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English
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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	View
Notes: POR=Pop Off Rubber		
Dispense Viscosity	25000 cP	View
Temp C: 23C Temp F: 72F		
Worklife	8 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)	60 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

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
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	8.5 lb/gal	
Accelerator Density	8.3 to 8.7 lb/gal	
Base Viscosity	27000 cP	View

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	View

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/in²	View
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/in²	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	View
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/in²	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/in²	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/in²	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/in²	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/in²	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/in²	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: Galvanized Steel
Surface Preparation: MEK/Abrade/MEK
Failure Mode: CF

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

Overlap Shear Strength 7day Low Density Polyethylene (LDPE)	360 lb/in²	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: Low Density Polyethylene (LDPE)
Surface Preparation: IPA Wipe
Failure Mode: SF

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

Overlap Shear Strength 7day UHMWPE	770 lb/in²	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: UHMWPE
Surface Preparation: IPA Wipe
Failure Mode: CF

Notes: ½" 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

Electrical and Thermal Properties

Property	Values	Additional Information
Glass Transition Temperature (Tg)	61 °C	View

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

Dielectric Constant 1KHz	4.36	View

Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Dissipation Factor 1KHz	0.068	View

Test Method: ASTM D150

Temp C: 23C
Temp F: 72F

Volume Resistivity	4.1E+11 Ω-cm	View

Test Method: ASTM D257

Temp C: 23C
Temp F: 73F

Surface Resistivity	80000000000 Ω	View

Test Method: ASTM D257

Coefficient of Thermal Expansion	116 m/m/°C

Coefficient of Thermal Expansion	245 m/m/°C

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.

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.

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	https://www.3m.com/3M/en_US/p/d/b40066429/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=DP8010 Blue

Family Group

Link Tags:

DP8010 Blue

Products	Open Time	Shore D Hardness
DP8010 Blue	10 min	57

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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