

PRODUCT ENGINEERING		MATERIAL SPEC #M-066	
		DCN:: O-12584	COMPOUND REV: B
		DATE: 08-13-2013	MATERIAL:
		APPROVED::	PAGE 1 OF 5

PIPE PLUG SEALANT

1.0 SCOPE:

This specification covers the sealant used to coat the threads of pipe plugs used in hubcaps.

2.0 REQUIREMENTS:

2.1 The coating is an aqueous polymeric dispersion formulated with small amounts of mineral fillers (such as mica) and lubricating agents (Tetrafluorethylene).

Filler	30-35%
Tetrafluorethylene	10-11%
Polymer	55-59%

2.2 Specific Gravity: 1.1 – 1.4

2.3 Viscosity: 25°C, cP (mPa*s)
(ASTM D1084, RVF Brookfield)

	20 RPM
No. 4 Spindle	4, 000 – 7,000

Thixotropic materials have viscosities dependent upon the speed of the measuring viscometer. The materials must be thoroughly shaken before measuring viscosity and prior to use.

3.0 PERFORMANCE:

Coated pipe plugs must perform the required sealing dictated by the application and must not interfere with assembly. Pipe plugs must show residual sealer in the thread roots after three installations and removals.

4.0 INSPECTION:

The following coating weights must be maintained for tumbled or dip coated plugs:

Pipe Thread Size	Dry Sealant Weight in mg		
	Minimum	Maximum	Average of 50
1/8 – 27	10	35	23±3
3/8 – 18	50	110	80±10

For plugs that are automatically coated, the thread sealant must cover the full circumference of all threads excluding 1-2 threads at both ends.

5.0 TOXICITY:

This material shall be non-toxic. Solvents such as Benzene, Toluene and Chlorinated Hydrocarbons are considered toxic, and their use is prohibited in compounding material to this specification.

6.0 COLOR:

Burnt orange to brown liquid.

7.0 SUPPLIER RESPONSIBILITY:

Material supplied to this specification must be equivalent to that originally approved. Changes in formulation or processing shall not be made without prior approval. Supplier must submit a certification of compliance to Quality Assurance, affirming the material and coating satisfies the requirement of this specification.

8.0 GENERAL INFORMATION:

1. Storage Life, Min.	6 months (after delivery)
2. Setting	No separation
3. Density	8-11 lbs/gallon
4. Drying requirements	3-5 hours at 72°F in still air
DRY FILM PROPERTIES:	Excellent
1. Water resistance	Excellent
2. Oil Resistance	Excellent
3. Fuel Resistance	Excellent
4. Lubricity	Excellent
5. Storage Life, Min.	18 months @ 72°F
Approved Material	Loctite Vibra-Seal 517 Pre-applied Sealant

REVISION HISTORY:

DCN#	Date Revised	Revised By:	Revision Made
O-10438	6-4-04	Daylen Borders	Add appendix for Loctite data
O-12584	08-13-2013	Charles Zhang	Update from Loctite 571 to 517. Update appendix for Loctite data.

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Technical Data Sheet



LOCTITE® 517™

February 2007

PRODUCT DESCRIPTION

LOCTITE® 517™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Acrylic
Appearance (uncured)	Burnt orange to brown liquid ^{LMS}
Components	One component - requires no mixing
Viscosity	High, thixotropic
Cure	Dries
Application	Thread sealing
Specific Benefit	<ul style="list-style-type: none"> Excellent environmental resistance

LOCTITE® 517™ is a low viscosity, non-toxic, thixotropic, preapplied, water-based thread sealant for automatic dispensing applications. When dried, it becomes a resilient, tight clinging, non-curing sealant for tapered or straight threads. LOCTITE® 517™ provides positive sealing and resistance to vibrational loosening. The thread-filling ability and prevailing torque characteristics of this product are effective for use on sealing applications, particularly where re-adjustments are required, e.g. rear axle filler plugs, bearing adjuster nuts, pressure gauges and sensors, brake fittings, pipe fittings, and compressor pipe plugs. Other devices that this product is designed for includes; cable connectors, screws for plastic assemblies, adjustment screws, overhead fire sprinklers, shower heads, and door closure hardware. This product is typically used in applications with an operating range of -54 °C to +150 °C.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1 to 1.4 ^{LMS}
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 4, speed 20 rpm	4,000 to 7,000 ^{LMS}
Solids/Non-Volatile Content, %	35.1 to 47.3 ^{LMS}
On Part Life, years	4

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Instant seal 12.7 mm NPT fittings to 830 kPa

Torque Strength

Seating Torque, :

3/8 x 16 nuts and bolts	N·m	40.7
	(lb.in.)	(369)

Breakloose Torque, :

3/8 x 16 nuts and bolts	N·m	19.8
	(lb.in.)	(175)

Prevail Torque, :

3/8 x 16 nuts and bolts	N·m	2.4
	(lb.in.)	(21)

Chemical/Solvent Resistance

Test performed on 12.7mm NPT tee's and malleable plugs test at 830 kPa air after 30 days immersion in solvents indicated.

Environment	°C	% of initial strength
Motor oil (10W30)	120	No leakage
Water/glycol 1:1	100	No leakage
Diesel fuel	50	No leakage
Dextron III	120	No leakage
Hydraulic Steering Fluid	120	No leakage

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions for use

LOCTITE® 517™ is applied to threaded parts by authorized process centers who have automatic fastener cleaning, feeding, coating, rust proofing and drying equipment. Quantities can be handled promptly with minimum turnaround time. Sample fittings should be sent to the nearest authorized process center where they will coat your parts and return them to you for evaluation. SAMPLE TESTS ARE RECOMMENDED TO OBTAIN DESIRED RESULTS ON YOUR PARTS. Contact the nearest Loctite Sales Representative for the authorized process center nearest to you.

Loctite Material Specification^{LMS}

LMS dated December 21, 2001. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

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TDS LOCTITE® 517™, February 2007

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Note

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