



# Scotch-Weld™ Acrylic Adhesive

## DP8410NS Green

### Preliminary Product Data Sheet

Date: December 2016  
Supersedes: August 2015

#### Product Description

3M™ Scotch-Weld™ Acrylic Adhesives are high performance, two-part acrylic adhesives.

#### Key Features

- Toughened
- Provide improved adhesion to many plastics and metals, including those with slightly oily surfaces
- Work life approximately 10 minutes
- Good shear strength
- Very good peel strength
- 10:1 mix ratio
- Increased cure speed with applied heat
- Contain glass beads (250 µ diameter) to control bond line thickness

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

#### Physical Properties

Property	Scotch-Weld™ DP8410NS Green	
Colour	Base (B) Accelerator (A)	Brown Blue
Viscosity <sup>1</sup>	Base (B) Accelerator (A)	65000 mPas 30000 mPas
Density <sup>2</sup>	Base (B) Accelerator (A)	1.02 g/cm <sup>3</sup> 1.07 g/cm <sup>3</sup>
Mix ratio	<b>By volume</b>	10 Parts B : 1 Part A
	<b>By weight</b>	9.5 Parts B : 1 Part A
<b>Note: Cure speed times are approx. and depend on adhesive temperature.</b>		
Work life <sup>3</sup>		10-12 min
Open time <sup>4</sup>		7-9 min
Time to handling strength <sup>5</sup>		N/A
Time to structural strength <sup>6</sup>		N/A
Full cure time		24 hours

1. Viscosity measured using cone-and-plate viscometer; reported viscosity at 4 sec<sup>-1</sup> 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	DP8410NS Green
Colour	Green
Full cure time	24 hours
Viscosity	60000 mPa
Density	1.03 g/cm <sup>3</sup>

**Typical Cured  
Physical Properties**

**Overlap Shear (MPa)<sup>7</sup>**

Substrate	DP8410NS Green
Aluminium	27,1 CF
Stainless steel	24,2 CF
PVC	12,0 SF
ABS	7,6 SF
Acrylic	8,7 SF
Polycarbonate	9,2 SF
Polystyrene	3,8 AF
Polyester (fiber-reinforced)	6,9 SF
Epoxy resin (fiber-reinforced)	4,1 CF
Aluminium (tested at 82°C)	8,6 CF

7. Overlap shear values measured using ASTM D1002; 1 min open time; adhesive allowed to cure for 24 hours at room temperature; 12.7 mm<sup>2</sup> overlap; 0.25 mm bond line thickness; samples pulled at 25.4 mm/min for metals and 50 mm/min for plastics; all surfaces prepared with light abrasion and solvent clean; substrates used were 1.6 mm thick metals and 3.2 mm 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 Properties<sup>8</sup>**

Substrate	DP8410NS Green
Tensile modulus (GPa)	1,29
Tensile strength (MPa)	15,3
Tensile strain at break (%)	6,0

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)<sup>9</sup>**

Substrate	DP8410NS Green
Aluminium	11,2

9. 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.

**Environmental Resistance<sup>10</sup>**

Condition	Substrate	DP8410NS Green
150 °C	Aluminium	100 %
-40 °C		Not Tested
50 °C + 80 % relative humidity		80 %
65 °C + 80 % RH		Not Tested
85 °C + 85 % relative humidity		40 %
Water		Not Tested
Salt water (5 wt % in water)		Not Tested
Gasoline		80 %
Diesel fuel		100 %
Motor oil		100 %
Antifreeze (50 wt % in water)		100 %
Isopropyl alcohol		90 %
Bleach (10 wt % in water)		90 %
50 °C + 80 % relative humidity		PVC
Water	Not Tested	
Salt water (5 wt % in water)	Not Tested	
Hydrochloric acid (16 wt % in water)	100 %	
Sodium hydroxide (10 wt % in water)	90 %	

10. 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 structural adhesives can withstand short-term incidental contact with almost any solvent, chemical, or environmental condition. However, long-term continuous exposure of these acrylic adhesives to the following liquids should be avoided

1. Elevated temperature ( >50 °C ) water
2. Keytone-type solvents ( acetone, MEK )

**Directions For Use**

To obtain the highest strength structural bonds, paint, oxide films, oils, dust, mould release agents, 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.

**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.

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.

The adhesive and all materials should be at 16 °C or above prior to assembly. Allow adhesive to cure at 16 °C or above until completely firm. Applying heat up to 65 °C will increase cure speed.

Keep parts from moving during cure. Apply contact pressure or fixture in place if necessary. Optimum bond line thickness ranges from 0.012 to 0.05 cm; shear strength will be maximized with thinner bond lines, while peel strength reaches a maximum with thicker bond lines. 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**

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### **Surface Preparation**

3M™ Scotch-Weld™ Metal Bonder Acrylic Adhesives are designed to be used on painted or coated metals, most plastics, 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.\*

**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.\*

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**Surface Preparation****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.\*

**\*Note:**

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

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**Storage & Shelf Life**

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.

The product can be stored up to 18 months after production.

**Note:** The shelf life may be shortened if the original packaging is not properly sealed or stored in an environment with high temperatures or humidity.

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**Precautionary Information**

Refer to product and Material Safety Data Sheet for health and safety information before using the product. For information please see below for contact details.

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**For Additional Information**

To request additional product information or to arrange for sales assistance, please see below for contact details.

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**Important Notice**

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application. All questions of liability relating to this product are governed by the terms of the sale subject, where applicable, to the prevailing law.

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations

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