

Technical Data Sheet

3M™ Polyurethane Multi-Purpose Adhesive 5010

Product Description



3M™ Polyurethane Multi-Purpose Adhesive 5010 is a one component, fast curing adhesive which forms a rigid permanent bond. 3M 5010 bonds to a wide variety of materials including wood, foam panels, fiberglass, and wood.

Product Features

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 Physical Properties

Property	Values	Additional Information
Open Time	3 to 5 min	
VOC	2.1 g/L	
VOC	0.02 lb/gal	
Approximate Coverage	38 lineal m	View 
Notes: 10.5 oz. [310 mm Cartridge]; 1/8 in (3 mm) bead		
Approximate Coverage	126 lineal ft	View 
Notes: 10.5 oz. [310 mm Cartridge]; 1/8 in (3 mm) bead		
Specific Gravity	1.05	
Pressing Time	30 min	
Final Setting Time	24 hr	








Typical Uncured Physical Properties

Property	Values	Additional Information
Consistency	Thixotropic paste	

Typical Cured Characteristics


Property	Values	Additional Information
Modulus at 100% Elongation	11.7 MPa	View 
Test Method: ASTM D412		
Modulus at 100% Elongation	1700 lb/in ²	View 
Test Method: ASTM D412		

Typical Performance Characteristics

Property	Values	Additional Information
Tensile Strength	1.9 MPa	View 
Test Method: ASTM D412		
Tensile Strength	275 lb/in ²	View 
Test Method: ASTM D412		
Long Term Temp C	100 °C	View 
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-30 °C	View 
Test Condition: Long Term (day, weeks)		
Long Term Temp F	212 °F	View 
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-22 °F	View 
Test Condition: Long Term (day, weeks)		
Overlap Shear Strength	4.7 MPa	View 
Dwell/Cure Time: 30.0		

Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Fir
Surface Preparation: Abrade and solvent wipe
Failure Mode: Substrate Broke / Gross Failure

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	686 lb/in ²	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Fir
Surface Preparation: Abrade and solvent wipe
Failure Mode: Substrate Broke / Gross Failure

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	7.2 MPa	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Stainless Steel
Surface Preparation: Abrade and solvent wipe
Failure Mode: Cohesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	1042 lb/in ²	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Stainless Steel
Surface Preparation: Abrade and solvent wipe
Failure Mode: Cohesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	6.2 MPa	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Aluminum
Surface Preparation: Abrade and solvent wipe
Failure Mode: Cohesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	905 lb/in ²	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Aluminum
Surface Preparation: Abrade and solvent wipe
Failure Mode: Cohesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

7 MPa

View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Cold Rolled Steel
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

1011 lb/in²

View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Cold Rolled Steel
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

1.8 MPa

View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Nylon
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

262 lb/in²

View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Nylon
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

3.6 MPa

View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: ABS
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.


Overlap Shear Strength


528 lb/in²


View 


Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: ABS
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive


Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.


Overlap Shear Strength	3.4 MPa	View 
<p>Dwell/Cure Time: 30.0 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Acrylic (PMMA) Surface Preparation: Abrade and solvent wipe Failure Mode: Substrate Broke / Gross Failure</p> <p>Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.</p>		

Overlap Shear Strength	492 lb/in ²	View 
<p>Dwell/Cure Time: 30.0 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Acrylic (PMMA) Surface Preparation: Abrade and solvent wipe Failure Mode: Substrate Broke / Gross Failure</p> <p>Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.</p>		

Overlap Shear Strength	2.5 MPa	View 
<p>Dwell/Cure Time: 30.0 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Polycarbonate (PC) Surface Preparation: Abrade and solvent wipe Failure Mode: Cohesive</p> <p>Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.</p>		


Overlap Shear Strength	357 lb/in ²	View 
<p>Dwell/Cure Time: 30.0 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Polycarbonate (PC) Surface Preparation: Abrade and solvent wipe Failure Mode: Cohesive</p> <p>Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.</p>		

Overlap Shear Strength	11.5 MPa	View 
<p>Dwell/Cure Time: 30.0 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: FRP Green Surface Preparation: Abrade and solvent wipe Failure Mode: Cohesive</p> <p>Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.</p>		

Overlap Shear Strength	1668 lb/in ²	View 
<p>Dwell/Cure Time: 30.0 Dwell Time Units: day</p>		

