Technical Data Sheet

LOCTITE® PC 9020

Known as NORTH AMERICA - NORDBAK HP CRUSHER BACKING
September 2016

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 part - Resin & Hardener
Mix Ratio, by weight - Resin : Hardener	100 : 4.68
Mix Ratio, by volume - Resin : Hardener	100 : 8.67
Cure	Room temperature cure after mixing
Application	North America - Crusher repair products
Application Temperature	15 to 65°C (60 to 150°F)
Specific Benefit	• Easy and safe to use • High compression strength • Low odor • Minimal shrinkage • Excellent impact resistance

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 220F). The product eliminates the needs for traditional melting or special equipment, and has high hydrolytic stability (low water absorption). Its high volumetric stability eliminates the formation of gaps between backing and liners or support structures, allowing for fast return to service.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Weight per volume	kg/L (lbs/gal)	1.76 to 1.91 (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 (lbs/gal)	0.97 (8.1)
Viscosity @ 25°C, mPa·s (cP)		44

Mixed:

Specific Gravity, g/cm³	1.75
Coverage	5,576 cm³ per 7.5 liter kit (340 in³ per 2 gallon kit)
Coverage	13,900 cm³ per 19 liter kit (850 in³ per 5 gallon kit)

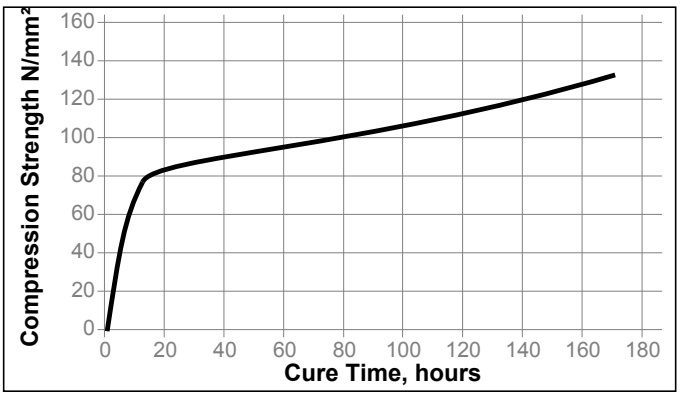
TYPICAL CURING PERFORMANCE

Curing Properties

Gel Time @ 25 °C, minutes:	
400 g mass	35 to 45[LMS]
Pot life @ 25 °C, minutes	25

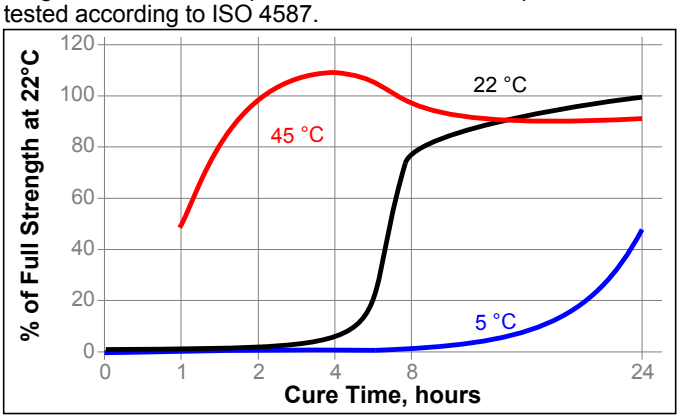
Compression Strength Build vs Time

The graph below shows the compression strength developed over time at 22C and tested according to ASTM D695.



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
Linear Shrinkage, %		1.1
Volume Shrinkage, %		3.1
Water Absorption, %		2
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}
Tensile Strength, ISO 527-3	N/mm²	48
	(psi)	(7,000)
Tensile Modulus, ISO 527-3	N/mm²	4,700
	(psi)	(681,000)
Flexural strength , ASTM D790	N/mm²	78
	(psi)	(11,260)
Flexural modulus , ASTM D790	N/mm²	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 22 °C

Physical Properties:

Compressive Strength, ISO 604	N/mm²	132
	(psi)	(19,157)
Compressive Modulus, ASTM D695 (ISO 604)	N/mm²	9,428
	(psi)	(1,367,387)

TYPICAL ENVIRONMENTAL RESISTANCE

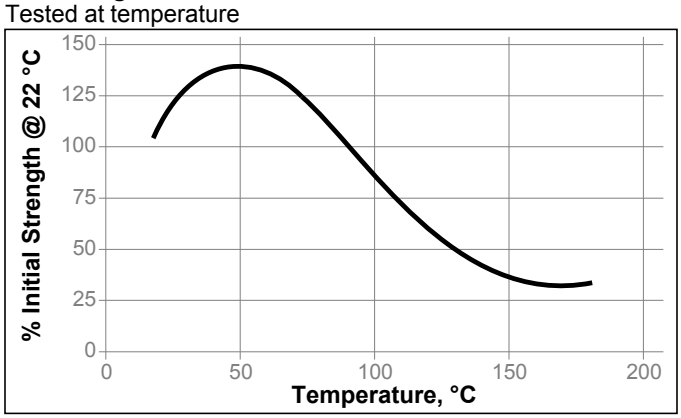
Cured for 7 days @ 22°C

Lap Shear Strength, ISO 4587:

Grit Blasted Mild Steel (GBMS)

Hot Strength

Tested at temperature



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. If a bond to the substrate is desired, all metallic parts that come in contact with LOCTITE® PC 9020 should be free of rust, dirt, grease, and oil.
2. If easier removal of worn liners is desired, coat the appropriate surfaces with a release agent such as grease or light oil.
3. Seal all gaps, hook holds, bottom joints, and protected threaded parts of shafts where necessary.

Preparation of Backing Material

LOCTITE® PC 9020 and substrate must be between 15 to 65C (60 to 150F) before use:

- Lower temperatures give longer working life, but higher viscosity making the material hard to pour.
- High temperatures reduce LOCTITE® PC 9020 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.
4. LOCTITE® PC 9020 is formulated for a color change indication when the hardener component is added to the resin, changing from yellowish-green to dark blue. As the product is mixed, dark blue streaks will appear in the product.
5. Continue mixing until the entire contents of the pail are dark blue, making sure to scrape the sides and bottom of the pail thoroughly until there are no signs of yellowish-green material.

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

(°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

Note:
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