Technical Data Sheet

LOCTITE® 577™

May 2021

PRODUCT DESCRIPTION

LOCTITE® 577™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Yellow paste
Fluorescence	Positive under UV light
Viscosity	High, thixotropic
Cure	Anaerobic
Secondary Cure	Activator
Application	Thread sealing
Strength	Medium

LOCTITE® 577™ 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® 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 or 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. Particularly suitable for use on stainless steel without the need for surface activation.

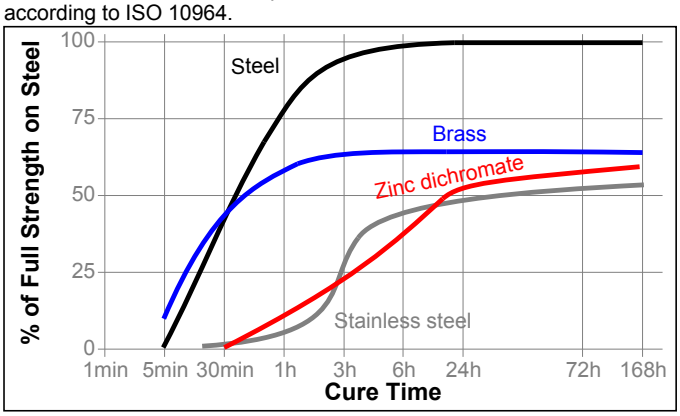
TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 23 °C	1.1
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 6, speed 2.5 rpm	100,000
Spindle 6, speed 20 rpm	25,000

TYPICAL CURING PERFORMANCE

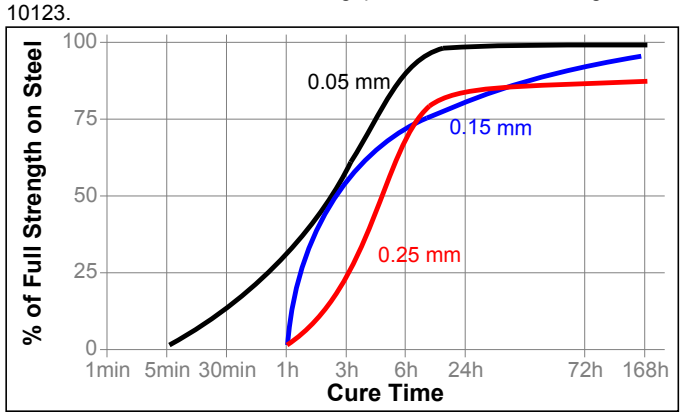
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the breakaway strength developed with time @ 23°C on M10 steel nuts and bolts compared to different materials and tested according to ISO 10964.



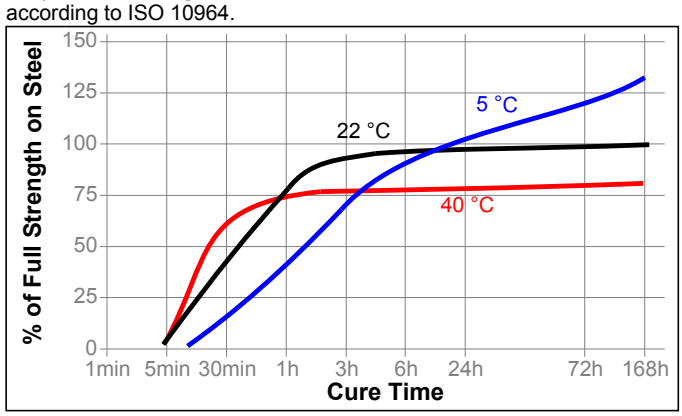
Cure Speed vs. Bond Gap

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 @ 23°C on steel pins and collars at different controlled gaps and tested according to ISO 10123.

