

3M™ Thread Sealant 4291

Technical Data Sheet



General Description

3M™ Thread Sealant 4291 is a water-based adhesive product designed to be pre-applied to threaded fasteners. It has excellent resistance to automotive fluids and can withstand high temperatures and pressures. Typical applications are threaded fasteners for the engine compartment.

Physical Properties

3M™ Thread Sealant	
Bulk adhesive	4291
Color	White
% solid	59%
Flash point	None
Density	9.25 lbs/gallon (1110 kg/m ³)
Viscosity	400-1200 cps
Form	Flowable liquid

†Brookfield viscometer, RVF #4 spindle at 20 rpm.

Bulk Adhesive Storage and Handling

Container Sizes	18.9 liter (5 gallon) pails
Shelf life	Six months from the date of receipt by the customer. Shelf life can be extended by re-mixing the adhesive regularly so that capsules do not coagulate on the bottom of the pails. Adhesive stored longer than six months from the date of receipt should be checked for performance prior to application on fasteners.
Storage conditions	Store pails at 15°-27°C (60°- 80°F). PROTECT FROM FREEZING. Storage below 0°C (32°F) for extended periods will freeze the adhesive and make it totally unusable. Storage above 49°C (120°F) will shorten the shelf life of the adhesive. Inventory should be rotated on a FIFO (first-in, first-out) basis.

Coated Fastener Storage and Handling

Shelf life	One year from date of adhesive application. Shelf life can be as long as four years, depending on the storage conditions. Fasteners which are more than one year from the date of adhesive application should be checked for performance prior to use.
Storage conditions	Store coated fasteners at 4°-38°C (40°- 100°F).

Performance Properties

These properties are representative of the products' performance, and are supported by laboratory test data. However, the values reported are not intended to be used for specification purposes.

Chemical Resistance¹	4291
toluene (room temperature)	No leaks
gasoline (room temperature)	No leaks
motor oil (300°F/149°C)	No leaks
transmission fluid (300°F/149°C)	No leaks
anti-freeze (266°F/130°C)	No leaks
brake fluid (300°F/149°C)	No leaks
diesel fuel #2 (room temperature)	No leaks
hot water (200°F/93°C)	No leaks
Fluid Tightness²	
gasoline (room temperature)	150 psi / no leaks
motor oil (300°F/149°C)	150 psi / no leaks
transmission fluid (300°F/149°C)	150 psi / no leaks
anti-freeze (266°F/130°C)	150 psi / no leaks
hot water (200°F/93°C)	150 psi / no leaks
High Pressure Resistance³	
1200+ psi (84+ kg/cm ²)	No leaks

Test Methods

This product is not on the Qualified Product Listing under the Defense Standardization Program and has not been tested for military use.

¹ 3/8 inch (9.5 mm) pipe plugs were coated with 4291 and then installed into 3/8 inch (9.5 mm) pipe tees at a seating torque of 20 inch-lbs (2.3 Nm). The assemblies were then immersed for 42 days in the specified solvents/chemicals. After the conditioning period, the assemblies were pressurized with air to 58 psi (4.1 kg/cm²) and immersed in water to check for leaks.

² 3/8 inch (9.5 mm) bolts were coated with 4291 and then installed in the mating nuts. The assemblies were then immersed for 28 days in the specified solvents/chemicals. After the conditioning period, the assemblies were tested to MIL-S-46163 (Fluid Tightness Test for Anaerobic Adhesive/Sealants), where the assemblies are placed in a test fixture with pressurized soapy water. Assemblies are required to pass 50 psi (3.5 kg/cm²) with no leaks.

³ 3/8 inch (9.5 mm) bolts were coated with 4291 and then installed in a 3/8 inch (9.5 mm) thick test plate. The test plate was immediately attached to a test fixture and hydraulic (water) pressure was slowly applied until water leakage occurred.

Features, Advantages, and Benefits

Product Features	Performance Advantages	Customer Benefits
Synthetic polymer chemistry	<ul style="list-style-type: none"> Extended shelf life (12 months on coated fasteners) Excellent resistance to automotive fluids, high temperatures (up to 300°F / 149°C) and pressures (up to 150 psi / 10.5 kg/cm²) Can be used on both pipe and straight threads 	Robust sealing performance
Flow coatable formula	Allows controlled application to fasteners; viscosity can be adjusted to achieve target coating weights	Broad handling, dispensing and drying windows for the applicators

Regulatory Information

Read all Health Hazard, Precautionary, and First Aid statements found in the Material Safety Data Sheet (MSDS) and/or product label prior to handling or use. Visit www.3M.com/msds to obtain an MSDS.

Contact Information

The information provided in this technical document is intended as a guide for this product. For more information or help in selecting a 3M product for an application, please contact your 3M technical service representative or call 1-800-328-1684.

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