

LOCTITE[®] High Temperature Chemical Resistant Coating[™]

August 2013

PRODUCT DESCRIPTION

LOCTITE[®] High Temperature Chemical Resistant Coating[™] provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	Dark grey ^{LMS}
Appearance (Hardener)	Amber ^{LMS}
Appearance (Mixture)	Grey Liquid
Components	Two component - requires mixing
Mix Ratio, by weight - Resin : Hardener	4.5 : 1
Mix Ratio, by volume - Resin : Hardener	100 : 13
Cure	Room temperature cure
Application	Chemical resistance
Specific Benefit	<ul style="list-style-type: none"> Protects surfaces from extreme chemical attack Easy to mix and use Brush applied Smooth finish protects against friction, turbulence and cavitation Superior adhesion - bonds well to all metal substrates

LOCTITE[®] High Temperature Chemical Resistant Coating[™] is designed to protect chemical storage and processing equipment against extreme corrosion caused by chemical exposure under heat. LOCTITE[®] High Temperature Chemical Resistant Coating[™] is an impervious ceramic composite that offers an ultra smooth glossy surface. This technology significantly improves and reduces the surface friction that causes "boundary drag". The improved surface smoothness assists where applications require maximum fluid flow efficiency while protecting against abrasion, turbulence, corrosion/erosion, under typical service temperatures of -30 to 210°C (-20 to 410F). Typical applications include providing a smooth, protective abrasion resistant coating, repairing heat exchangers and condensers, lining tanks and chutes, resurfacing and repairing rudders and pintel housings, and repairing cooling pump impellers and butterfly valves.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Viscosity, Brookfield - RV, 25 °C, mPa·s (cP):
 Spindle 5, speed 20 rpm 50,000 to 75,000^{LMS}
 Density @ 25 °C, g/cm³ 1.6 to 1.9^{LMS}

Flash Point - See SDS

Hardener:

Viscosity, Brookfield - RV, 25 °C, mPa·s (cP):
 Spindle 6, speed 20 rpm, 1,200 to 2,500^{LMS}

Density @ 25 °C, g/cm³ 1.01 to 1.1^{LMS}

Flash Point - See SDS

Mixed:

Viscosity, Brookfield - RV, 25 °C, mPa·s (cP):
 Spindle 5, speed 20 rpm 20,000 to 40,000

Coverage 6.8 m² @ 0.5 mm thick/5.5 kg
 (74 ft² @ 20 mil thick/12 lb)

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

Curing Properties

Gel Time @ 25 °C, minutes: 50 to 90^{LMS}
 400 g mass
 Recoat Time @ 25 °C, hours 0 to 4

TYPICAL PROPERTIES OF CURED MATERIAL

After 24 hours @ 25 °C followed by 1 hour @ 100 °C

Physical Properties:

Shore Hardness, ISO 868, Shore D:
 24 hours @ 25 °C 85
 24 hours 25 °C, followed by 1 hour @ 130 °C 88

Wet Service Temperature Resistance, °C 130
 Dry Service Temperature Resistance, °C 210

TYPICAL PERFORMANCE OF CURED MATERIAL

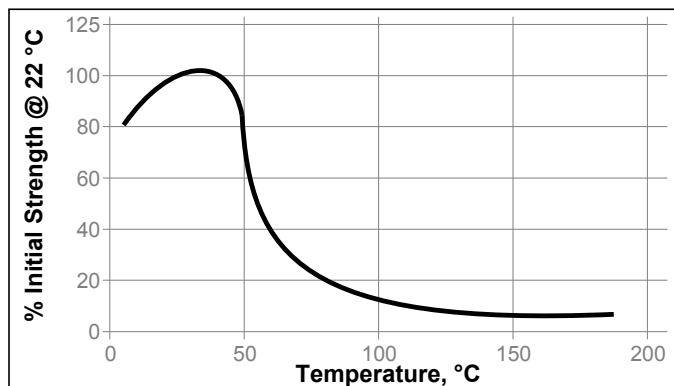
Lap Shear Strength, ISO 4587:
 Grit Blasted Mild Steel (GBMS) N/mm² 18.2
 (psi) (2,650)

TYPICAL ENVIRONMENTAL RESISTANCE

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

Hot Strength

Tested at temperature

**Environmental Aging - Effect on bulk properties**

Cured for 24 hours @ 25 °C followed by 1 hour @ 100 °C, on grit blasted mild steel, 1 mm thick film

Properties after 100 hours in noted environment and conditions

Environment	Pull Strength (Kgf/cm)	% Weight Gain
Control	27.4	0
Salt spray, 35°C	22.2	0
Brake Oil, 22°C	22.4	0
Engine Oil, 120°C	22.2	<0.2
Gear Oil, 120°C	22.4	<0.2

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).

Directions for use:**Surface Preparation**

Proper surface preparation is critical to the long-term performance of this product. The exact requirements vary with the severity of the application, expected service life, and initial substrate conditions.

Metal:

1. Clean, dry and abrade application surface. The more thorough the degree of surface preparation the better the performance of the application. If possible, it is recommended that the surface be grit-blasted to a Near White Metal (SSPC-SP10/NACE No. 2) Standard. For less severe applications, roughening the surface with hand tools is suitable
2. Solvent cleaning with a residue-free solvent is recommended at the final step to aid in adhesion

Mixing:

1. Material temperature should be between 18 to 27 °C.
2. Mix the entire contents of resin and hardener. If smaller amounts are required, mix 100 parts resin to 13 parts hardener by volume, or 4.5 parts resin to 1 Parts hardener by weight.
3. Mix vigorously, 3 to 5 minutes, until a uniform color is obtained.

Application Method:

1. Apply fully mixed material to the prepared surface .
2. Use a suitable notched trowel, brush or roller for application.
3. A coating thickness of 500 to 750 µm can be achieved in a second coat.
4. Allow the coating to cure for 24 hours at room temperature before heat curing to avoid sagging.
5. Heat cure the coating for 1 hour at 100°C to achieve desired chemical resistance. (Contact local Sales Engineer or Technical Service Engineer for assistance).

Caution: Use an approved, positive-pressure, supplied air respirator when welding or torch cutting near cured compound. **Do Not** use open flame on compound.

Technical Tips for Working With Epoxies

Working time and cure depends on temperature and mass:

- The higher the temperature, the faster the cure.
- The larger the mass of material, the faster the cure.

To speed the cure of epoxies at low temperatures:

- Store epoxy at room temperature.
- Pre-heat repair surface until warm to the touch.

To slow the cure of epoxies at high temperatures:

- Mix epoxy in small masses to prevent rapid curing.
- Cool resin/hardener component(s).

Loctite Material Specification^{LMS}

LMS dated November 29, 2012 (Resin) and LMS dated November 29, 2012 (Hardener). 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 Loctite Quality.

Storage

Store product in the unopened container in a dry location. Material removed from containers may be contaminated during use. Do not return liquid to original container. 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.

Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those recommended. 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 0.0