

PRODUCT DESCRIPTION

LOCTITE 274 is a one component, anaerobic material which has medium strength. It cures when confined in the absence of air between close fitting metal surfaces.

TYPICAL APPLICATION

Prevents loosening through vibration and leakage of threaded fasteners.

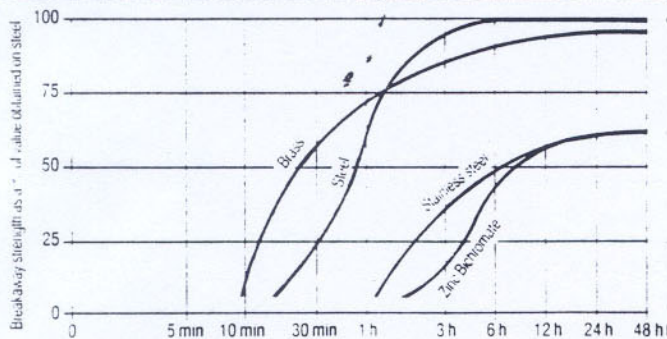
PROPERTIES OF UNCURED MATERIAL

Chemical type:	Dimethacrylate ester
Colour:	Blue
Specific gravity, 25°C:	1.07
Viscosity (α 25°C, mPa.s):	
Brookfield RVT—	
Spindle 1 (α 20.0 rev/min:	100 to 150
DIN 54453, mPa.s:	
D = 277 1/S:	100 to 150
Flash point (COC), °C:	> 100
Vapour pressure, mbar:	< 2
Shelf life @ 5 to 28°C, months:	12

CURING PERFORMANCE

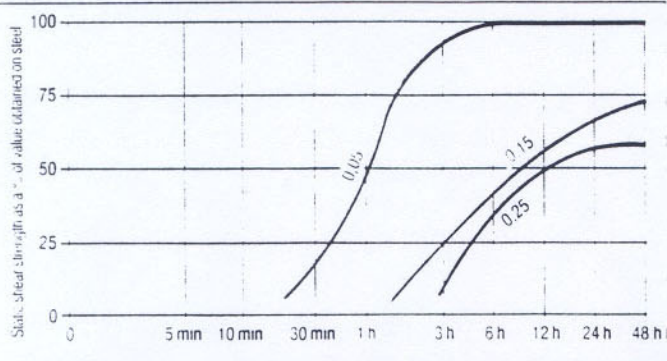
Cure speed vs substrate

Figure 1 shows the rate of cure on M10 black oxide bolts and steel nuts against different materials. The breakaway strength was determined according to MIL-S-46163.



Cure speed vs bond gap

Figure 2 shows the rate of cure through different gaps. Gaps in threaded fasteners depend on thread type, quality and size. These tests were made on steel pins and collars with specified gaps. Test procedure in accordance with MIL-R-46082. The development of static shear strength provided a measurement of the rate of cure.



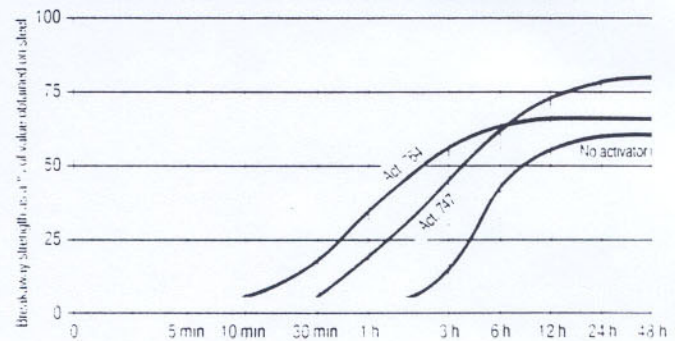
Cure speed vs ambient temperature

Figure 3 shows how the rate of cure varies with ambient temperature. Tests were made on M10 black oxide bolts and steel nuts according to MIL-S-46163.



Cure speed vs activator

Where cure speed is unacceptably long (because of substrate, temperature or gap) performance may be improved by treating the surface with LOCTITE ACTIVATOR 764 or ACTIVATOR 747. This effect is indicated in figure 4. Tests were carried out according to MIL-S-46163 on zinc bichromate steel M10 nuts and bolts.



