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Technical Data Sheet Product 307

PRODUCT DESCRIPTION

LOCTITE 307 is a one component general purpose anaerobic adhesive. It cures when confined in the absence of air between close fitting surfaces with the aid of LOCTITE ACTIVATOR 747.

TYPICAL APPLICATION

Bonding close fitting rigid metal parts.

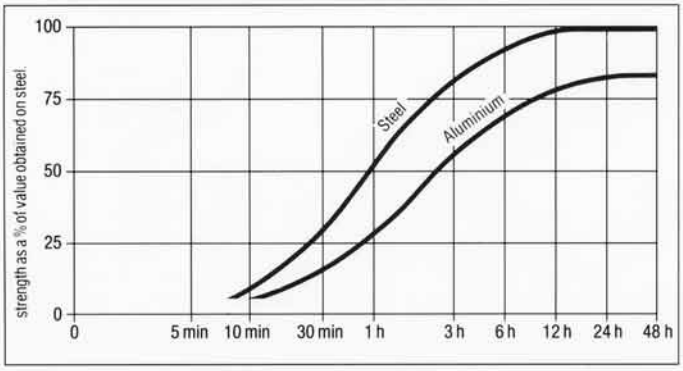
PROPERTIES OF UNCURED MATERIAL

Chemical type:	Urethane Methacrylate
Colour:	Clear, amber
Specific gravity, 25° C:	1.1
Viscosity @ 25° C, mPa.s:	
Brookfield RVT—	
Spindle 5 @ 20.0 rev/min:	1,000 to 3,000
DIN 54453, mPa.s:	
D = 129 1/S	
After t = 180:	800 to 3,200
Flash point (COC), °C:	>100
Vapour pressure, mbar:	<3
Shelf life @ 5 to 28° C, months:	12

CURING PERFORMANCE

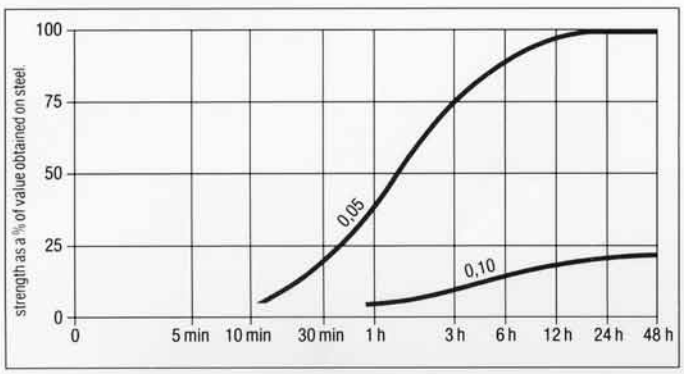
Cure speed vs substrate

Figure 1 shows the rate of cure on lap shears made from different materials. The strength was determined according to ASTM D1002.



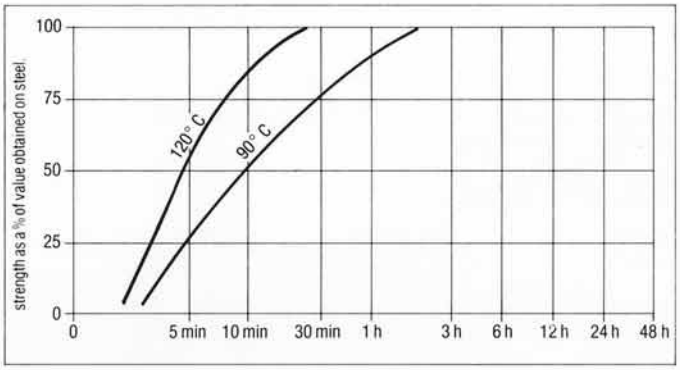
Cure speed vs bond gap

Figure 2 shows the rate of cure through different gaps. These tests were made on steel lap shear specimens. Test procedure in accordance with ASTM D1002 and DIN 53283. The development of tensile shear strength provided a measurement of the rate of cure.



Cure speed vs temperature

Figure 3 shows how curing can be obtained without Activator at raised temperature. Tests were made on steel lap shear specimens according to ASTM D1002.



