Technical Data Sheet

LOCTITE® EA 3463

NORTH AMERICA - FIXMASTER METAL MAGIC STEEL
May 2017

PRODUCT DESCRIPTION

LOCTITE® EA 3463 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance - Mixed	Metallic black
Components	Two components - requires mixing
Cure	Room temperature cure after mixing
Application	North America - Metal Repair
Application Temperature	15 to 30°C (59 to 86°F)
Specific Benefit	• Cures under water and will adhere to most damp surfaces • Adheres to most types of clean surfaces • Cures in 10 minutes for fast repairs • Epoxy adhesive stick applies like putty and cures to a steel-like finish

LOCTITE® EA 3463 is a versatile, dual component, easy to use, steel filled epoxy repair putty. It is applied like a putty and when cured it has a high compressive strength and good adhesion to most surfaces. This product stops leaks in pipes and tanks, fills oversized bolt holes, smoothes welds, and repairs non-structural defects in castings holes in tanks. This product is typically used in applications with an operating range of -30 °C to 120 °C.

NSF International
Certified to ANSI/NSF Standard 61 for use in commercial and residential potable water systems not exceeding 82° C.

TYPICAL PROPERTIES OF UNCURED MATERIAL

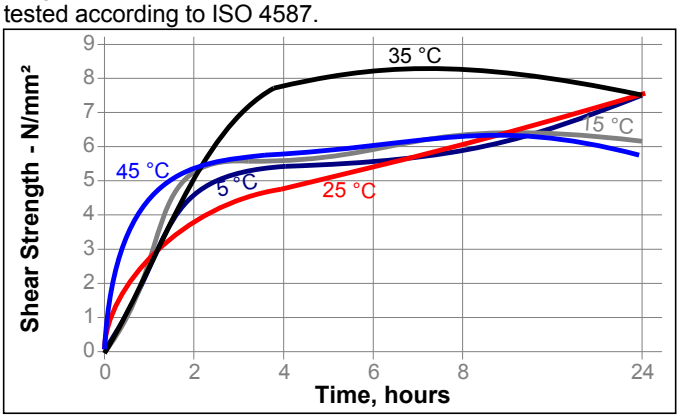
TYPICAL CURING PERFORMANCE

Curing Properties

Gel Time @ 25 °C, minutes	2.5 to 3.5
Working Time @ 25 °C, minutes	2.5 to 5[LMS]

Cure Speed vs. 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.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Tensile Strength, ISO 527-2	N/mm²	18.8
	(psi)	(2,730)
Tensile Modulus, ISO 527-2	N/mm²	105
	(psi)	(15,000)
Compressive Strength, ISO 604	N/mm²	50
	(psi)	(7,200)
Compressive Modulus, ISO 604	N/mm²	6,120
	(psi)	(887,700)
Flexural strength , ASTM D790	N/mm²	37
	(psi)	(5,430)
Flexural modulus , ASTM D790	N/mm²	7,820
	(psi)	(1,134,200)

Shore Hardness, ISO 868, Shore D	>70[LMS]
Glass Transition Temperature ISO 11359-2, °C	54
Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}:	
Below Tg	29×10^{-06}
Above Tg	115×10^{-06}
Elongation, at break, %	0.3
Coefficient of Thermal Conductivity ASTM F 433, W/(m·K)	1.016
Abrasion Resistance, ASTM D4060: mg 1 Kg load, CS-10 wheels, Weight of Material Lost	200

Electrical Properties:

Volume Resistivity, IEC 60093, ohm-cm	46×10^{12}
Surface Resistivity, IEC 60093, ohms	110×10^{12}

TYPICAL PERFORMANCE OF CURED MATERIAL

Lap Shear Strength, ISO 4587:

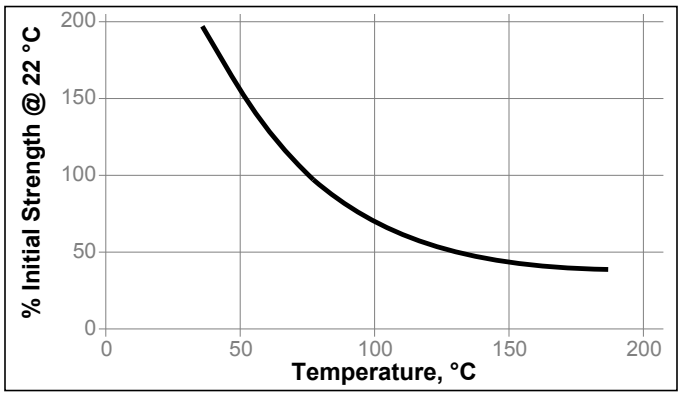
Grit Blasted Mild Steel (GBMS)	N/mm²	≥3.45[LMS]
	(psi)	(≥500)

TYPICAL ENVIRONMENTAL RESISTANCE

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

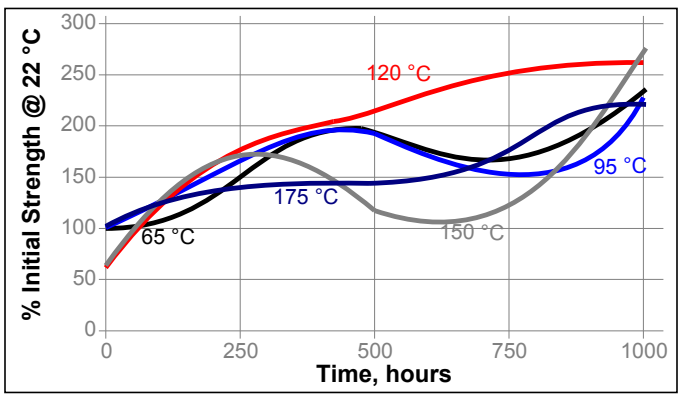
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °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).

Surface Preparation

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

Directions for use:

1. Remove dirt, oil, grease, etc. with a suitable cleaner, e.g. high pressure water cleaning system using Loctite® SF 7840™ (Loctite® Natural Blue® cleaner/degreaser).

2. Blast all surfaces to be coated with a sharp edged angular grit to a depth of profile of 75 to 100 microns and a degree of cleanliness of Near White Metal (SIS SA 2½ /SSPC-SP 10).

3. After blasting, metal surfaces should be cleaned with waterless cleaner, e.g. with Loctite® SF 7611™ (Loctite® Pro Strength Parts Cleaner), and be coated before any oxidation or contamination takes place.

4. Metal that has been in contact with salt solutions, e.g. seawater, should be grit blasted, high-pressure water blasted, and 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 40 ppm.

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

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

Coverage

To achieve a 6 mm (.25 in) thickness, the coverage rate will be 40cm² (16in²) for 0.45kg (1lb), 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 suitable cleaner, e.g. Loctite® 7070™ or a solvent such as acetone or isopropyl alcohol. 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).

Loctite Material Specification[LMS]

LMS dated January 22, 2002. 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. 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

(°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

Reference N/A