

LOCTITE[®] 5776[™]

July 2014

PRODUCT DESCRIPTION

LOCTITE[®] 5776[™] provides the following product characteristics:

| | |
|----------------------|--|
| Technology | Acrylic |
| Chemical Type | Dimethacrylate ester |
| Appearance (uncured) | Yellow paste ^{LMS} |
| Fluorescence | Positive under UV light ^{LMS} |
| Components | One component - requires no mixing |
| Viscosity | Medium, thixotropic |
| Cure | Anaerobic |
| Secondary Cure | Activator |
| Application | Thread sealing |
| Strength | Medium |

LOCTITE[®] 5776[™] is designed for the locking and sealing of metal threaded pipes and fittings. The product cures when confined in the absence of air between close fitting metal surfaces and prevents loosening and leakage from shock and vibration. The thixotropic nature of LOCTITE[®] 5776[™] reduces the migration of liquid product after application to the substrate.

EN 751-1

Sealing materials for metallic threaded joints in contact with 1st, 2nd, and 3rd family gases and hot water; Part 1: Anaerobic jointing compounds. LOCTITE[®] 5776[™] has been tested and conforms to EN 751-1 for a class H compound and carries the DVGW approval.

NSF International

Certified to ANSI/NSF Standard 61 for use in commercial and residential potable water systems not exceeding 82° C. Maximum of 21 joints per residence (10 joints per liter) or certified for use without activators. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

WRC approval

Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water. LOCTITE[®] 5776[™] has been tested and has potable water approval to BS 6920 and also meets the specifications of the WRC for both cold and warm potable water.

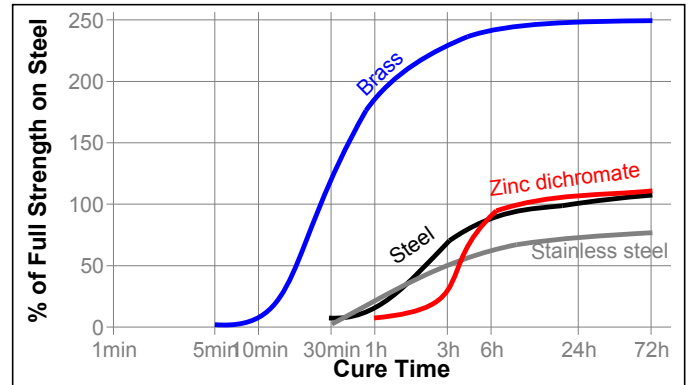
TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C 1.09
 Flash Point - See SDS
 Viscosity, Cone & Plate, °C, mPas :
 Cone 35/2°Ti @ shear rate 100 s⁻¹ 1,000 to 6,000^{LMS}

TYPICAL CURING PERFORMANCE

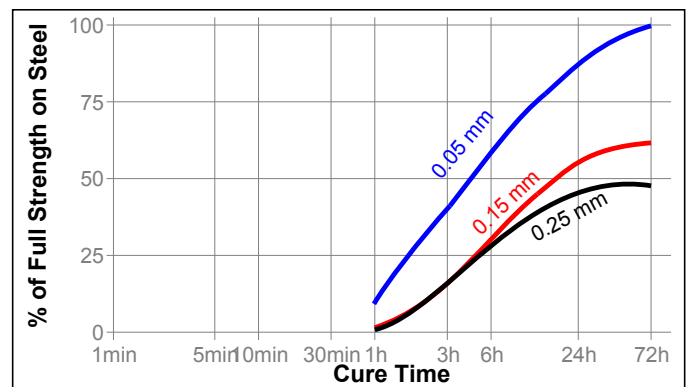
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the breakaway strength developed with time on M10 steel nuts and bolts compared to different materials and tested according to ISO 10964.



