Technical Data Sheet

# LOCTITE® 577™

November 2024

## PRODUCT DESCRIPTION

LOCTITE® 577™ provides the following product characteristics:

| | |
|---|---|
| **Technology** | Acrylic |
| Chemical type | Dimethacrylate ester |
| Appearance (uncured) | Yellow paste |
| Fluorescence | Positive under UV light |
| Components | One component - requires no mixing |
| Viscosity | High, thixotropic |
| **Cure** | Anaerobic |
| Secondary cure | Activator |
| **Application** | Threadsealing |
| Strength | Medium |

LOCTITE® 577™ is designed for the locking and sealing of metal threaded pipes and fittings. Particularly suitable for use on stainless steel without the need for surface activation. 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® 577™ reduces the migration of liquid product after application to the substrate. LOCTITE® 577™ provides robust curing performance. It not only works on active metals (e.g. brass, copper) but also on passive substrates such as stainless steel and plated surfaces. The product offers gap performance to 0.25 mm (0.01 in), high temperature performance and contamination tolerance. It cures in the presence of minor surface contaminations from various oils, such as cutting, lubrication, anti-corrosion and protection fluids and cleaners containing surfactants and corrosion inhibitors.

### NSF International

**Registered to NSF Category P1** for use as a sealant where there is no possibility of food contact in and around food processing areas.
**Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

**Approved by the Australian Gas Association Certificate** number 4787 Class III rated working pressure 2000 kPa, working temperature -10 to 135°C. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

### 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® 577™ has been tested and conforms to EN 751-1 for a class H compound and carries the **DVGW** certification.

### Hydrogen Certified Adhesive

LOCTITE® 577™ has been tested and conforms to GASTEC QA Approval requirement 214 (AR-214).
**Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

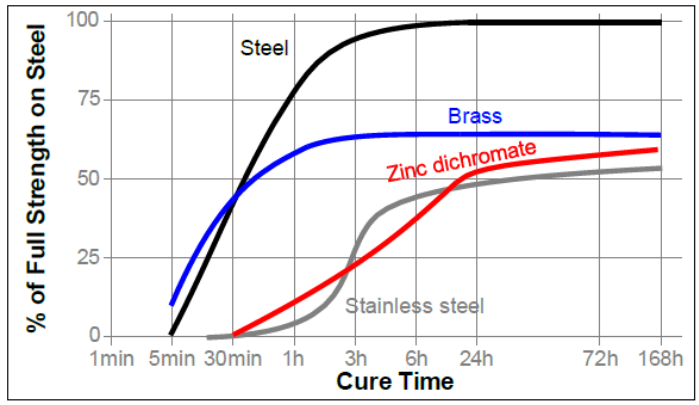
## TYPICAL PROPERTIES OF UNCURED MATERIAL

| | |
|---|---|
| Specific Gravity @ 25°C | 1.1 |
| Viscosity, Brookfield - RVT, 25°C , mPa·s (cP): | |
| Spindle 6, speed 2.5 rpm, | 100,000 |
| Spindle 6, speed 20 rpm, | 24,500 |

## TYPICAL CURING PERFORMANCE

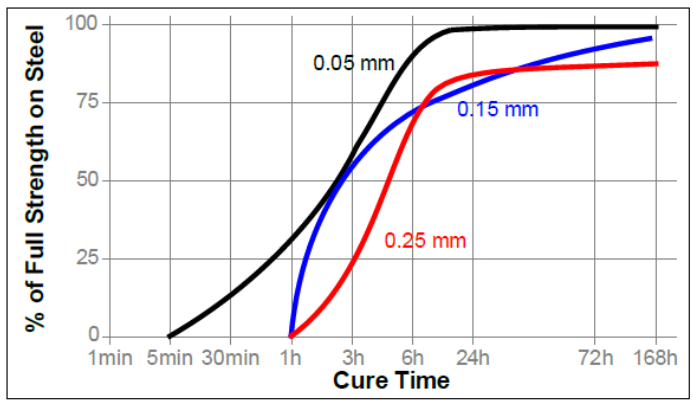
### Cure Speed vs. Substrate

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.

