English-US

Last Revision Date: September, 2024

Supersedes: June, 2024

Science.
Applied to Life.™

Technical Data Sheet

3M™ Polyurethane Sealant 540

Product Details   Regulatory Info/SDS

Product Description

3M™ 500-Series Polyurethane Construction Sealant, Polyurethane Sealant and Polyurethane Adhesive Sealant products are one component, moisture curing products which form permanent elastic bonds. They bond to a wide variety of materials including plastics, metals, fiberglass, and wood. They are formulated to have a wide variety of Shore A hardness, open times, and performance parameters to meet many application needs.

Product Features

- One component (moisture cure) has no mixing and simplifies production
- Bonds dissimilar materials for design flexibility
- Adheres to wide variety of substrates
- Permanently elastic
- Paintable after cure to improve product finish
- High tensile strength for fastener replacement
- Low modulus/shore A hardness designed for sealing and materials having mismatched thermal expansion

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 Uncured Physical Properties

Attribute Name	Value
Consistency	Medium Paste

Typical Mixed Physical Properties

Temperature: 23 °C (73 °F)

Attribute Name	Value
Rate of Cure	3 mm/24 h (1 — 8 in/24 h)

Temperature: 23 °C (73 °F)

Attribute Name	Value
Tack Free Time	60 — 90 min

Typical Physical Properties

Attribute Name	Value
Approximate Coverage	38 lineal m (126 LF) [1]
Compatibility with paints	Water based: yes Solvent based: test beforehand
Water and salt spray resistance	Excellent
VOC	53.7 g/L (0.448 lb/gal)
Specific Gravity	1.17

[1] 10.5 oz. [310 mm Cartridge]; 1/8 in (3 mm) bead

Typical Cured Characteristics

Attribute Name	Test Method	Temperature	Value
Modulus at 100% Elongation	ASTM D412	23 °C (73 °F)	0.9 MPa (125 lb/in²)
Shore A Hardness	ASTM C661		40

Typical Performance Characteristics

Attribute Name	Value
Application Temperature	5 — 35 °C (40 — 95 °F)
Long Term Temperature Resistance	90 °C (194 °F) [1]
Minimum Long Term Temperature Resistance	-40 °C (-40 °F) [1]

[1] Long Term (day, weeks)

Test Method: ASTM D412

Attribute Name	Value
Elongation at Break	>600 %
Tensile Strength	2.1 MPa (300 lb/in²)

Typical Environmental Characteristics

Temperature Resistance

Long term exposure to temperatures greater than 194°F (90°C) will decrease tensile strength over time. Do not use these products in applications where the temperatures will continuously exceed 194°F (90°C).

Handling/Application Information

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.

Note: Alcohol will interfere with the curing process and extra care must be taken when using alcohol as a cleaning solvent to prevent any contact with the sealant.

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 or sausage pack.

Cartridge: Puncture seal in nozzle and remove the pull-tab seal at the bottom of the cartridge. Load into applicator and fix retaining ring (if applicable). Assemble the nozzle (if applicable) and cut to desired size and shape.

Sausage Pack: Make a 1" slit close to the crimp on one end of the sausage pack. Load the sausage pack into the applicator barrel (slit side out). Place the rounded end of the supplied sausage nozzle onto the slit end of the sausage package and fix with retaining ring. Cut nozzle to desired size and shape.
Product should be used within 24 hours after seal is punctured. Dispense product with the nozzle tip in contact with the substrate to insure good gap filling. Bonding must occur within the first 50% of published skin time
Do not apply polyurethane sealants and adhesive sealants on frozen nor wet surfaces. Do not apply over silicone nor in the presence of curing silicone nor hybrid products. Avoid contact with alcohol and solvents during curing. Sealant can

be tooled immediately after applying to give desired appearance.

Cleanup:
While sealant is still soft, cleaning can be done with the same solvents used for surface preparation. Avoid cleaning with alcohol as it will interfere with the curing process.
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.

Application Examples

• 3M™ Polyurethane Construction Sealant 525: General Industrial, ConstructionSeals expansion joints, Construction panels, roofing tiles. Bonds well to concrete.
• 3M™ Polyurethane Sealant 540: General Industrial, Construction, Marine, Specialty VehicleSeals lap seams on trucks, trains, trailers, etc., and construction panels
• 3M™ Polyurethane Adhesive Sealant Fast Cure 550: General Industrial, Construction, Marine, Specialty VehicleBonds and seals many diverse materials. Marine deck to hull bonding.
• 3M™ Polyurethane Adhesive Sealant 551: General Industrial, Construction, Marine, Specialty VehicleBonds and seals many diverse materials. 550-type adhesive sealant with longer open time for use in large surface applications.
• 3M™ Polyurethane Adhesive Sealant 560: General Industrial, Construction, Specialty VehicleBonds floors, exterior/interior panels, roofs for trucks, trains, trailers, vans, etc.

Application Equipment

Cartridge and Sausage Pack:
A variety of applicators are available. Please contact your sales rep for assistance in selecting an applicator.

Bulk Dispensing:
A 38:1 ratio dual action piston pump with a ram is suggested. Actual equipment should be designed for your application based on the volume required. Please contact your sales rep or the technical service group to suggest equipment manufacturers (Graco: 1-877-844-7226 or www.graco.com).

Product Certifications and Listings

Standard Specification for Elastomeric Joint Sealants: ASTM C920, Type S, Grade NS, Class 25
3M™ Polyurethane Construction Sealant 525, 3M™ Polyurethane Sealant 540, 3M™ Polyurethane Adhesive Sealant Fast Cure 550

NSF R2: Coating for Use on Structural Surfaces (White and Gray only)
3M™ Polyurethane Construction Sealant 525, 3M™ Polyurethane Adhesive Sealant Fast Cure 550

Federal Railroad Administration: Surface Flame Spread ASTM E162, Smoke Generation ASTM E662
3M™ Polyurethane Sealant 540, 3M™ Polyurethane Adhesive Sealant Fast Cure 550, 3M™ Polyurethane Adhesive Sealant 560

Bombardier SP800-C: Toxic Gas Production
3M™ Polyurethane Sealant 540, 3M™ Polyurethane Adhesive Sealant Fast Cure 550, 3M™ Polyurethane Adhesive Sealant 560

IMO/MED: International Maritime Organization
3M™ Polyurethane Sealant 540, 3M™ Polyurethane Adhesive Sealant Fast Cure 550

Leadership In Energy and Environmental Design (LEED): Contributes to LEED credit
3M™ Polyurethane Construction Sealant 525, 3M™ Polyurethane Sealant 540, 3M™ Polyurethane Adhesive Sealant Fast Cure 550, 3M™ Polyurethane Adhesive Sealant 551, 3M™ Polyurethane Adhesive Sealant 560

Industry Specifications

NFPA 130 test report for details (ASTM E662)
NFPA 130 test report for details (BSS 7239)

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. When stored at recommended conditions, the shelf life is 15 months from date of manufacture for cartridges and sausage packs. When stored at recommended conditions, the shelf life is 6 months from date of manufacture for 5 and 55 gallon containers.

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

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.

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.

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: 3M industrial and occupational products are intended, labeled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labeled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit www.3M.com.

ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

3M™ Industrial Adhesives and Tapes Division
3M Center, St. Paul, MN 55144-1000
3M.com/iatd