PHYSICAL PROPERTIES OF CURED MATERIAL AND OPERATING PARAMETERS

Time to achieve full strength on steel @ 22° C (0.05mm), hours: 24
Coefficient of thermal expansion, ASTM D696, 1/° K: 100×10^{-6}

Coefficient of thermal conductivity, ASTM C177, $\frac{W}{m.°K}$:	0.1
Specific heat, $\frac{kJ}{kg.°K}$:	0.3
Recommended gap, mm:	0.05
Maximum gap, mm:	0.1

PERFORMANCE OF CURED MATERIAL

(After 24 hours at 22° C with Act. 747 on GBMS)

Tensile shear strength, DIN 53283/ASTM D1002, N/mm²	12 to 32
Tensile strength, DIN 53288, N/mm²	15 to 30
Tensile strength, ASTM D2095, N/mm²	30 to 50

N.B. Ranges are based on mean $\pm 2\sigma$ values.

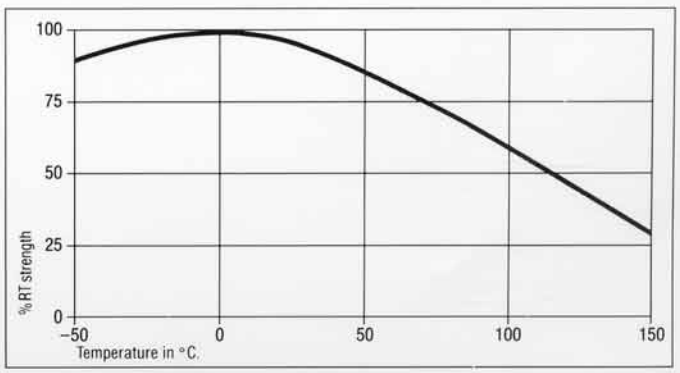
ENVIRONMENTAL RESISTANCE

Hot strength

Strength test procedure: ASTM D1002, DIN 53283.

Substrate: Grit blasted mild steel.

Cure procedure: 1 week at 22° C/Activator 747.

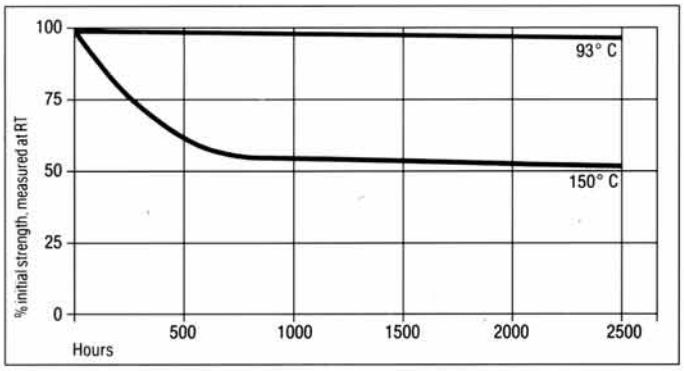


Heat aging

Strength test procedure: ASTM D1002, DIN 53283.

Substrate: Grit blasted mild steel.

Cure procedure: 1 week at 22° C/Activator 747.



CHEMICAL/SOLVENT RESISTANCE

Strength test procedure: ASTM D1002, DIN 53283.
Substrate: Grit blasted mild steel.
Cure procedure: 30' @ 93° C.
Aging period: 30 days.

Solvent	Temperature	% Initial strength retained
Acetone	22° C	100
Trichloroethylene	22° C	98
Aviation Fuel (JP4)	22° C	96
Water	93° C	75
Water/glycol	95° C	75
100% R.H.	82° C	70

GENERAL

Handling precautions

Remove adhesive from the skin with soap and water. In case of eye contact flush with water and seek medical attention. To avoid contact use the applicator nozzle provided.

Materials of this type are not common allergenic (sensitising) agents. However, when used under conditions on which skin is continuously broken or microlacerated, sensitisation has been known to occur. Contact with skin in such conditions should be avoided. For further information see relevant Health and Safety sheet.

Storage

Store material in original containers in a cool, dry place for maximum shelf life. When stored, unopened, under these conditions, the material will retain its performance and properties for at least 12 months (containers of less than 1 litre).

Specifications

The technical data contained herein are intended for reference and should not be used for preparing specifications. Please contact the Loctite Technical Service Department or local representative for assistance and recommendations on specification limits for these materials.

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. 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 license under any Loctite Corporation patents which 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.