Technical Data Sheet

LOCTITE® 499™

July 2008

PRODUCT DESCRIPTION

LOCTITE® 499™ provides the following product characteristics:

Technology	Cyanoacrylate
Chemical Type	Ethyl cyanoacrylate
Appearance (uncured)	Translucent colorless gel[LMS]
Components	One part - requires no mixing
Viscosity	High
Cure	Humidity
Application	Bonding
Key Substrates	Rubbers, Plastics and Metals

LOCTITE® 499™ is a general purpose adhesive suitable for applications where heat resistance is required. LOCTITE® 499™ is formulated to resist thermal cycling and also exhibits superior resistance to humidity.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1
Casson Viscosity, 25 °C, mPa·s (cP):	
Cone and Plate Rheometer	100 to 450
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle TC, speed 20 rpm, , Helipath	18,000 to 40,000[LMS]
Vapour Pressure, hPa	≤1
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Under normal conditions, the atmospheric moisture initiates the curing process. Although full functional strength is developed in a relatively short time, curing continues for at least 24 hours before full chemical/solvent resistance is developed.

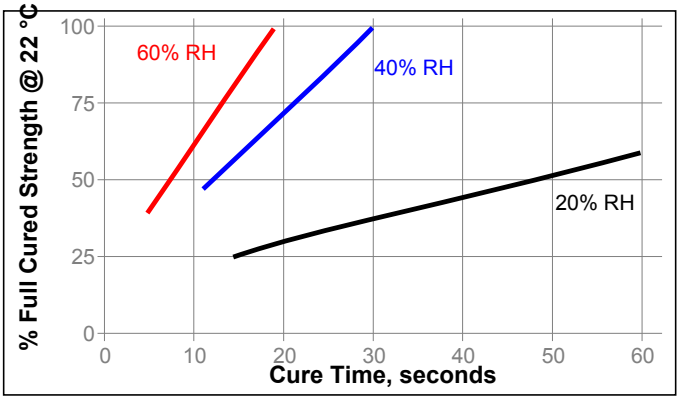
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The table below shows the fixture time achieved on different materials at 22 °C / 50 % relative humidity. This is defined as the time to develop a shear strength of 0.1 N/mm² .

Fixture Time, seconds:	
Mild Steel (degreased)	50 to 100
Aluminum (degreased)	15 to 40
Zinc dichromate	50 to 150
Neoprene	<20
Rubber, nitrile	<20
ABS	30 to 60
PVC	50 to 100
Polycarbonate	50 to 100
Phenolic	20 to 50

Cure Speed vs. Humidity

The rate of cure will depend on the ambient relative humidity. The following graph shows the tensile strength developed with time on Buna N rubber at different levels of humidity.



TYPICAL PROPERTIES OF CURED MATERIAL

After 24 hours @ 22 °C

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	100×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Softening Point, DIN EN 1427, °C	165

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:	
0.1 kHz	2 to 3.3 / <0.02
1 kHz	2 to 3.5 / <0.02
10 kHz	2 to 3.5 / <0.02
Volume Resistivity, IEC 60093, Ω·cm	2×10^{15} to 10×10^{15}
Surface Resistivity, IEC 60093, Ω	10×10^{15} to 80×10^{15}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	25

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm²	18 to 26
	(psi)	(2,610 to 3,770)
Aluminum	N/mm²	11 to 19
	(psi)	(1,595 to 2,755)
Zinc dichromate	N/mm²	8 to 15
	(psi)	(1,160 to 2,175)
ABS	N/mm²	6 to 20
	(psi)	(870 to 2,900)
PVC	N/mm²	6 to 20
	(psi)	(870 to 2,900)
Polycarbonate	N/mm²	5 to 20
	(psi)	(725 to 2,900)

Phenolic	N/mm² (psi)	5 to 15 (725 to 2,175)
Neoprene	N/mm² (psi)	5 to 15 (725 to 2,175)
Nitrile	N/mm² (psi)	5 to 15 (725 to 2,175)
Tensile Strength, ISO 6922:		
Steel (grit blasted)	N/mm² (psi)	12 to 25 (1,740 to 3,625)
Buna-N	N/mm² (psi)	5 to 15 (725 to 2,175)
"T" Peel Strength, ISO 11339:		
Steel (degreased)	N/mm (lb/in)	<0.5 (<2.8)

Cured for 24 hours @ 22 °C, followed by 24 hours @ 121 °C, tested @ 22 °C

Lap Shear Strength, ISO 4587:		
Steel (grit blasted)	N/mm² (psi)	≥9.0[LMS] (≥1,305)

Cured for 30 seconds @ 22 °C

Tensile Strength, ISO 6922:		
Buna-N	N/mm² (psi)	≥3.0 (≥435)

TYPICAL ENVIRONMENTAL RESISTANCE

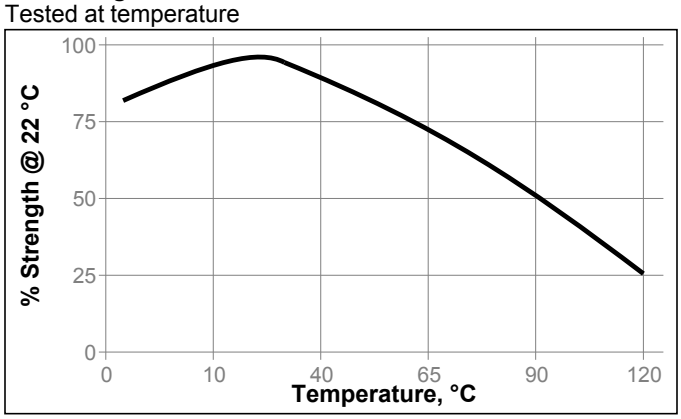
After 1 week @ 22 °C

Lap Shear Strength, ISO 4587:

Mild steel (grit blasted)

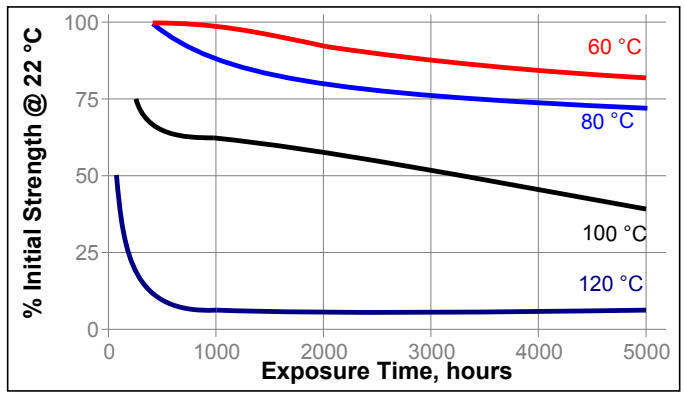
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**1000 h**
Motor oil (MIL-L-46152)	40	100	100	95
Gasoline	22	100	100	100
Isopropanol	22	100	100	100
Ethanol	22	100	100	100
Freon TA	22	100	100	100
Heat/humidity 95% RH	40	100	100	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 oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use:

1. For best performance bond surfaces should be clean and free from grease.
2. This product performs best in thin bond gaps (0.05 mm).
3. Excess adhesive can be dissolved with Loctite cleanup solvents, nitromethane or acetone.

Loctite Material Specification[LMS]

LMS dated April 01, 2004. 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 Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:

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, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel 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 license under any Henkel 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.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.2

This document was created and digitally signed by tdx.henkel.com at 2025-11-26T09:21:58.813Z