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Technical Data Sheet
Product 326

Worldwide Version, October 1995

PRODUCT DESCRIPTION

LOCTITE® Product 326 is a single component high viscosity anaerobic structural adhesive for bonding rigid assemblies. The product cures when confined between close fitting parts with the aid of activator N.

TYPICAL APPLICATIONS

Typical applications include bonding ferrites to plated metals in electric motors, loudspeaker hardware and jewellery where fast fixturing is required.

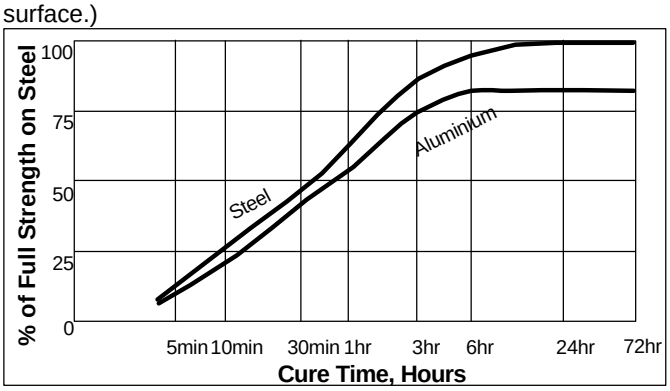
PROPERTIES OF UNCURED MATERIAL

	Typical Value	Range
Chemical Type	Urethane Methacrylate	
Appearance	Clear Amber	
Specific Gravity @ 25°C	1.10	
Viscosity @ 25°C, mPa.s (cP)		
Brookfield RVT		
Spindle 6 @ 20 rpm	18,000	13,500 to 22,000
DIN 54453, MV		
D = 36 s^{-1} after t=180secs	15,000	10,000 to 20,000
Flash Point (TCC), °C	>93	

TYPICAL CURING PERFORMANCE

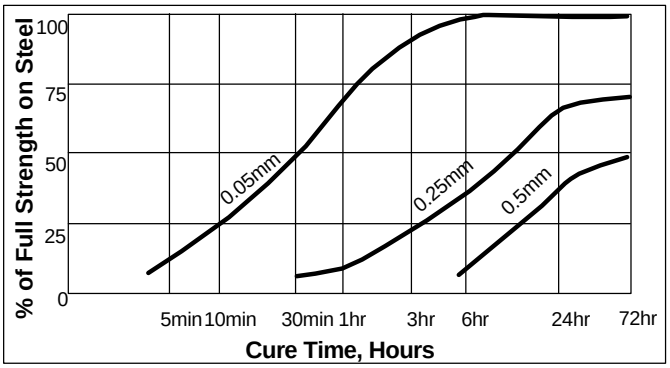
Cure speed vs. substrate

The rate of cure will depend on substrate used. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different materials and tested according to ASTM D1002. (Activator applied to one surface.)



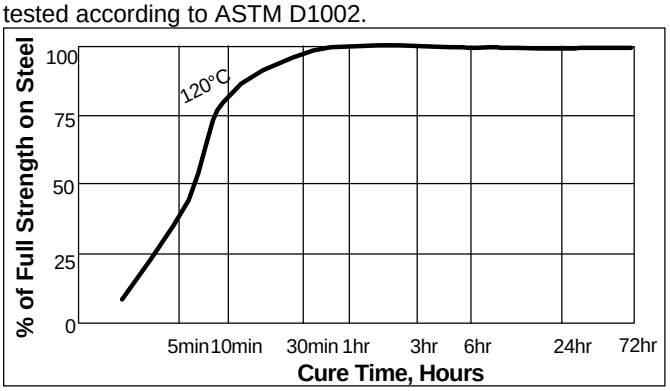
Cure speed vs. bond gap

The rate of cure will depend on the bondline gap. The graph below shows shear strength developed with time on grit blasted steel lap shears at different controlled gaps and tested according to ASTM D1002. (Activator applied to one surface.)



