

LOCTITE® 5800™

April 2012

PRODUCT DESCRIPTION

LOCTITE® 5800™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Red viscous liquid ^{LMS}
Fluorescence	Positive under UV light ^{LMS}
Components	One component - requires no mixing
Viscosity	Thixotropic
Cure	Anaerobic
Cure Benefit	Room temperature cure
Application	Sealing

LOCTITE® 5800™ is a single component, medium strength, anaerobic sealant which cures when confined in the absence of air between close fitting metal surfaces. Typical applications include sealing close fitting joints between rigid metal faces and flanges. Provides resistance to low pressures immediately after assembly of flanges. Typically used as a form-in-place gasket on rigid flanged connections, e.g. gearbox and engine casings, etc.

LOCTITE® 5800™ is part of the Health and Safety anaerobic range. The product is label free. There are no risk or safety phrases associated with either the formulation or its ingredients.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C 1.1

Flash Point - See SDS

Viscosity, Cone & Plate, 25 °C, mPa·s (cP):

Shear rate 2 s⁻¹ 81,300

Shear rate 20 s⁻¹ 11,000 to 32,000^{LMS}

Instant Sealing Capability

Anaerobic sealants have the ability to resist low on-line test pressures while uncured. This test was performed with uncured product immediately after assembly of an annular polycarbonate sealing surface with an internal diameter of 50 mm and an external diameter of 70 mm.

Pressure Resistance, MPa:

Induced Gap 0.05 mm 0.08

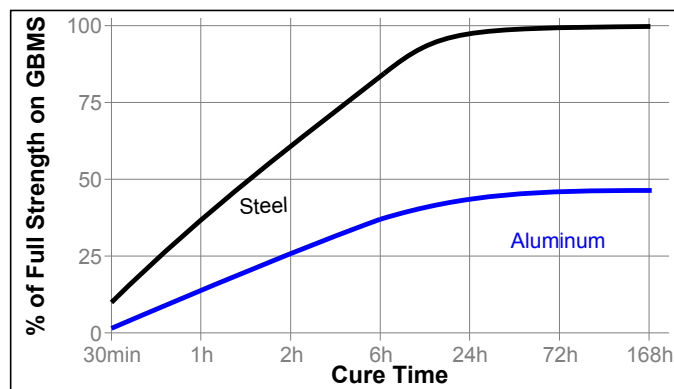
Induced Gap 0.125 mm 0.03

Induced Gap 0.25 mm 0.01

TYPICAL CURING PERFORMANCE

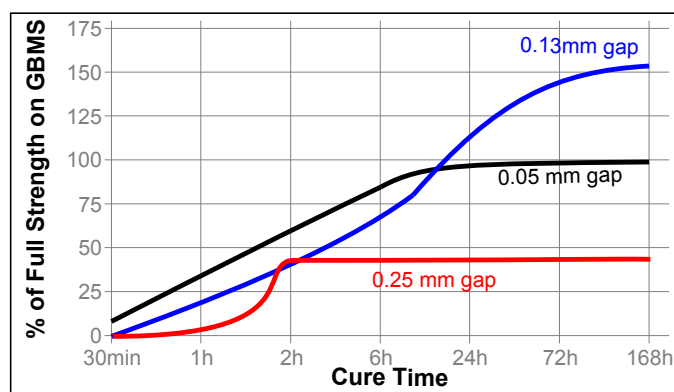
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different materials and tested according to ISO 4587.



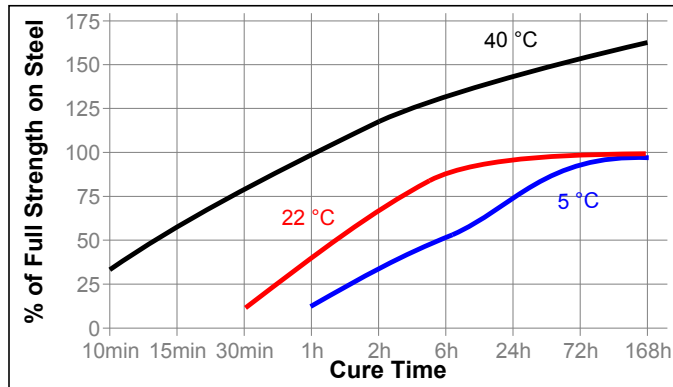
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. The following graph shows shear strength developed with time on grit blasted steel lap shears at different controlled gaps and tested according to ISO 4587.



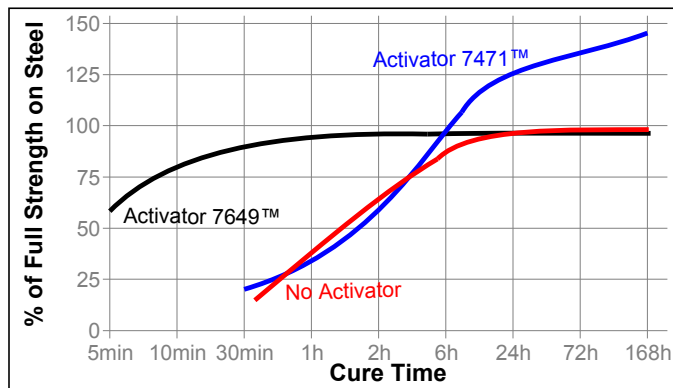
Cure Speed vs. Temperature

The rate of cure will depend on the ambient temperature. The graph below shows the shear strength developed with time on grit blasted steel lap shears at different temperatures and tested according to ISO 4587.