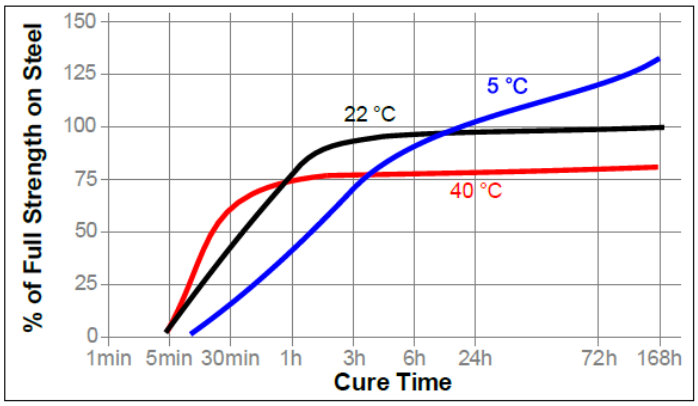



### Cure Speed vs. Bond Gap

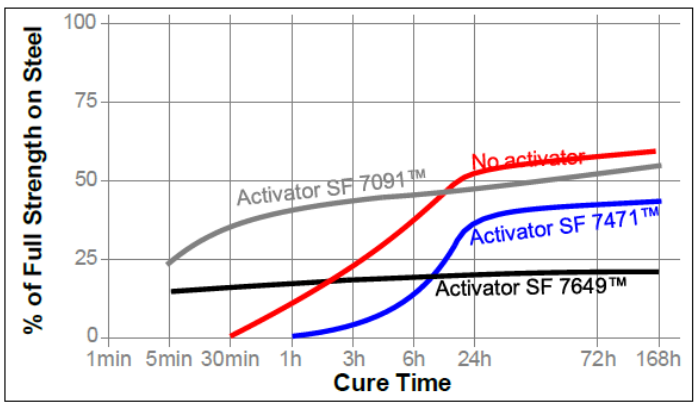
The rate of cure will depend on the bondline gap. Gaps in threaded fasteners depends on thread type, quality and size. The following graph shows shear strength developed with time on steel pins and collars at different controlled gaps and tested according to ISO 10123.



**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 SF 7471™, SF 7649™ and SF 7091™ and tested according to ISO 10964.




## TYPICAL PROPERTIES OF CURED MATERIAL

**Physical Properties**

| | |
|---|---|
| Specific Heat, kJ/(kg·K) | 2.0 |
| Tensile strength, ISO 37 | 1.3 (190) |
| Tensile Modulus, ISO 37 | 168 (24,350) |

## TYPICAL PERFORMANCE OF CURED MATERIAL

**Adhesive Properties**

After 24 hours @ 22 °C

Breakaway Torque, ISO 10964:

| | | |
|---|---|---|
| M10 steel nuts and bolts | N·m (lb·in) | 33 (295) |
| M10 brass nuts and bolts | N·m (lb·in) | 23 (205) |
| M10 zinc dichromate nuts and bolts | N·m (lb·in) | 20 (175) |
| M10 stainless steel nuts and bolts | N·m (lb·in) | 15 (135) |
| M10 zinc phosphate nuts and bolts | N·m (lb·in) | 30 (265) |
| M6 steel nuts and bolts | N·m (lb·in) | 7 (62) |
| M16 steel nuts and bolts | N·m (lb·in) | 69 (615) |
| 3/8 x 16 steel nuts (grade 2) and bolts (grade 5) | N·m (lb·in) | 33 (295) |

Prevail Torque, ISO 10964:

| | | |
|---|---|---|
| M10 steel nuts and bolts | N·m (lb·in) | 2.5 (22) |
| M10 brass nuts and bolts | N·m (lb·in) | 1.3 (12) |
| M10 zinc dichromate nuts and bolts | N·m (lb·in) | 3.7 (33) |
| M10 stainless steel nuts and bolts | N·m (lb·in) | 1.9 (17) |
| M10 zinc phosphate nuts and bolts | N·m (lb·in) | 1.8 (16) |
| M6 steel nuts and bolts | N·m (lb·in) | 0.7 (6.2) |
| M16 steel nuts and bolts | N·m (lb·in) | 7.5 (66) |
| 3/8 x 16 steel nuts (grade 2) and bolts (grade 5) | N·m (lb·in) | 3.8 (34) |

