

# Technical Data Sheet

## 3M™ Scotch-Weld™ Structural Plastic Adhesive DP8010 Blue

### Product Description

3M™ Scotch-Weld™ Structural Plastic Adhesive DP8010 Blue is a two-part, acrylic-based adhesives (10:1 ratio by volume) that can bond many low surface energy plastics, including many grades of Polypropylene, Polyethylene and TPO's without special surface preparation. This adhesive can replace screws, rivets, plastic welding, and two-step processes which include chemical etchants, priming or surface treatments in many applications.

### Product Features

- Ability to structurally bond polyolefins without special surface preparation
- Ability to bond dissimilar Substrates
- Regular and Non-Sag Formulations
- Room temperature cure
- Excellent water and humidity resistance
- Very good chemical resistance
- One step process; no pre-treatment of polyolefin substrates necessary
- Solvent-free adhesive system
- Convenient hand-held applicator
- Available in bulk


### 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	10 min	<a href="#">View</a> 


Notes: POR=Pop Off Rubber

Dispense Viscosity	25000 cP	<a href="#">View</a> 
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Temp C: 23C  
Temp F: 72F


Worklife	8 min	<a href="#">View</a> 
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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)	60 min	<a href="#">View</a> 
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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

Skin Formation Time 3 min [View](#) 

Notes: An open bead line will show some skinning in approximately 3 minutes. It is possible to bond parts with good strength if the parts are made within 10 minutes. Therefore, the adhesive has a 10 minute open time for making bonds.

### Typical Physical Properties

Property	Values	Additional Information
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Color	Blue-Green	<a href="#">View</a> 
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Test Name: Mixed

Color	Blue-Green	<a href="#">View</a> 
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Test Name: Cured

### Typical Uncured Physical Properties


Property	Values	Additional Information
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Base Color	Off-White	
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Accelerator Color	Blue	
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Base Density	8.5 lb/gal	
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Accelerator Density	8.3 to 8.7 lb/gal	
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Base Viscosity	27000 cP	<a href="#">View</a> 
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Test Method: 3M C1d

Temp C: 27C  
Temp F: 80F

Notes: Procedure involves Brookfield RVF, #7 spindle, 20 rpm. Measurement taken after 1 minute rotation.

Accelerator Viscosity	17000 to 40000 cP	<a href="#">View</a> 
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Test Method: 3M C1d

Temp C: 27C  
Temp F: 80F

Notes: Procedure involves Brookfield RVF, #7 spindle, 20 rpm. Measurement taken after 1 minute rotation.

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

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

### Typical Cured Characteristics

Property	Values	Additional Information
Modulus	77000 lb/in <sup>2</sup>	<a href="#">View</a>

Test Method: ASTM D638

Shore D Hardness 57 [View](#)

Test Method: ASTM D2240

Temp C: 23C  
Temp F: 73F

Storage Modulus 970 MPa [View](#)

Notes: Temp ramp 3C/ min

Tensile Strength 1300 lb/in<sup>2</sup> [View](#)

Test Method: ASTM D638

Strain at Break 90 % [View](#)

Test Method: ASTM D638

### Typical Performance Characteristics

Property	Values	Additional Information
180° Peel Adhesion Polypropylene (PP)	Substrate Failure oz/in	<a href="#">View</a>

Test Method: ASTM D3330

Test Name: 180° Peel Adhesion  
Dwell/Cure Time: 72.0  
Dwell Time Units: hr  
Temp C: 49C  
Temp F: 120F  
Environmental Condition: 50%RH  
Substrate: Polypropylene (PP)


Notes: 12 in/min (300 mm/min)

Overlap Shear Strength 7day Aluminum 1960 lb/in<sup>2</sup> [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  
Failure Mode: CF


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 1800 lb/in<sup>2</sup> 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  
Failure Mode: CF


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 Copper 1870 lb/in<sup>2</sup> 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: Copper  
Surface Preparation: MEK/Abrade/MEK  
Failure Mode: CF