PHYSICAL PROPERTIES OF CURED MATERIAL AND OPERATING PARAMETERS

Time to achieve full strength on steel (α 22°C (0.05mm), hours:	12
Coefficient of thermal expansion, ASTM D696, 1°K:	100×10^{-6}
Coefficient of thermal conductivity, ASTM C177, $\frac{W}{m \cdot ^\circ K}$:	0.1
Specific heat, $\frac{kJ}{kg \cdot ^\circ K}$:	0.3
Recommended gap, mm:	0.05
Maximum recommended bolt size:	M12

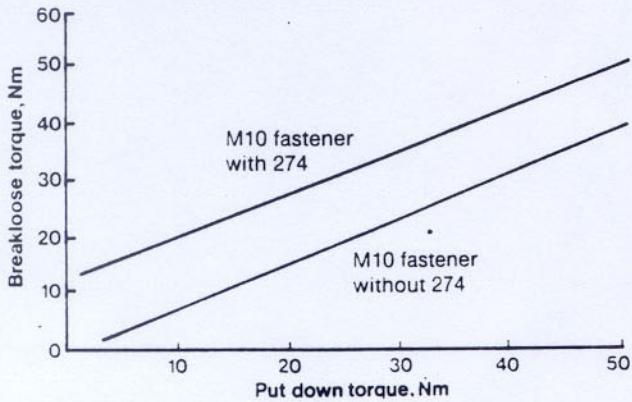
PERFORMANCE OF CURED MATERIAL (After 24 hours at 22°C)

Breakaway torque, MIL-S-46163, N.m:	8 to 24
Preval torque, MIL-S-46163, N.m:	8 to 22
Breakloose torque, DIN 54454, N.m:	18 to 38
Maximum prevail torque, DIN 54454, N.m:	18 to 38
Static shear strength, MIL-R-46082, N/mm ² :	6 to 14
Static shear strength, DIN 54452, N/mm ² :	6 to 14

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

Torque augmentation

Breakloose torque of an untreated threaded fastener will normally be 15 to 30% less than the on-torque. The effect of LOCTITE 274 on the breakloose torque is shown in the graph.



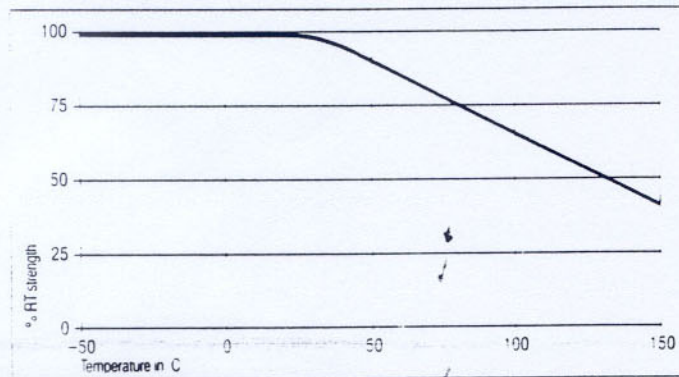
ENVIRONMENTAL RESISTANCE

Hot Strength

Strength test procedure: DIN 54454 breakloose torque.

Substrate: Zinc phosphate M10 nuts and bolts.

Cure procedure: 1 week at 22°C.

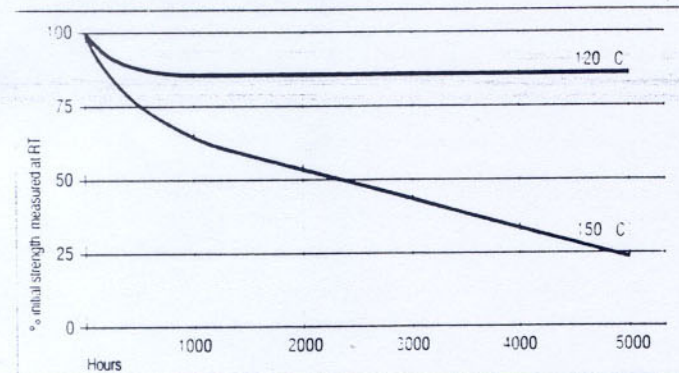


Heat Aging

Strength test procedure: DIN 54454 breakloose torque.

Substrate: Zinc phosphate M10 nuts and bolts.

Cure procedure: 1 week at 22°C.



CHEMICAL/SOLVENT RESISTANCE

Strength test procedure: DIN 54454.

Substrate: Zinc phosphate M10 nuts and bolts.

Cure procedure: 1 week at 22°C.

Solvent	Temperature	% Initial strength retained at:		
		100hrs	500hrs	1000hrs
Motor oil (MIL-L-46152):	125°C	95	90	90
Unleaded petrol:	22°C	95	90	90
Leaded petrol:	22°C	100	100	95
Brake fluid:	22°C	95	95	95
Ethanol:	22°C	100	100	95
Acetone:	22°C	85	85	75
1.1.1. trichloroethane:	22°C	100	100	100
Water/glycol:	87°C	85	85	85

GENERAL INFORMATION

Safe handling

LOCTITE anaerobic adhesives are not common allergenic (sensitising) materials. 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.

Some corrosion protection chemicals, e.g. Sodium Nitrite, contained in aqueous cleaning systems for metal components can inhibit the cure of this anaerobic product.

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