



LOCTITE[®] 506[™]

July 2005

PRODUCT DESCRIPTION

LOCTITE[®] 506[™] provides the following product characteristics:

Technology	Acrylic
Chemical Type	Polyacrylate aqueous emulsion base
Appearance	Viscous, creamy blue liquid ^{LMS}
Components	One component - requires no mixing
Cure	Dries
Application	Thread sealing
Product Benefits	<ul style="list-style-type: none"> • Dry pre-coated parts can be stored centrally for immediate delivery to assembly areas. • It can be pre-applied to parts, years before assembly and requires no special storage conditions. • It does not shred during assembly of mating components. • Paste migration problems are eliminated. • It inhibits corrosion between threaded parts and thus allows easy disassembly.

LOCTITE[®] 506[™] is a safe, non-toxic aqueous thread sealant containing mineral fillers and lubricants. It is non-hardening and designed for instant sealing of straight and tapered threads. It prevents leakage even when coated parts have been adjusted several times. Typical applications include threaded components such as bolts, studs, fittings, etc., sealing high pressure gases, aqueous and non-aqueous liquids up to a temperature of 150 °C.

TYPICAL PROPERTIES

Specific Gravity @ 20 °C	1.05
pH	7.8 to 9.2 ^{LMS}
On Part Life, months, (@ 22 °C)	≥48
Drying Time @ 70 °C, minutes	10 to 30
Drying Time @ 22 °C, hours	4
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 6, speed 20 rpm	20,000 to 35,000 ^{LMS}

TYPICAL PERFORMANCE

Pressure Retention

LOCTITE[®] 506[™] has excellent pressure retention qualities. Tests on cast iron and brass taper/parallel threads indicate that pressures over 10 N/mm² can be maintained after torquing-up.

The table below shows water pressures maintained on different threaded taper/parallel connections.

The connections are torqued up as indicated, pressurized to 15 N/mm² or, where leakage occurred, to lower leakage pressures.

Pressure Retention on Taper/Parallel Connections

Connection	On-Torque	Pressure Retained
¼" Brass	N·m 7.5 (lb-in 66)	N/mm ² 15 - no leak (psi 2,175)
½" Brass	N·m 15 (lb-in 133)	N/mm ² 15 - no leak (psi 2,175)
½" Cast Iron	N·m 15 (lb-in 133)	N/mm ² 15 - no leak (psi 2,175)
1½" Cast Iron	N·m 45 (lb-in 398)	N/mm ² 5 - no leak (psi 725)
1½" Cast Iron	N·m 90 (lb-in 797)	N/mm ² 15 - no leak (psi 2,175)

TYPICAL ENVIRONMENTAL RESISTANCE

Solvent Resistance

The ability of LOCTITE[®] 506[™] to withstand aggressive environments was demonstrated by assembling taper/parallel connections and testing as in the Pressure Retention table.

The table below gives the assembly torque and water leakage pressure. Assemblies were pressurized until leakage occurred. A maximum pressure at 15 N/mm² was applied. Tests were performed at ambient temperatures.

Solvent Environment	½" Brass	1½" Cast Iron
Water - 4 weeks 90 °C	N/mm ² 15 - no leak (psi 2,175)	N/mm ² 10 - leak (psi 1,450)
Water/glycol - 4 weeks 85 °C	N/mm ² 15 - no leak (psi 2,175)	N/mm ² 10 - leak (psi 1,450)
Unleaded gasoline - 4 weeks 25 °C	N/mm ² 15 - no leak (psi 2,175)	N/mm ² 2 - leak (psi 290)
Oil - 4 weeks 150 °C	N/mm ² 15 - no leak (psi 2,175)	N/mm ² 10 - leak (psi 1,450)

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

1. For best performance bond surfaces should be clean and free from grease.
2. This product performs best in thin bond gaps.
3. For Dispersal or Removal, wash with soap and water.
4. Excessive adhesive can be dissolved with LOCTITE[®] cleanup solvents, nitromethane or acetone.

Application Method

LOCTITE® 506™ can be coated directly onto the threaded components. For applications where a large number of components are to be coated, automatic and precise application may be achieved using the LOCTITE® semi-automatic hand coater or the LOCTITE® cable coater BC-10 depending upon the shape. For further information on these machines and methods, contact your local Technical Services Center or Customer Service Representative.

Drying

After coating the parts, time must be allowed for the aqueous solvent to evaporate. This may take up to 30 minutes at 70 °C or 4 hours at ambient temperatures. Once dry, it cannot again be put into the emulsifying state by absorption of water.

For Assembly

Threaded components can be mated and torqued up in the usual manner. Because of the jamming effect of LOCTITE® 506™, an on-torque of 0.5 to 2 N·m may be expected depending on diameter, thread type, substrates and the thickness of coating. The product does not shred or tear, full thread coverage is ensured and migration of product is eliminated. The excellent lubricity characteristic of LOCTITE® 506™ ensures easy joint assembly by reducing the torque required for other sealing methods in torquing-up connections. Line-up adjustments can be made several hours after assembly without damaging the sealing capability.

For Disassembly

The product inhibits corrosion of mating parts due to its sealing action. Disassembly is therefore as simple and easy as on-torquing.

For Re-Usability

Experience has shown that parts can be re-adjusted several times after assembly without loss of pressure resistance. Tests on degreased taper/parallel threaded connections of various sizes indicate that the fittings can be torqued up and disassembled four times without loss of sealing capability. As received parts can be expected to withstand full specification pressure after one or two disassemblies and re-torquing.

Loctite Material Specification^{LMS}

LMS dated September 23, 1997. 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.

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

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.0