Notes: Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x 0.05-0.060in substrates. Jaw separation 0.1 in/min. 0.005-0.008in bondline. Cohesive (CF), Adhesive(AF), and Substrate(SF) Failure

Overlap Shear Strength 7day Stainless Steel 1820 lb/in<sup>2</sup> 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: Stainless Steel  
Surface Preparation: MEK/Abrade/MEK  
Failure Mode: CF

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1" x 4" x 0.060" substrate Jaw Separation 0.1in/min Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

Overlap Shear Strength 7day Polycarbonate (PC) 1150 lb/in<sup>2</sup> 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  
Failure Mode: SF

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 Galvanized Steel	1330 lb/in <sup>2</sup>	<a href="#">View</a>
<p>Test Method: ASTM D1002</p> <p>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: Galvanized Steel Surface Preparation: MEK/Abrade/MEK Failure Mode: CF</p> <p>Notes: 0.5in overlap, 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, substrates used were 1/16in thick, 0.010in bondline Substrate (SF), Adhesive (AF), Cohesive (CF), and Mixed (MF) Failure modes</p>		

Overlap Shear Strength 7day Low Density Polyethylene (LDPE)	360 lb/in <sup>2</sup>	<a href="#">View</a>
<p>Test Method: ASTM D1002</p> <p>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: Low Density Polyethylene (LDPE) Surface Preparation: IPA Wipe Failure Mode: SF</p> <p>Notes: 0.5in overlap, pulled at 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, 1/16in aluminum and 1/8in plastics, composites varied. Substrate (SF), Adhesive (AF), Cohesive (CF), Mixed (MF) Failure modes</p>		

Overlap Shear Strength 7day UHMWPE	770 lb/in <sup>2</sup>	<a href="#">View</a>
<p>Test Method: ASTM D1002</p> <p>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: UHMWPE Surface Preparation: IPA Wipe Failure Mode: CF</p> <p>Notes: 1/2" overlap; samples pulled at 2 in/min; all surfaces prepared with light abrasion and solvent clean; substrates used were 1/8" thick with 0.010" bondline SF: Substrate Failure AF: Adhesive Failure CF: Cohesive Failure MF: Mixed failure modes</p>		

## Electrical and Thermal Properties

Property	Values	Additional Information
Glass Transition Temperature (Tg)	61 °C	<a href="#">View</a>
<p>Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.</p>		
Dielectric Constant 1KHz	4.36	<a href="#">View</a>

Test Method: ASTM D150

Temp C: 23C


Temp F: 72F

Dissipation Factor 1KHz	0.068	View 
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Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Volume Resistivity	4.1E+11 Ω-cm	View 
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Test Method: ASTM D257

Temp C: 23C

Temp F: 73F

Surface Resistivity	80000000000 Ω	View 
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Test Method: ASTM D257

Coefficient of Thermal Expansion	116 m/m/°C
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Coefficient of Thermal Expansion	245 m/m/°C
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## Storage and Shelf Life

Store product below 40°F (4°C). Do not freeze. Allow product to reach room temperature prior to use.

3M™ Scotch-Weld™ Structural Plastic Adhesives when stored in unopened original containers kept at recommended storage conditions have a shelf life of 3 months for 55 gal. drums, 9 months for 5 gal. pails and 18 months in duo-pak containers.

## Bottom Matter

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## Handling/Application Information

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### 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.

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™ Structural Plastic 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.\*

#### Aluminum:

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 adhesive within 4 hours of primer application.

#### 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.

## References

Property	Values
3m.com Product Page	<a href="https://www.3m.com/3M/en_US/p/d/b40066429/">https://www.3m.com/3M/en_US/p/d/b40066429/</a>
Safety Data Sheet SDS	<a href="https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=DP8010 Blue">https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=DP8010 Blue</a>

## Family Group

Link Tags:

• DP8010 Blue

Products	Open Time
DP8010 Blue	10 min

## 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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