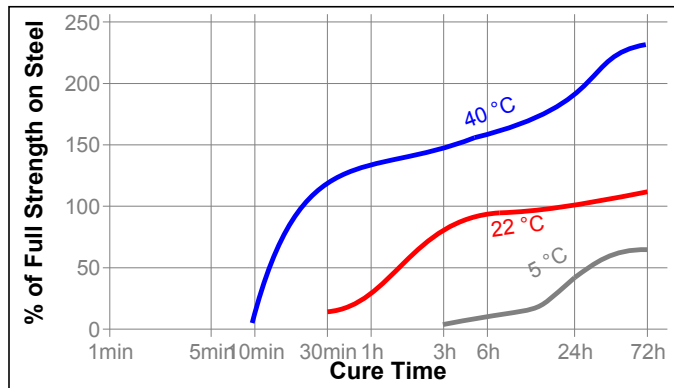
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. Gaps in threaded fasteners depends on thread type, quality and size. The following graph shows shear strength developed with time on steel pins and collars at different controlled gaps and tested according to ISO 10123.



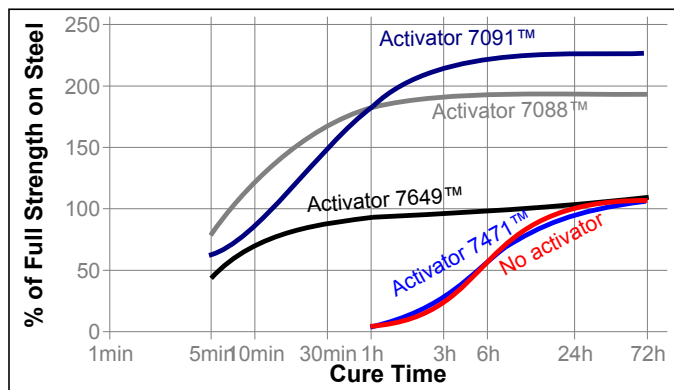
Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the breakaway strength developed with time at different temperatures on M10 steel nuts and bolts and tested according to ISO 10964.



Cure Speed vs. Activator

Where cure speed is unacceptably long, or large gaps are present, applying activator to the surface will improve cure speed. The graph below shows the breakaway strength developed with time on M10 zinc dichromate steel nuts and bolts using Activator 7471™ and 7649™ and tested according to ISO 10964.



TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 24 hours @ 25 °C

Breakaway Torque, ISO 10964, Unseated:

| | | |
|---|----------|-------------------|
| M10 black oxide bolts and mild steel nuts | N·m | ≥4 ^{LMS} |
| | (lb.in.) | (≥35.4) |

After 24 hours @ 22 °C

Breakaway Torque, ISO 10964, Unseated:

| | | |
|------------------------------------|----------|-------|
| M10 steel nuts and bolts | N·m | 8 |
| | (lb.in.) | (70) |
| M10 brass nuts and bolts | N·m | 20 |
| | (lb.in.) | (180) |
| M10 stainless steel nuts and bolts | N·m | 5 |
| | (lb.in.) | (45) |
| M10 zinc dichromate nuts and bolts | N·m | 9 |
| | (lb.in.) | (80) |

Prevail Torque @ 180°, ISO 10964, Unseated:

| | | |
|------------------------------------|----------|------|
| M10 steel nuts and bolts | N·m | 2 |
| | (lb.in.) | (20) |
| M10 brass nuts and bolts | N·m | 2 |
| | (lb.in.) | (20) |
| M10 stainless steel nuts and bolts | N·m | 2 |
| | (lb.in.) | (20) |
| M10 zinc dichromate nuts and bolts | N·m | 2 |
| | (lb.in.) | (20) |

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

| | | |
|--------------------------|----------|-------|
| M10 steel nuts and bolts | N·m | 14 |
| | (lb.in.) | (120) |

Prevail Torque @ 180°, ISO 10964, Pre-torqued to 5 N·m:

| | | |
|--------------------------|----------|------|
| M10 steel nuts and bolts | N·m | 2 |
| | (lb.in.) | (20) |

Compressive Shear Strength, ISO 10123:

| | | |
|------------------------|-------------------|-------|
| Steel pins and collars | N/mm ² | 4 |
| | (psi) | (580) |

After 7 days @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

| | | |
|---|----------|-------|
| M10 zinc phosphate steel nuts and bolts | N·m | 20 |
| | (lb.in.) | (180) |