Temp C: 23C
Temp F: 72F
Substrate: FRP Green
Surface Preparation: Abrade and solvent wipe
Failure Mode: Cohesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	0.4 MPa	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Polypropylene (PP)
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	51 lb/in ²	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Polypropylene (PP)
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	0.6 MPa	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Low Density Polyethylene (LDPE)
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	90 lb/in ²	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Low Density Polyethylene (LDPE)
Surface Preparation: Abrade and solvent wipe
Failure Mode: Adhesive

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength	5.4 MPa	View 
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Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Polyvinyl chloride (PVC)
Surface Preparation: Abrade and solvent wipe
Failure Mode: Substrate Broke / Gross Failure

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength		
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790 lb/in²View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Polyvinyl chloride (PVC)
Surface Preparation: Abrade and solvent wipe
Failure Mode: Substrate Broke / Gross Failure

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

2.3 MPa

View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Glass
Surface Preparation: Abrade and solvent wipe
Failure Mode: Substrate Broke / Gross Failure

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Overlap Shear Strength

333 lb/in²View 

Dwell/Cure Time: 30.0
Dwell Time Units: day
Temp C: 23C
Temp F: 72F
Substrate: Glass
Surface Preparation: Abrade and solvent wipe
Failure Mode: Substrate Broke / Gross Failure

Notes: Overlap shear, 17 mil bond line. Substrates abraded and solvent wiped prior to bonding, 30 day cure. Following data should not be used for specification purposes. Poor curing after 30 days with non-porous substrates, Metals, PC, PE were 50-75% cured.

Typical Environmental Performance

Long term exposure to temperatures greater than 212°F (100°C) will decrease tensile strength over time. Do not use these products in applications where the temperatures will continuously exceed 212°F (100°C).

Storage and Shelf Life

3M™ Polyurethane Multi-Purpose Adhesive 5010 must be stored in a controlled environment to maximize shelf life. Store the products in the original unopened containers below 90°F (32°C).

When stored at recommended conditions, the shelf life of cartridges and sausage packs is 12 months from the date of manufacture. For 5 and 55 gallon containers, the shelf life is 6 months from date of manufacture.

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.

Bottom Matter

3M
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800-362-3550

Trademarks

3M and Scotch-Brite are trademarks of 3M Company.

Handling/Application Information

Application Examples

Application Equipment

Cartridge:

A variety of applicators are available. Please contact your sales rep for assistance in selecting an applicator.

Directions for Use

Surface Preparation:

Surfaces to be sealed or bonded should be clean and dry. Surfaces should be free from grease, mold release, oil, water/condensation, and other contaminants that may affect the adhesion of the sealant. Abrading with 180 to 220 grit abrasive followed by a solvent wipe will improve the bond strength. Suitable solvents include 3M™ Adhesive Remover or methyl ethyl ketone (MEK).*

*When using solvents, use in a well ventilated area. Extinguish all sources of ignition in the work area and observe product directions for use and precautionary measures. Refer to product label and MSDS for further precautions. Always pre-test solvent to ensure it is compatible with substrates.

Local and federal air quality regulations may regulate or prohibit the use of these products or surface preparation and cleanup materials. Consult local and federal air quality regulations before using these products.

Primer:

Use of a primer is an extra step and cost and will depend on substrates and the final end use. Using primer can improve the corrosion resistance of certain metals as well as improve the durability of the bond when exposed to high humidity conditions. For most applications, high strength bonds on metal can be achieved without the use of a primer. Pre-testing for adhesion is suggested to determine if a primer is needed. Contact your 3M Technical Service representative for primer recommendation and application advice.

Application:

Loading the applicator gun: make sure the applicator is set up with correct plunger attachment for cartridge.

Cartridge: Cut off tip of the cartridge. Load into applicator and fix retaining ring (if applicable). Assemble the nozzle (if applicable) and cut to desired size and shape.

Product should be used within 24 hours after cartridge is opened. Dispense product with the nozzle tip in contact with the substrate to insure good contact with the substrate. Bonding must occur within 3 minutes.

Do not apply 3M™ Polyurethane Multi-Purpose Adhesive 5010 on frozen nor wet surfaces. Do not apply over silicone nor in the presence of curing silicone.

Cleanup:

While sealant is still soft, cleaning can be done with the same solvents used for surface preparation. If sealant is already cured, removal is done mechanically with razor knife, piano wire, sanding or 3M™ Scotch-Brite™ Molding Adhesive and Stripe Removal Disc. This disc is available from 3M Automotive Aftermarket Division.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40066993/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/c/epdm/epdm_us_sds/epdm_us_sds_5010

Family Group

Link Tags:

• 5010

Products	Open Time	Long Term Temp C
5010	3 to 5 min	100 °C

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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-

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

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