

LOCTITE® PC 9020

October 2015

PRODUCT DESCRIPTION

LOCTITE® PC 9020 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	Yellow-Greenish ^{LMS}
Appearance (Hardener)	Amber liquid ^{LMS}
Appearance (Mixture)	Blue ^{LMS}
Components	Two component - requires mixing
Mix Ratio, by weight - Resin : Hardener	100 : 4.68
Cure	Room temperature cure
Application	Crusher repair products
Specific Benefit	• Needs no melting or special equipment • Low odor • Minimal shrinkage • Excellent impact resistance • High compression strength • Easy and safe to use

LOCTITE® PC 9020 is an epoxy system for backing wear metal in gyratory and cone crushers under typical dry service temperatures of -30 to 105°C (-20 to 220°F). The product needs no melting or special equipment, and has high hydrolytic stability (low water absorption) and high volumetric stability that eliminates the formation of gaps between backing and liners or support structures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Weight per volume	kg/L	1.76 to 1.91
	(lbs/gal)	(14.65 to 15.89 ^{LMS})

Viscosity, Brookfield - RV, 25 °C, mPa·s (cP):

Spindle 6, speed 20 rpm 20,000 to 42,000^{LMS}

Hardener:

Weight per volume	kg/L	0.97
	(lbs/gal)	(8.1)

Viscosity @ 25°C, mPa·s (cP)	44
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Mixed:

Specific Gravity, g/cm ³	1.75
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Coverage	5,576 cm ³ per 7.5 liter kit (340 in ³ per 2 gallon kit)
Coverage	13,900 cm ³ per 19 liter kit (850 in ³ per 5 gallon kit)

TYPICAL CURING PERFORMANCE

Curing Properties

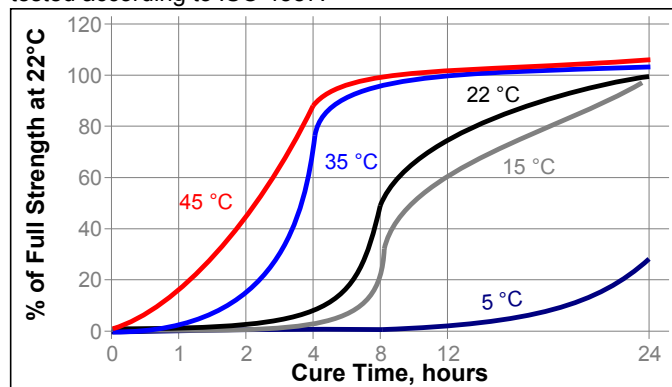
Gel Time @ 25 °C, minutes:

400 g mass

35 to 45^{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

Cured for 7 days @ 22 °C

Shore Hardness, ISO 868, Shore D	90
Abrasion Resistance, ASTM D4060: mg	92
1 Kg load, CS-10 wheels, Weight of Material Lost	
Linear Shrinkage, %	1.1
Volume Shrinkage, %	3.1
Glass Transition Temperature, ISO 11359-2, °C	38
Coefficient of Thermal Expansion, ISO 11359-2, K ⁻¹ :	
Above Tg	39×10 ⁻⁰⁶
Below Tg	115×10 ⁻⁰⁶
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.79
Tensile Strength, ISO 527-3	N/mm ² 48 (psi) (7,000)
Tensile Modulus, ISO 527-3	N/mm ² 4,700 (psi) (681,000)
Flexural strength, ASTM D790	N/mm ² 78 (psi) (11,260)
Flexural modulus, ASTM D790	N/mm ² 7,730 (psi) (1,120,500)

Electrical Properties:

Surface Resistivity, IEC 60093, ohms	1.9×10 ¹⁷
Volume Resistivity, IEC 60093, ohm-cm	2.7×10 ¹⁵

Cured for 7 days 65 °C

Physical Properties:

Compressive Strength, ISO 604	N/mm ² 136 (psi) (19,665)
Compressive Modulus, ASTM D695 (ISO 604)	N/mm ² 3,563 (psi) (516,700)

TYPICAL PERFORMANCE OF CURED MATERIAL**Adhesive Properties**

Cured @ 25 °C

Lap Shear Strength, ISO 4587:	
Grit Blasted Mild Steel (GBMS)	N/mm ² 20 (psi) (2,910)

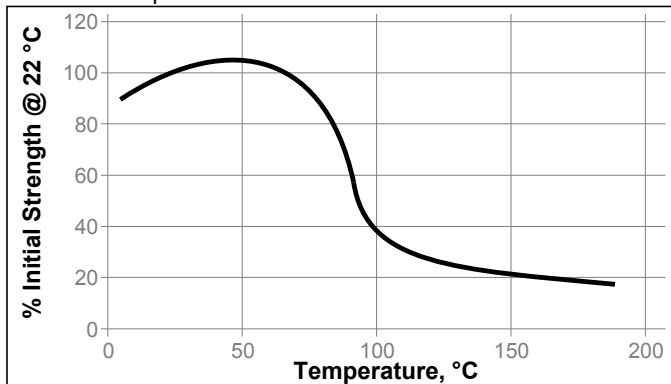
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 7 days @ 22 °C

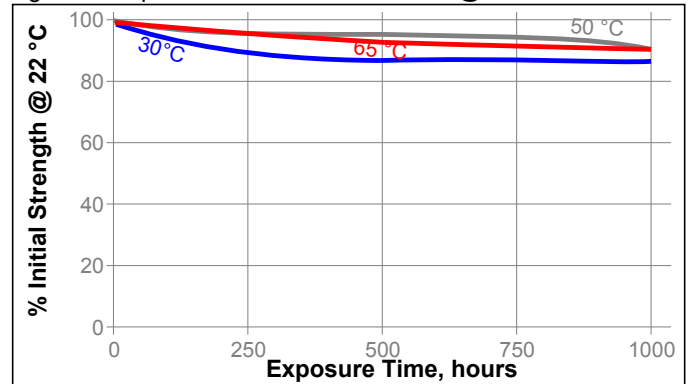
Lap Shear Strength, ISO 4587:	
Grit Blasted Mild Steel (GBMS)	

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).

Directions for use:**Preparation of Metallic Parts**

1. All metallic parts that come in contact with LOCTITE® PC 9020 should be free of rust, dirt, grease and oil. Seal hook holes and bottom joints, and protect threaded parts of shafts where necessary. To facilitate easier removal of worn liners, coat crusher heads and mill shells with grease.

Preparation of Backing Material

1. LOCTITE® PC 9020 must be at 15 °C to 26 °C before use. Lower temperatures give longer working life, but higher viscosity (harder to pour), while higher temperatures reduces working time to pour into crusher.

Mixing:

1. Pre-mix resin approximately 1 minute.
2. Shake hardener thoroughly mixing its contents.
3. While mixing resin, add hardener contents.

Application Method:

1. Pour mixture immediately after mixing. Pour at one place and allow LOCTITE® PC 9020 to fill the cavity and push out the air in front of it. Use dam (tin, cardboard, clay, etc.) to direct the flow when necessary. Unmixed resin (different color clinging to the sides and bottom) should not be drained into the crusher.
2. Succeeding kits may be mixed and poured individually as needed. LOCTITE® PC 9020 adheres to itself.

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 19, 2012 (Resin) and LMS dated January 28, 2009 (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 0.2