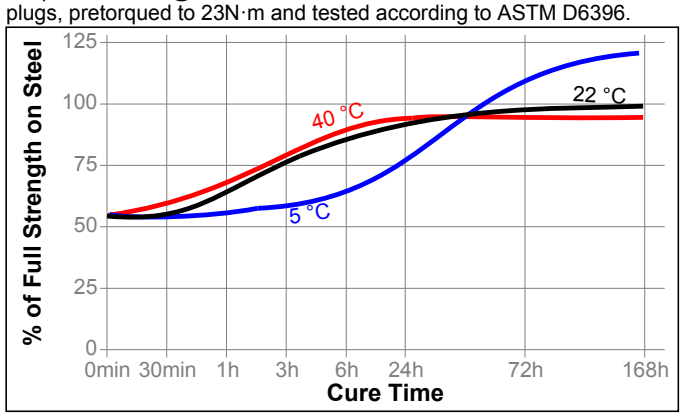


Cure Speed vs. Temperature

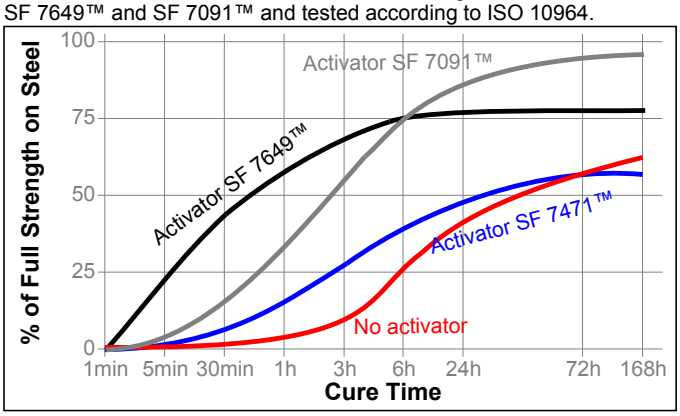
The rate of cure will depend on the temperature. The graph below shows the breakaway strength developed with time at different temperatures vs @ 23°C on M10 steel nuts and bolts and tested according to ISO 10964.



The rate of cure will depend on the temperature. The graph below shows the breakloose strength developed with time at different temperatures vs @ 23°C on 3/8" NPT malleable steel tees and steel plugs, pretorqued to 23N·m and tested according to ASTM D6396.



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 @ 23°C on M10 zinc dichromate steel nuts and bolts using Activator SF 7471™, SF 7649™ and SF 7091™ and tested according to ISO 10964.



TYPICAL PERFORMANCE OF CURED MATERIAL

Physical Properties

Cured for 24 hours @ 23°C

Glass Transition Temperature ISO 11359-2, °C	100
Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	
Below Tg	80×10^{-6}
Above Tg	120×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3

Adhesive Properties

Cured for 72 hours @ 23°C

Breakaway Torque, ISO 10964, Unseated:		
M10 black oxide bolts and mild steel nuts	N·m	12
	(lb·in)	(110)
M10 brass bolts and steel nuts	N·m	12
	(lb·in)	(110)
M10 zinc chromate bolts and nuts	N·m	2.6
	(lb·in)	(22)
M10 stainless steel bolts and nuts	N·m	8
	(lb·in)	(70)
M10 Phosphate bolts and nuts	N·m	30
	(lb·in)	(270)
M6 black oxide bolts and steel nuts	N·m	0.9
	(lb·in)	(8)
M16 black oxide bolts and mild steel nuts	N·m	13
	(lb·in)	(120)
3/8 x 16 steel nuts and bolts	N·m	33
	(lb·in)	(300)
Prevail Torque @ 180°, ISO 10964, Unseated:		
M10 black oxide bolts and mild steel nuts	N·m	1.9
	(lb·in)	(17)
M10 brass bolts and steel nuts	N·m	2.2
	(lb·in)	(19)
M10 zinc chromate bolts and nuts	N·m	1.4
	(lb·in)	(12)
M10 stainless steel bolts and nuts	N·m	1.3
	(lb·in)	(12)
M10 Phosphate bolts and nuts	N·m	1.8
	(lb·in)	(16)
M6 black oxide bolts and steel nuts	N·m	0.2
	(lb·in)	(1.3)
M16 black oxide bolts and mild steel nuts	N·m	2.3
	(lb·in)	(20)
3/8 x 16 steel nuts and bolts	N·m	3.8
	(lb·in)	(34)
Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:		
M10 black oxide bolts and mild steel nuts.	N·m	17
	(lb·in)	(150)
Prevail Torque @ 180°, ISO 10964, Pre-torqued to 5 N·m:		
M10 black oxide bolts and mild steel nuts.	N·m	2.3
	(lb·in)	(20)
Compressive Shear Strength, ISO 10123:		
Steel pins and collars	N/mm^2	5
	(psi)	(730)

