

LOCTITE® 548™

January 2005

PRODUCT DESCRIPTION

LOCTITE® 548™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate ester
Appearance (uncured)	Orange, wax consistency ^{LMS}
Appearance (form)	Stick
Fluorescence	Positive under UV light ^{LMS}
Components	One component - requires no mixing
Cure	Anaerobic
Secondary Cure	Activator
Application	Gasketing and Sealing
Strength	Medium
Maximum Gap	0.25 mm

LOCTITE® 548™ is designed primarily for flange sealing on rigid flanges, for example on transmissions and cast metal housings. As with liquid anaerobic products, this material develops its cured properties in the absence of air when confined between close fitting metal surfaces. It is supplied as a wax-like semi-solid, conveniently packaged in a self-feeding stick applicator. It is particularly well suited for applications where a liquid product may be too fluid to stay on a part or be difficult to apply. It stores easily and allows for direct contact to metal surfaces during application to ensure even coverage.

TYPICAL PROPERTIES OF UNCURED MATERIAL

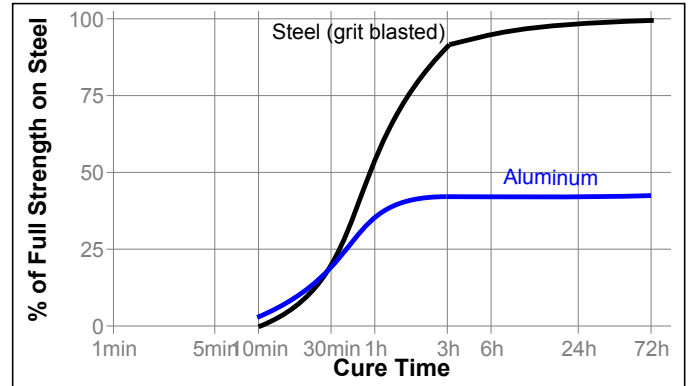
Flash Point - See SDS

Unworked Penetration, ISO 2137, 1/10 mm 80 to 140^{LMS}

TYPICAL CURING PERFORMANCE

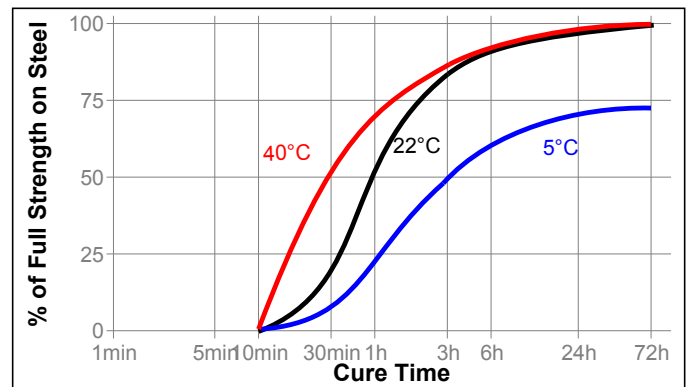
Cure Speed vs. Substrate

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.



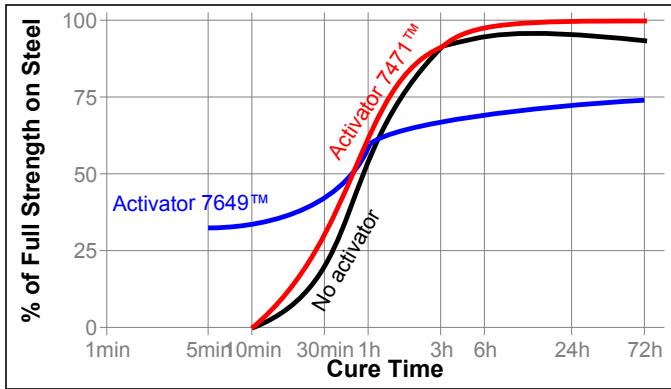
Cure Speed vs. Temperature

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



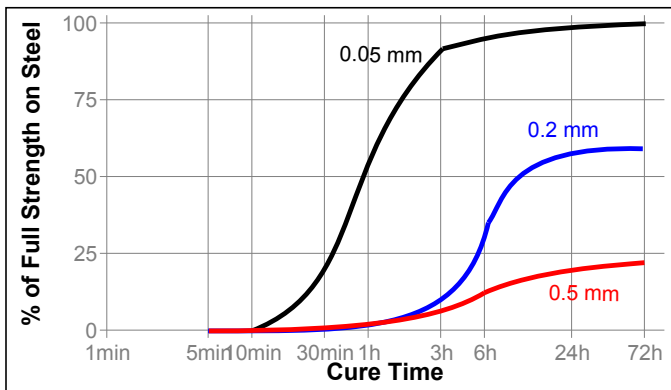
Cure Speed vs. Activator

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 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.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K⁻¹ 120×10⁻⁶

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:
Steel (grit blasted) N/mm² ≥5 (psi) (≥725)

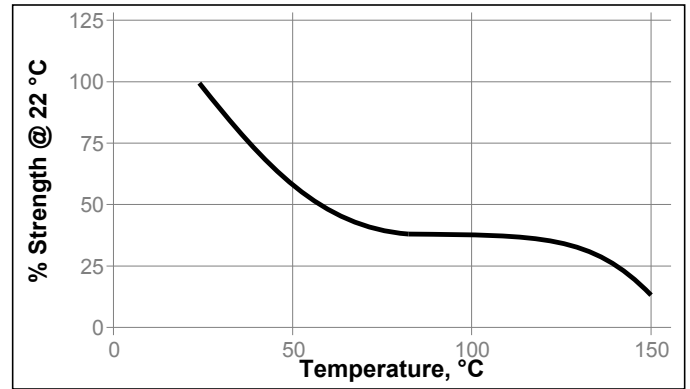
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 1 week @ 22 °C

Lap Shear Strength, ISO 4587:
Steel (grit blasted)

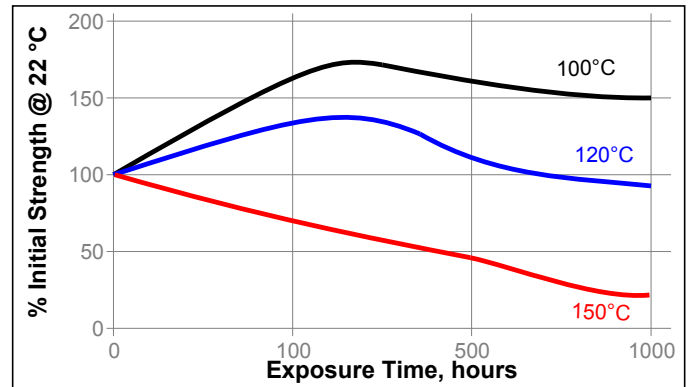
Hot Strength

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
Motor oil (MIL-L-46152)	125	115	90	75
Unleaded Petrol	22	75	40	35
Brake fluid	22	110	110	115
Water/glycol 50/50	87	75	70	60
Ethanol	22	90	55	40
Acetone	22	60	25	25

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 bond surfaces with a LOCTITE® cleaner/degreaser and allow to dry.
2. If present, remove any visible contaminants on the top of the stick prior to application.
3. Advance only enough stick product to use at the time of application. Typically 3 mm.
4. Apply manually by wiping the advanced stick directly on one surface of the flanges.
5. Flanges should be mated and tightened as soon as possible after assembly to avoid shimming.

Loctite Material Specification^{LMS}

LMS dated October 1, 2004. 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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