



# 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™ Fastener Adhesive	
Bulk adhesive	4291
Color	White
% solid	59%
Flash point	None
Density	9.25 lbs/gallon (1110 kg/m <sup>3</sup> )
Viscosity	400-1200 cps
Form	Flowable liquid

<sup>1</sup>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.

---

<b>Chemical Resistance<sup>1</sup></b>	<b>4291</b>
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

---

<b>Fluid Tightness<sup>2</sup></b>	
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

---

<b>High Pressure Resistance<sup>3</sup></b>	
1200+ psi (84+ kg/cm <sup>2</sup> )	No leaks

## Test Methods

<sup>1</sup> 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/cm<sup>2</sup>) and immersed in water to check for leaks.

<sup>2</sup> 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/cm<sup>2</sup>) with no leaks.

<sup>3</sup> 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.

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

## Features, Advantages, and Benefits

Product Features	Performance Advantages	Customer Benefits
Synthetic polymer chemistry	<ul style="list-style-type: none"><li>Extended shelf life (12 months on coated fasteners)</li><li>Excellent resistance to automotive fluids, high temperatures (up to 300°F / 149°C) and pressures (up to 150 psi / 10.5 kg/cm<sup>2</sup>)</li><li>Can be used on both pipe and straight threads</li></ul>	Robust sealing performance
Water-based	No VOCs	
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](http://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.

**Technical Information:** The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

**Product 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. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

**Warranty, Limited Remedy, and Disclaimer:** Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 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 OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 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 where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



**Automotive Division**

3M Center

St. Paul, MN 55144-1000

Phone 1-800-328-1684

Web [www.3M.com/autosolutions](http://www.3M.com/autosolutions)

3M is a trademark of 3M Company

Please recycle. Printed in USA.

© 3M 2016 All rights reserved.