABS	7.7 SF
Acrylic	9.1 SF
Polycarbonate	9.1 SF
Polystyrene	3.1 AF
Polyester (fiber-reinforced)	6.6 SF
Epoxy resin (fiber-reinforced)	29.9 CF
Aluminium (tested at 82°C)	8.7 CF

7. Overlap shear values measured using ASTM D1002; 1 min open time; adhesive allowed to cure for 24 hours at room temperature; 1/2" overlap; 0.010" bond line thickness; samples pulled at 0.1 in/min for metals and 2 in/min for plastics; all surfaces prepared with light abrasion and solvent clean; substrates used were 1/16" thick metals and 1/8" thick plastics; failure modes:

AF: adhesive failure CF: cohesive failure SF: substrate failure

Note: Environmental aging tests have shown that these adhesives may accelerate the corrosion of certain metals (such as bare 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.

Mechanical Properties⁸

Substrate	DP8405NS Green
Tensile modulus (GPa)	1.35
Tensile strength (MPa)	19.4
Tensile strain at break (%)	9.5

8. Tensile properties measured using ASTM D638; adhesives allowed to cure for 2 weeks at room temperature; 1/8" thick Type I test specimens; samples pulled at 0.2 in/min.

Floating Roller Peel (N/mm width)¹⁰

Substrate	DP8405NS Green
Aluminium	8.8 CF

10. Floating roller peel values measured using ASTM D3167; adhesives allowed to cure for 24 hours at room temperature; 1" wide samples; 0.017" bond line thickness; samples pulled at 6 in/min; aluminium surfaces etched; substrates used were 1/16" thick and 0.020" thick aluminium; failure modes:

AF: adhesive failure CF: cohesive failure SF: substrate failure

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.

Condition	Substrate	DP8405NS Green	
149°C	Aluminium	100%	
49°C + 80% relative humidity		75%	
85°C + 85% relative humidity		30%	
Water		100%	
Salt water (5 wt% in water)		90%	
Gasoline		80%	
Diesel fuel		100%	
Motor oil		100%	
Antifreeze (50 wt% in water)		100%	
Isopropyl alcohol		85%	
Bleach (10 wt% in water)		80%	
49°C + 80% relative humidity		PVC	100%
Water			100%
Salt water (5 wt% in water)	100%		
Sulphuric acid (16 wt% in water)	100%		
Sodium hydroxide (10 wt% in water)	95%		

9. Values indicate overlap shear test performance retained after 1,000 hours of continuous exposure relative to a control sample left at room temperature; samples conditioned for 24 hours at room temperature and 50% relative humidity prior to tests; "NT" = not tested yet.

Note: Fully-cured Acrylic Adhesives can withstand short-term incidental contact with almost any solvent, chemical, or environmental condition. However, long-term continuous exposure to the following liquids should be avoided:

Elevated temperature (>100°F) water
 Ketone-type solvents (acetone, MEK)

Directions For Use

1. To obtain the highest strength structural bonds, paint, oxide films, oils, dust, mould 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 colour.

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 an uniform colour.

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 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. When using a primer, apply within 4 hours after surface preparation.

Aluminium:

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:

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.**

Storage

Store product at 27°C or below. Refrigeration at 4° C will help extend shelf life. Do not freeze. Allow product to reach room temperature prior to use.

Shelf Life

3M™ Scotch-Weld™ Acrylic Adhesives have a shelf life of 18 months in unopened original containers kept at recommended storage conditions.

Precautionary Information

Refer to product label and Material Safety Data Sheet for health and safety information before using the product.
For information please contact your local 3M Office.
www.3M.com

For Additional Information

To request additional product information or to arrange for sales assistance, call 0870 6080050 Address correspondence to: 3M United Kingdom PLC, 3M House, 28 Great Jackson Street, Manchester, M15 4PA

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