



Loctite® Nordbak® Pneu-Wear

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PRODUCT DESCRIPTION

LOCTITE® Nordbak® Pneu-Wear provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance(Resin)	Gray ^{LMS}
Appearance(Hardener)	Gray ^{LMS}
Appearance(Mixed)	Gray ^{LMS}
Components	Two component-requires mixing
Mix Ratio,by volume Resin:Hardener	4:1
Mix Ratio, by weight Resin: Hardener	4:1
Cure	Room temperature cure
Application	Abrasion resistance
Specific Application	<ul style="list-style-type: none"> • Providing protective lining in pneumatic conveying systems • Repairing and providing abrasion resistance in elbows,slurry pumps, hoppers, cyclones and dust collectors
Specific Benefit	<ul style="list-style-type: none"> • Small ceramic bead filled - resists fine particle abrasion • Prolongs equipment life • Easy to mix and use • Renews worn surfaces fast - reduces downtime • Non sag - provides abrasion resistance on over-head and vertical surfaces

LOCTITE® Nordbak® Pneu-Wear is a small ceramic bead filled two-part epoxy putty, designed to protect equipment from fine particle abrasion. Temperature range -29 °C to +180 °C.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Viscosity Paste
Weight Per Gallon, lbs/gal 17.2 to 18.2 ^{LMS}

Hardener:

Viscosity Paste
Weight Per Gallon, lbs/gal 16.8 to 17.9 ^{LMS}

Mixed:

Coverage 0.8 m² @ 0.63cm thick/11.4kg
(8.6ft² @0.25in thick/25lb)

TYPICAL CURING PERFORMANCE

Curing Properties

Gel Time @ 25 °C, minutes
400g mass

60

Curing speed vs. Temperature

The graph below shows the lap shear strength developed with time at different temperatures on grit blasted steel and tested according to ISO4587.

Strength/%	1h	2h	4h	8h	24h
5°C	0	0	0	3	224
15°C	0	0	207	240	213
25°C	0	72	297	298	226
35°C	105	392	379	329	269
45°C	307	235	223	222	200

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 24 hours @ 25 °C

Physical Properties:

Volume Shrinkage, ASTM D 792, % 5.2
Tg, DMA Temperature ramp from -40°C to 200°C at 10°C/min. °C 61
Coefficient of Thermal Expansion, ASTM C531, K-1:
Pre Tg 25
Post Tg 78
Flexural strength , ASTM D790 N/mm² 59 (psi) (8,570)
Flexural Modulus , ASTM D790 N/mm² 6,218 (psi) (901,650)
Compressive Strength, ASTM D695 N/mm² 85 (psi) (12,270)
Compressive Modulus, ASTM D695 N/mm² 5,430 (psi) (787,320)
Tensile Modulus, ASTM D638 N/mm² 6,611 (psi) (958,560)
Elongation, at break, ASTM D638, % 0.3
Shear Strength, ISO4587 N/mm² 5 (psi) (724)
grit blasted steel
Abrasion Resistance, ASTM D4060 250g load, H-18 wheels
Weight of material lost, mg 50
Thermal Conductivity,ASTM F-433,Watts/mK 1
Heat Deflection Temperature, ASTM D648 °C 51
Water Vapor Trans. Rate, ASTM E96 g/(Pa*s*m2) 1.2x10⁻¹⁰
Temperature Range °C
Dry 180
Wet 70

Electrical Properties:

Volume Resistivity, ASTM D257, Ω-cm 2.0x10¹³
Surface Resistivity, ASTM D257, Ω 1.12x10¹⁵

TYPICAL ENVIRONMENT RESISTANCE

Cured @ 25°C for 72h and tested on grit blasted steel according to ISO4587

Hot Strength

Tested at temperature indicated.

Temperature/°C	10	37	66	93	121	149	177
Strength/%	66	221	152	46	28	24	39

Heat Aging

Aged at temperature indicated and tested @ 25 °C.

Strength/%	250h	500h	750h	1000h
66°C	81	106	101	72
93°C	127	101	81	97
120°C	163	105	90	70
150°C	104	95	84	81
177°C	116	99	84	68

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 Material Safety Data Sheet (MSDS).

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. Thoroughly clean and abrade surfaces (grit blast if possible), finally clean with LOCTITE® 7063. The more thorough the degree of surface preparation the better the performance of the application.
2. On vertical or overhead areas, it is recommended to tack expanded metal mesh to substrate before application of LOCTITE® Nordbak® Pneu-Wear.

Mixing:

1. Measure 4 parts resin to 1 part hardener by volume or weight, transfer entire kit onto a clean and dry mixing surface and mix together until uniform in color.
2. If resin and hardener temperatures are 15 °C or below, preheat resin only to about 32 °C but not to exceed 38 °C.

Application Method:

1. Apply fully mixed material to the prepared surface.
2. Initially apply the material in a very thin layer to "wet" out the surface and avoid air entrapment.
3. Build up to desired thickness (minimum 6 mm), avoid air entrapment.

4. At 25 °C working time is 30 minutes and functional cure time is 7 hours.

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 May 22, 2001 (Resin) and LMS dated May 22, 2001 (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

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Reference 1.1