Prevail Torque @ 180°, ISO 10964, Unseated:

| | | |
|-----------------------------------|----------|------|
| M10 zinc phosphate nuts and bolts | N·m | 3 |
| | (lb.in.) | (25) |

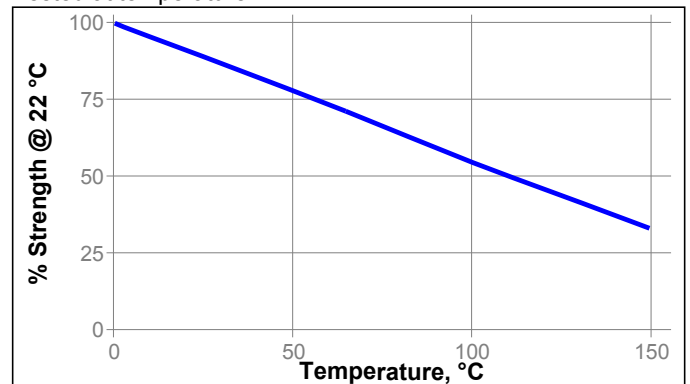
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 1 week @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:
M10 zinc phosphate steel nuts and bolts

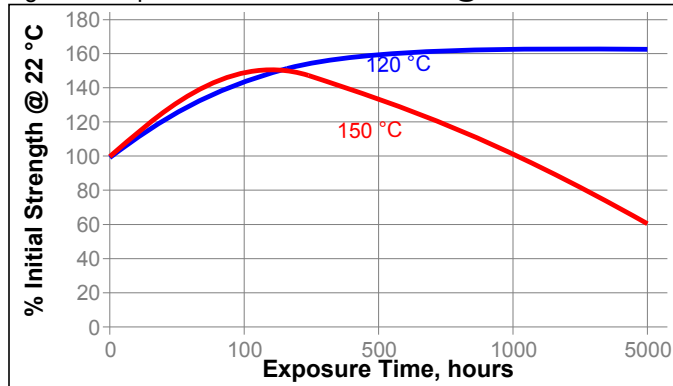
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C

**Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ 22 °C.

| Environment | °C | % of initial strength | | | |
|---------------------|-----|-----------------------|-------|--------|--------|
| | | 100 h | 500 h | 1000 h | 5000 h |
| Motor oil | 120 | 140 | 145 | 145 | 125 |
| Unleaded Petrol | 22 | 95 | 100 | 80 | 65 |
| Brake Fluid (DOT 4) | 22 | 95 | 110 | 115 | 95 |
| Water/glycol 50/50 | 87 | 125 | 115 | 105 | 80 |
| Acetone | 22 | 80 | 70 | 65 | 55 |
| Ethanol | 22 | 95 | 95 | 100 | 70 |
| Water | 22 | 120 | 115 | 120 | 125 |
| Water | 60 | 120 | 105 | 115 | 100 |

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 Safety Data Sheet (SDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use:**For Assembly**

- For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
- If the material is an inactive metal or the cure speed is too slow, use appropriate activator. Please see the Cure Speed vs. Activator graph for reference. Allow the activator to dry when needed..

- Apply a 360° bead of product to the leading threads of the male fitting, leaving the first thread free. Force the material into the threads to thoroughly fill the voids. For bigger threads and voids, adjust product amount accordingly and apply a 360° bead of product on the female threads also.
- Using compliant practices, assemble and wrench tighten fittings in accordance with manufacturers recommendations.
- Properly tightened fittings will seal instantly to moderate pressures. For maximum pressure resistance and solvent resistance allow the product to cure a minimum of 24 hours.

For Disassembly

- Remove with standard hand tools.
- Where hand tools do not work because of excessive engagement length or large diameters (over 1"), apply localized heat to approximately 250 °C. Disassemble while hot.

For Cleanup

- Cured product can be removed with a combination of soaking in a Loctite solvent and mechanical abrasion such as a wire brush.

Loctite Material Specification^{LMS}

LMS dated April 21, 2011. 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 information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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Reference 0.3