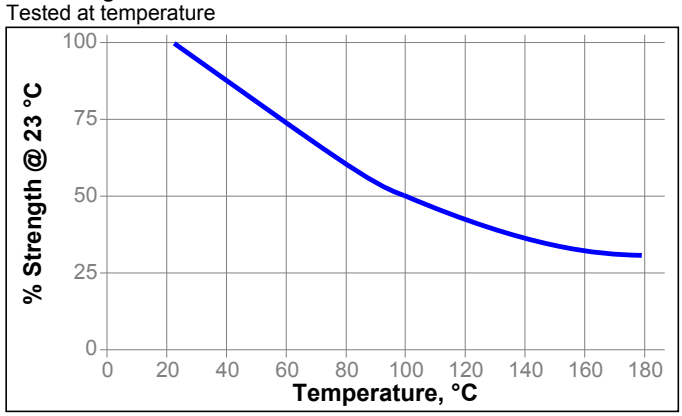
Cured for 1 week @ 23°C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:		
M10 zinc phosphate nuts and bolts	N·m	17
	(lb·in)	(150)

TYPICAL ENVIRONMENTAL RESISTANCE

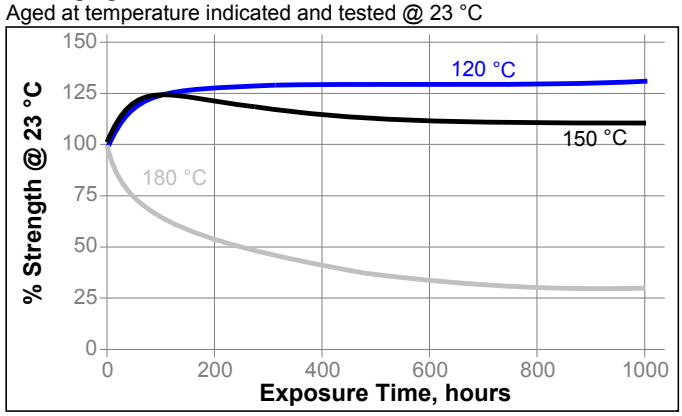
Cured for 1 week @ 23 °C
Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:
M10 zinc phosphate steel nuts and bolts

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 @ 23 °C



Chemical/Solvent Resistance
Aged under conditions indicated and tested @ 1°C

		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**1000 h**
Acetone	23	95	65	70
DEF (AdBlue®)	23	125	125	130
Brake Fluid (DOT 4)	23	115	115	120
Ethanol	23	110	90	90
Motor oil (5W30 -Synthetic)	125	120	130	135
Unleaded Petrol	23	115	105	105
Water/glycol 50/50	87	105	95	90
B100 Bio-Diesel	23	105	115	115
E85 Ethanol fuel	23	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.

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 (480F). Disassemble while hot.

Clean-up

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 Henkel representative.

Product Specification
The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate
Please contact a Henkel representative for related approval or certificate of this product.

Data Ranges
The data contained herein may be reported as a typical value and/or range. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23 °C / 50% RH = 23+2 °C / 50+5% RH.

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

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