



Loctite® Nordbak® Ultra High Temperature Pneu-Wear

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PRODUCT DESCRIPTION

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

Technology	Epoxy
Chemical Type	Epoxy
Appearance(Resin)	Red
Appearance(Hardener)	Gray
Appearance(Mixed)	Red ^{LMS}
Components	Two component-requires mixing
Mix Ratio,by volume Resin:Hardener	2:1
Mix Ratio, by weight Resin: Hardener	2.27:1
Cure	Heat cure
Application	Abrasion resistance
Specific Application	<ul style="list-style-type: none"> • Pneumatic conveying systems. • Exhauster. • Chutes and hoppers. • Cyclones and pulverizing mills. • Elbows. • Fan blades and housings. • Scrubbers.
Specific Benefit	<ul style="list-style-type: none"> • Cures to ceramic hardness – resists sliding abrasive wear. • Won't sag or shrink – conforms to over-head and irregular surfaces. • Renews worn surfaces fast – reduces downtime.

LOCTITE® Fixmaster® Ultra High Temperature Pneu-Wear is a high temperature version of Pneu-Wear. Recommended for elbows, dust collectors, fan housings, pumps or any application that requires protection from fine particle abrasion under typical dry service temperatures of -29° to +287°C.Requires post curing for maximum performance at high temperatures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Mixed:

Viscosity	Paste
Specific Gravity@ 25 °C	2.16
Coverage	0.7 m ² @ .63 cm thick per 11kg (8.7 ft ² @ ¼ " thick per 25 lb.)

TYPICAL CURING PERFORMANCE

Curing Properties

Gel Time @ 25 °C, hours
400g mass

5 to 6 ^{LMS}

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	0	44
15°C	0	0	0	0	186
25°C	0	0	0	23	129
35°C	0	0	900	358	438
45°C	3	311	265	355	473

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 24 hours @ 25 °C

Physical Properties:

Volume Shrinkage, ASTM D 792, %	1.5
Tg, DMA Temperature ramp from -40°C to 200°C at 10°C/min. °C	70
Coefficient of Thermal Expansion, ASTM C531, K-1:	
Pre Tg	16
Post Tg	62
Flexural strength , ASTM D790	N/mm ² 45 (psi) (6,560)
Flexural Modulus , ASTM D790	N/mm ² 7,047 (psi) (1,021,750)
Compressive Strength, ASTM D695	N/mm ² 91 (psi) (13,160)
Compressive Modulus, ASTM D695	N/mm ² 11,070 (psi) (1,605,000)
Tensile Strength, ASTM D638	N/mm ² 7 (psi) (951)
Tensile Modulus, ASTM D638	N/mm ² 11,515 (psi) (1,669,611)
Shear Strength, ISO4587 grit blasted steel	N/mm ² 7 (psi) (1015)
Cured for 24 hours @ 25 °C & 2h@148°C	
Thermal Conductivity,ASTM F-433,Watts/mK	1.1
Temperature Range °C	
Dry	287
Wet	95

Electrical Properties:

Volume Resistivity, ASTM D257,	Ω·cm 9.1X10 ¹²
Surface Resistivity, ASTM D257,	Ω 6.33X10 ¹⁴

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/%	342	377	1162	1144	1409	1294	1158

Heat Aging

Aged at temperature indicated and tested @ 25 °C.

Strength/%	250h	500h	750h	1000h
66°C	867	895	887	909
93°C	837	885	1177	882
120°C	1113	988	1331	800
150°C	1326	1072	1217	679
177°C	1114	890	1085	512

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. On all vertical or overhead applications, tack welding expanded metal mesh onto the metal substrate is strongly recommended prior to application of Ultra High Temperature Pneu-Wear.
2. Clean, dry and abrade application surface. The more thorough the degree of surface preparation the better the performance of the application. If possible, it is recommended that the surface be grit blasted to a Near White Metal (SSPC-SP10/NACE No. 2) Standard. For less severe applications roughening the surface with hand tools is suitable.
3. Solvent cleaning with a residue-free solvent is recommended as the final step to aid in adhesion.

Mixing:

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

Application:

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. Apply the material to a minimum thickness of 0.64 cm (1/4").
4. At 25°C, the working time is 30 minutes. Working and cure time depend on temperature and mass; the higher the temperature, the larger the mass, the faster the cure.
5. Post cure at 148°C for 2 hours.

TECHNICAL TIPS FOR WORKING WITH EPOXIES

Working time and cure time depends on temperature and mass:

- The higher the temperature, the faster the cure.
- The larger the mass of material mixed, 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

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 2°C to 8°C unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused product, do not return any material to its original container. For further specific shelf life information, contact your local Technical Service Center.

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