LOCTITE®

Research, Development & Engineering
Tallaght Business Park,
Dublin, Ireland

Technical Data Sheet
Product 329

May 2000.

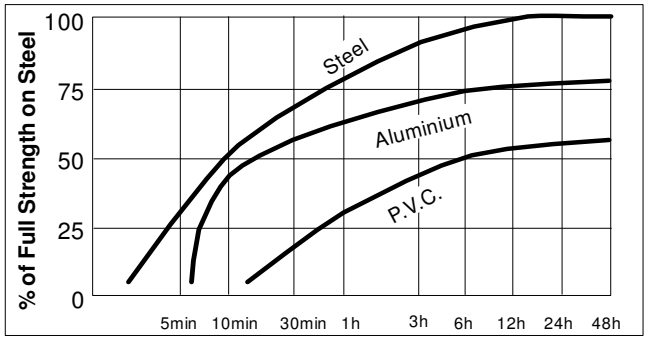
PRODUCT DESCRIPTION
LOCTITE® MULTIBOND 329 is a toughened acrylic adhesive intended for high strength structural bonding. It cures at room temperature with the aid of MULTIBOND ACTIVATORS 737, 738 or 740, as appropriate.

TYPICAL APPLICATIONS
MULTIBOND 329 is suitable for bonding structural or sheet steel where continuous or repeated loading is encountered, e.g. metal furniture, containers and doors.

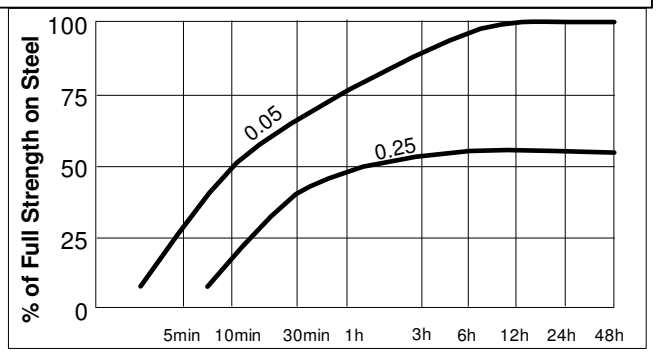
PROPERTIES OF UNCURED MATERIAL

	Typical Value	Range
Chemical Type:	Modified methacrylate ester	
Appearance	Light Amber	
Specific gravity, 20®C	1.02	
Viscosity @ 25®C mPa.s:		
Brookfield RVT		
Spindle 5@20.0 rev/min		20,000 to 35,000
DIN 54453, mPa.s:		
D=20 1/S		
After t = 180		15,000 to 30,000
Flash point (COC), ®C:	12	
Vapour pressure, mbar	<40	
Shelf life @ 5 to 28®C, months	12	

TYPICAL 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 EN1465. The development of tensile shear strength provided a measurement of the rate of cure.



PYHSICAL PROPERTIES OF CURED MATERIAL AND OPERATING PARAMETERS

Time to achieve full strength on steel @22®C(0.05mm), hours: 12
Coefficient of thermal expansion, ASTM D696, 1/®K:
Coefficient of thermal conductivity ASTM C177, $W.m^{-1}K^{-1:}$ 0.1
Specific heat $kJ.kg^{-1}K^{-1}$ 0.3
Recommended gap, mm; 0.05
Maximum gap, mm 0.4

PERFORMANCE OF CURED MATERIAL

(After 24 hours at 22®C, cured with ACTIVATOR 737)

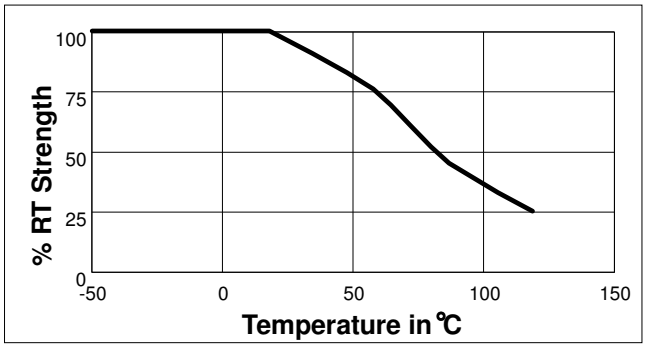
Tensile shear strength,
DIN EN 1465/ASTM D1002, N/mm^2 20 to 35
Tensile strength, DIN 53288, N/mm^2 16 to 36

N.B. Ranges are based on mean !2⑨ values.

ENVIRONMENTAL RESISTANCE

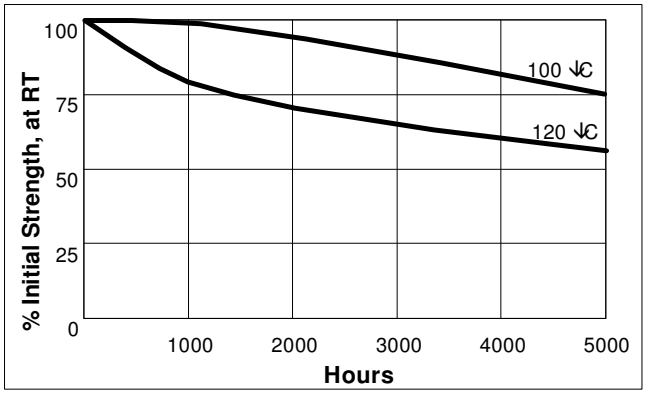
Hot strength

Strength test procedure: ASTM D1002, DIN EN 1465.
Substrate: Grit blasted mild steel.
Cure procedure: 1 week @ 22®C/Activator 737.



Heat ageing

Strength test procedure: ASTM D1002, DIN EN 1465
Substrate: Grit blasted mild steel.
Cure procedure: 1 minutes @ 22®C\Activator 737.



CHEMICAL/SOLVENT RESISTANCE

Strength test procedure: ASTM D1002, DIN EN 1465.
Substrate: Grit blasted mild steel
Cure procedure: 1 week @ 22®C/Activator 737.
Ageing period: 3 weeks.

Solvent	Temperature	% Initial strength retained
Motor Oil	87®C	100
Carbon Tetrachloride	22®C	85
Water	45®C	85
99 % R.H.	40®C	95

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 Sheet, (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 surfaces should be clean and free of grease. Product should be applied to the bolt in sufficient quantity to fill all engaged threads. This product performs best in thin bond gaps, (0.05mm). Very large thread sizes may create large gaps which will affect cure speed and strength. This product is designed to give controlled friction, (torque/tension ratio), during assembly. In critical tightening applications this ratio should be confirmed.

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 it's 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.