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

| | | |
|---|---|---|
| M10 steel nuts and bolts | N·m (lb·in) | 27 (240) |

Max. Prevail Torque, ISO 10964, Pre-torqued to 5 N·m:

| | | |
|---|---|---|
| M10 steel nuts and bolts | N·m (lb·in) | 2.0 (18) |

Compressive Shear Strength, ISO 10123:

| | | |
|---|---|---|
| Steel pins and collars | $N/mm^2$ (psi) | 5 (725) |

After 1 week @ 22 °C

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

| | | |
|---|---|---|
| M10 zinc phosphate nuts and bolts | N·m (lb·in) | 30 (265) |

## TYPICAL ENVIRONMENTAL RESISTANCE

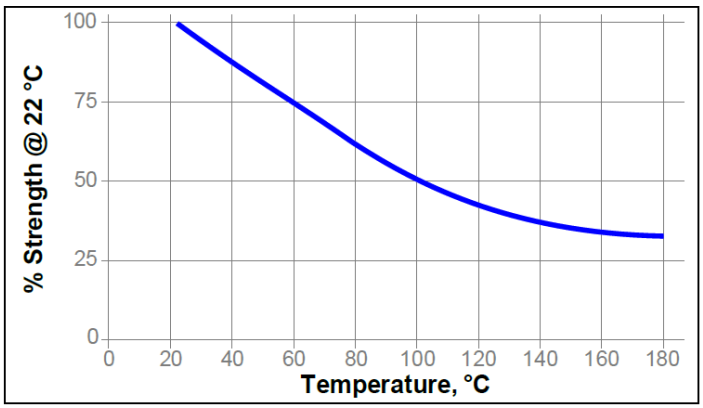
Cured for 1 week @ 22 °C

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

M10 zinc phosphate steel nuts and bolts

### Hot Strength

Tested at temperature

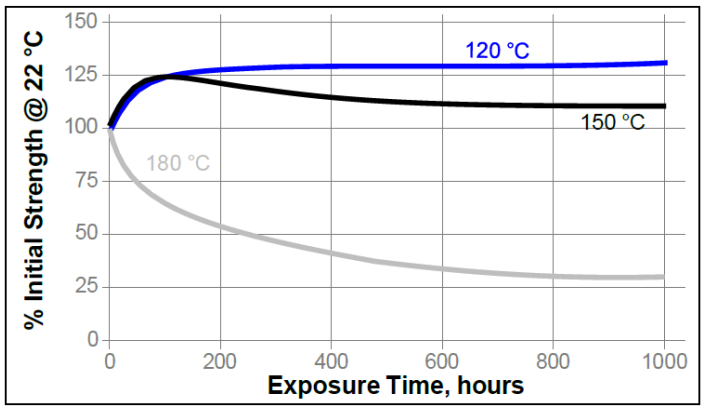



### Cold Strength

This product has been tested to -75 °C (-100 °F). This product may work below this temperature, but has not been tested.

### Heat Aging

Aged at temperature indicated and tested @ 22 °C.




### Chemical/solvent resistance

Aged under conditions indicated and tested @ 22°C.

| | | % of initial strength | | |
|---|---|---|---|---|
| **Environment** | **°C** | **100 h** | **500 h** | **1000 h** |
| Acetone | 22 | 95 | 65 | 70 |
| DEF (AdBlue®) | 22 | 125 | 125 | 130 |
| Brake fluid (DOT 4) | 22 | 115 | 115 | 120 |
| Ethanol | 22 | 110 | 90 | 90 |
| Motor oil (5W30-Synthetic) | 125 | 120 | 130 | 135 |
| Unleaded Petrol | 22 | 115 | 105 | 105 |
| Water/glycol 50/50 | 87 | 105 | 95 | 90 |
| B100 Bio-Diesel | 22 | 105 | 115 | 115 |
| E85 Ethanol fuel | 22 | 100 | 90 | 90 |

## 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

1. For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
2. If the material is an inactive metal or the cure speed is too slow, spray with LOCTITE® SF 7471™ or LOCTITE® SF 7649™ and allow to dry.
3. 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.
4. Using compliant practices, assemble and wrench tighten fittings in accordance with manufacturers recommendations.
5. 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.
6. Remove any excess uncured product with cleaner LOCTITE® SF 7063™ (or similar grade), if required.

### For Disassembly

1. Remove with standard hand tools.
2. Where hand tools do not work because of excessive engagement length or large diameters (over 1"), apply localized heat to approximately 250 °C (480 °F). Disassemble while hot.

### For Cleanup

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

### 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**
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Reference 0.0