Cure speed vs. temperature

The rate of cure will depend on the ambient temperature. The graph below shows shear strength developed with time at 120° without Activator N on grit blasted steel lap shears and tested according to ASTM D1002.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Coefficient of thermal expansion, ASTM D696, K^{-1}	80 x10^{-6}
Coefficient of thermal conductivity, ASTM C177, $W.m^{-1}K^{-1}$	0.1
Specific Heat , $kJ.kg^{-1}K^{-1}$	0.3
Tensile Strength, ASTM D412, N/mm^2	34
(psi)	(4930)
% Elongation to break, ASTM D412	135
Modulus, ASTM D638, Nmm^2	300
(psi)	(44,000)

Electrical Properties

Dielectric constant & loss, 25°C, ASTM D150:

	Constant	Loss
measured at 100Hz	5.6	0.03
1kHz	5.3	0.03
1MHz	4.6	0.04
Volume resistivity, ASTM D257, Ω.cm		2 x 10^{13}
Surface resistivity, ASTM D149, Ω		2 x 10^{17}
Dielectric strength, ASTM D149, kV/mm		30

PERFORMANCE OF CURED MATERIAL

(After 24 hr at 22°C, Act.N on grit blasted mild steel (GBMS), 1 side)

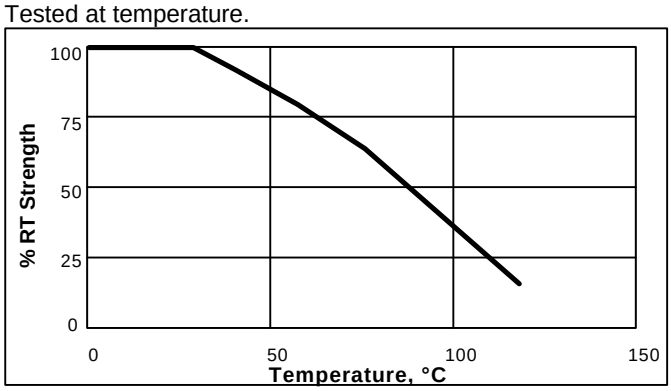
	Typical Value	Range
Shear Strength, ASTM D1002, N/mm^2	18.5	12 to 25
(psi)	(2700)	(1700 to 3625)
Shear Strength, DIN 53283, N/mm^2	19	15 to 23
(psi)	(2800)	(2200 to 3300)
Tensile Strength, DIN 53288, N/mm^2	24	18 to 30
(psi)	(3500)	(2600 to 4400)

TYPICAL ENVIRONMENTAL RESISTANCE

Test Procedure :	Shear strength ASTM D1002
Substrate:	Grit blasted mild steel laps
Cure procedure:	1 week at 22°C/Act.N

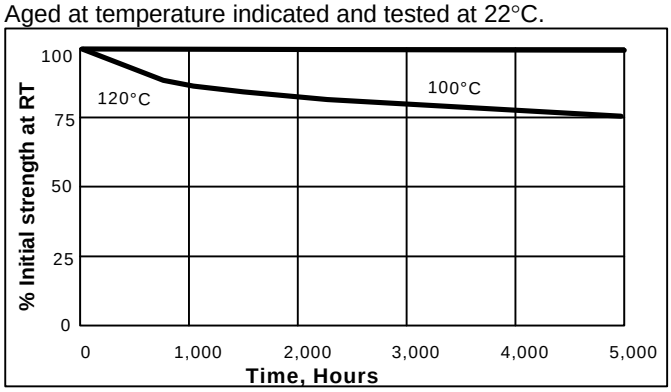
Hot Strength

Tested at temperature.



Heat Ageing

Aged at temperature indicated and tested at 22°C.



Chemical / Solvent Resistance

Aged under conditions indicated and tested at 22°C.

Solvent	Temp	% Initial Strength retained at			
		100 hr	500 hr	1000 hr	5000 hr
Motor Oil	87°C	100	100	100	100
Leaded Petrol	22°C	100	60	60	60
Auto transmission fluid	87°C	100	100	-	-
Phosphate ester	87°C	100	100	-	-
Humidity 98% RH	40°C	85	50	45	45
Water/Glycol (50%/50%)	87°C	100	40	40	40

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 oxidising materials.

For safe handling information on this product, consult the Material Safety Data Sheets, (MSDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use

For best performance bond surfaces should be clean and free of grease. To ensure a fast and reliable cure, Activator N should be applied to one of the bond surfaces and the adhesive to the other surface. The recommended bondline gap is 0.1mm. Where bond gaps are large, (up to a maximum of 0.5mm), or faster cure speed is required, activator should be applied to both surfaces. Parts should be assembled immediately, (within 15 minutes). Excess adhesive can be wiped away with organic solvent. Bond should be held clamped until adhesive has fixtured. Joint should be allowed to develop full strength before subjecting to any service loads, (typically 24 to 72 hours after assembly depending on bond gap and materials).

Storage

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8°C to 28°C (46°F to 82°F) unless otherwise labelled. 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 Centre.

Data Ranges

The data contained herein may be reported as a typical value and/or range (based on the mean value ±2 standard deviations). Values are based on actual test data and are verified on a periodic basis.

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Loctite Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Loctite Corporation's products. Loctite Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a licence under any Loctite Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.