

LOCTITE[®] PC 3472

Known as NORTH AMERICA - FIXMASTER STEEL LIQUID
October 2020

PRODUCT DESCRIPTION

LOCTITE[®] PC 3472 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	Grey Liquid
Appearance (Hardener)	Blue Liquid
Appearance - Mixed	Grey Liquid
Components	Two components – resin & hardener
Mix Ratio by weight: Part A: Part B	9.5 : 1
Mix Ratio by volume: Part A: Part B	4 : 1
Cure	Room temperature cure after mixing
Application	North America - Metal Repair
Application Temperature	>15°C (60 °F)
Service Temperature (Dry)	-30°C to 110°C (-22°F to 230°F)
Specific Benefits	<ul style="list-style-type: none"> Resurfacing and fast repairing of worn or corroded metal parts - limits downtime Protecting metal surfaces against chemicals, abrasive and corrosive agents Castable liquid - repairs hard to reach areas High steel content - cures to a metal-like finish

LOCTITE[®] PC 3472 is a two-component steel filled epoxy adhesive that is ideal for the repair and recovery of worn and damaged machinery. LOCTITE[®] PC 3472 is designed to be used in a variety of jobs including filling cavities, leveling machinery, repairing cast-steel plates, making core molds, applying a sacrificial coating, or sealing leaking pipes. Typical applications include repairing worn parts such as shafts, housings, keyways, and flanges, as well as broken or damaged parts including castings, pipes, or fabrications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Specific Gravity @ 23°C	2.3
Viscosity @ 25°C, mPa·s (cP) Spindle 7, Speed 20 rpm	78,000

Hardener:

Specific Gravity @ 23°C	0.98
Viscosity @ 25°C, mPa·s (cP) Spindle 2, Speed 50 rpm	300

Mixed:

Specific Gravity @ 23°C	1.8
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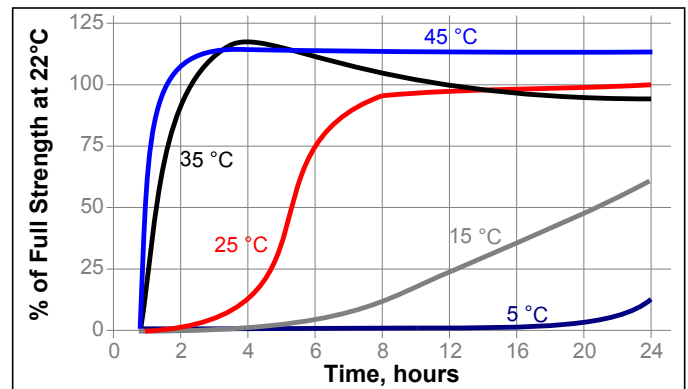
TYPICAL CURING PERFORMANCE

Curing @ 23 °C, 50%RH

Gel Time, ASTM D2471, minutes	35
Working Life, minutes	25

Cure Speed vs. Temperature

The graph below shows the shear strength developed with time on grit blasted mild steel and aluminum lap shears and tested according to ISO 4587.



TYPICAL PERFORMANCE OF CURED MATERIAL

Cured @ 23 °C

Physical Properties

Glass Transition Temperature (T _g) TMA, ISO 11359-2	°C	65
Shore Hardness, Durometer D ISO 868		84
Elongation, ASTM 638, %		0.61
Tensile Strength, ISO 527-2	N/mm ² (psi)	31 (4,500)
Tensile Modulus, ISO 527-2	N/mm ² (psi)	5,900 (848,000)
Compressive Strength, ISO 604	N/mm ² (psi)	67 (9,700)
Compressive Modulus, ISO 604	N/mm ² (psi)	3,000 (440,000)
Flexural Strength, ASTM D790	N/mm ² (psi)	57 (8,300)
Flexural Modulus, ASTM D790	N/mm ² (psi)	4,500 (658,000)

Coefficient of Thermal Expansion, K ⁻¹ ISO 11359-2:	
Below T _g	53×10 ⁻⁶
Above T _g	167×10 ⁻⁶
Coefficient of Thermal Conductivity W/(m·K) ISO 8302,	0.42

Abrasion Properties

Taber Abrasion Resistance, ASTM D4060, mg 1 Kg load, CS-10 wheels, Weight of material lost (Dry)	77
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Electrical Properties

Surface Resistivity, IEC 60093, ohms	196×10 ¹²
Volume Resistivity, IEC 60093, ohm-cm	1.2×10 ¹²