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 shear strength developed with time on grit blasted steel lap shears using Activator 7471™ and 7649™ and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K⁻¹ 190×10⁻⁶

Glass Transition Temperature ISO 11359-2, 101 °C

Tensile Strength, ISO 37 N/mm² 18 (psi) (2,610)

Tensile Modulus, ISO 37 N/mm² 1,150 (psi) (166,800)

Elongation at break, % 2.1

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm ² ≥5.0 ^{LMS}
	(psi) (≥725 ^{LMS})
Aluminum	N/mm ² 4.0
	(psi) (580)
Aluminum (Alclad)	N/mm ² 2.1
	(psi) (300)

Cured for 7 days @ 22 °C

Tensile Strength, ISO 6922:

Mild steel pin (grit blasted)	N/mm ² 20.7
	(psi) (3,000)
Aluminum pins	N/mm ² 6.6
	(psi) (960)

TYPICAL ENVIRONMENTAL RESISTANCE

The following tests refer to the effect of environment on strength. This is not a measure of sealing performance.

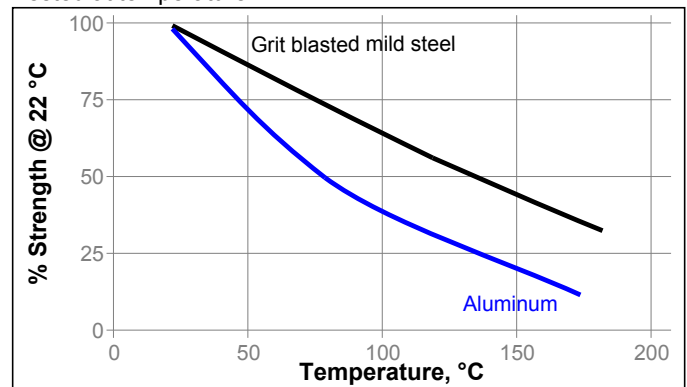
Cured for 1 week @ 22 °C.

Lap Shear Strength, ISO 4587:

Grit Blasted Mild Steel and Aluminum (grit blasted)

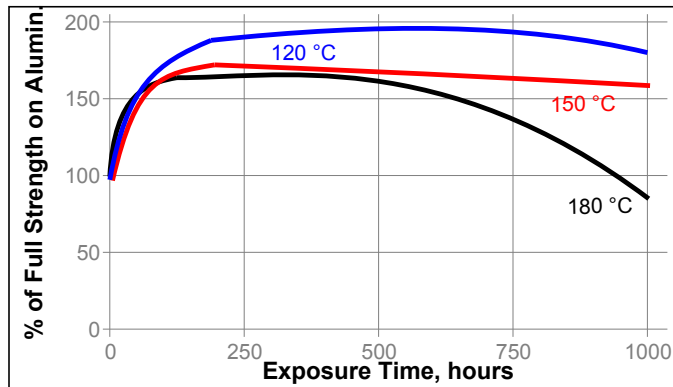
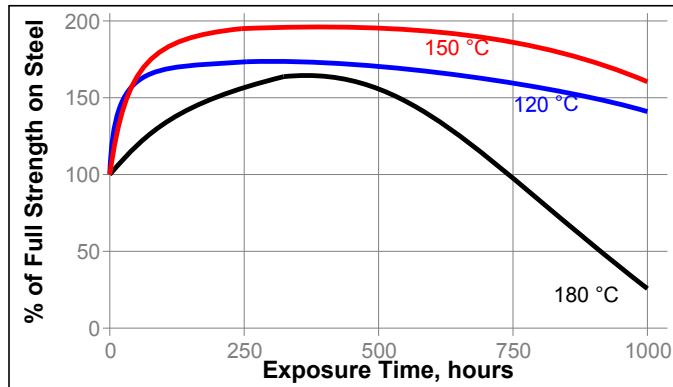
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Cured for 1 week @ 22 °C

Shear Strength

Lap Shear Strength, ISO 4587:
Grit Blasted Mild Steel (GBMS)

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
Motor oil	120	140	115	135
Motor oil	150	155	150	185
Water/glycol 50/50	87	100	95	120
Water/glycol 50/50	120	115	90	70
ATF	120	130	110	130
ATF	150	135	125	160
Unleaded gasoline	22	150	100	125

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:

1. For best performance bond surfaces should be clean and free from grease.
2. The product is designed for close fitting flanged parts with gaps up to 0.25 mm.
3. Apply manually as a continuous bead or by screen printing to one surface of the flanges.
4. Low pressures (<0.05 MPa) may be used when testing to confirm a complete seal immediately after assembly and before curing.
5. Flanges should be tightened as soon as possible after assembly to avoid shimming.

Loctite Material Specification^{LMS}

LMS dated August 17, 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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Henkel Americas
+860.571.5100

Henkel Europe
+49.89.320800.1800

Henkel Asia Pacific
+86.21.2891.8859

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