Adhesive Properties

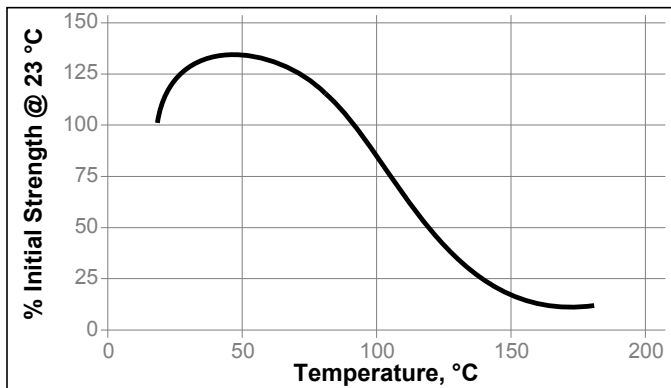
Lap Shear Strength, ISO 4587		
Mild steel (grit blasted)	N/mm ² (psi)	17.1 (2,500)

TYPICAL ENVIRONMENTAL RESISTANCE

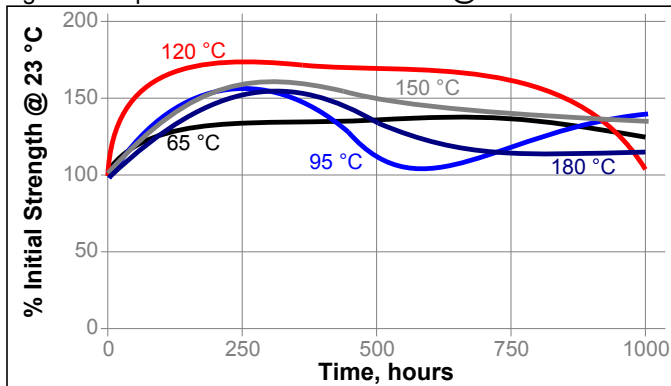
Cured for 72 hours @ 23°C
Lap Shear Strength,
ISO 4587
Mild steel (grit blasted)

Hot Strength

Tested at temperature

**Heat Aging**

Aged at temperature indicated and tested @ 23 °C

**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.

1. Remove dirt, oil, grease etc with a suitable cleaner, e.g. high pressure water cleaning system using LOCTITE® cleaner/degreaser.
2. All skip welds, weld spatter, buckshot, and other surface roughness must be ground down; undercuts and pinholes must be ground and filled. All projections, sharp edges, high points and fillets must be ground to a radius of at least 3mm and all corners must be likewise rounded to maximize product performance.
3. Blast all surfaces to be coated with a sharp edged angular grit to a depth of profile of 75 to 100 microns (3 to 4 mils), and a degree of cleanliness of Near White Metal (SIS SA 2½ /SSPC-SP 10). For immersion service, a degree of cleanliness of White Metal (SIS SA 3/SSPC-SP 5) is required.
4. After blasting, metal surfaces should be cleaned, e.g. with a LOCTITE® solvent based, residue free cleaner, and be coated before any oxidation or contamination takes place.
5. Metal that has been in contact with salt solutions, e.g. seawater, should be grit blasted and high-pressure water blasted, left for 24 hours to allow any salts in the metal to sweat to the surface. A test for chloride contamination should be performed. The procedure should be repeated until chloride concentration on the surface is below 30mg/m³ (3µg/cm³). Then blast and clean the surface as described on point 3 and 4 above.

Application

1. Mix resin and hardener according to mix ratios listed or transfer entire kit onto a clean and dry mixing surface and mix material vigorously until a uniform color is obtained.
2. Apply material to prepared surface by first forcing a thin layer deep into the texture of the substrate
3. Then Immediately build up to the desired finished thickness

Inspection

1. Visually inspect for pinholes and misses just after application.
2. Once the coating has cured, repeat visual inspection to confirm it is free from pinholes, misses and mechanical damages.
3. Control thickness of the coating, especially in the critical points.
4. Perform a test with a holiday detector to confirm coating continuity.

Coverage

To achieve a 6 millimeter thickness, the coverage rate will be 372 cm² for 0.45 kg, excluding overthickness, repairs, etc.

To achieve a 0.25 in. thickness, the coverage rate will be 54 in² for 1 lb, excluding overthickness, repairs, etc.

Repairs

Any voids, pinholes, or low thickness areas found in the coating should be repaired by lightly abrading, cleaning, and applying further product.

Clean-up

Immediately after use clean tools with a LOCTITE® solvent base cleaner. Once cured, the material can only be removed mechanically.

Technical Tips for Working With Epoxies**Environmental Conditions**

- Relative humidity: <85%
- Ambient temperature: >15°C (60F) and rising
- Substrate temperature must always be 3°C (7F) higher than the dew point to avoid condensing moisture on parts.

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).

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 Henkel representative for related approval or certificate of this product.

Data Ranges

The data contained herein may be reported as a typical value. 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

Disclaimer

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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