Technical Data Sheet

LOCTITE® 4203™

December 2020

PRODUCT DESCRIPTION

LOCTITE® 4203™ provides the following product characteristics:

Technology	Cyanoacrylate
Chemical Type	Ethyl cyanoacrylate
Appearance (uncured)	Colorless to slightly pale yellow liquid LMS
Components	One part - requires no mixing
Viscosity	Low
Cure	Humidity
Application	Bonding
Key Substrates	Rubbers, Plastics and Metals

LOCTITE® 4203™ is a general purpose adhesive suitable for applications where heat resistance is required. LOCTITE® 4203™ is toughened with elastomers for flexibility, impact resistance and improved resistance to heat and humidity.

ISO-10993

LOCTITE® 4203™ has been tested to Henkel's test protocols based on ISO 10993 biocompatibility standards, as a means to assist in the selection of products for use in the medical device industry.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 5, speed 20 rpm	150 to 600LMS
Viscosity, Cone & Plate, 25 °C, mPa·s (cP):	
Physica MC100, Cone MK 22, shear rate 100 s^{-1}	150 to 600LMS

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:

Steel (degreased)	10 to 20
Aluminum	10 to 20
ABS	10 to 20
SBR (smooth)	90 to 120
NBR	10 to 20
EPDM	45 to 55
Phenolic	40 to 50
Zinc dichromate	60 to 75
Neoprene	20 to 30
PVC	45 to 55
Polycarbonate	60 to 75
G-10 Epoxy	10 to 20
Wood (pine)	75 to 90

Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

Cure Speed vs. Activator

Where cure speed is unacceptably long due to large gaps, applying activator to the surface will improve cure speed. However, this can reduce ultimate strength of the bond and therefore testing is recommended to confirm effect.

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 22 °C

Lap Shear Strength, :		
Steel (grit blasted)	N/mm²	21.2 to 21.7
	(psi)	(3,075 to 3,145)
Aluminum	N/mm²	13.7 to 14.2
	(psi)	(1,990 to 2,060)
SBR	N/mm²	0.3 to 0.4
	(psi)	(45 to 60)
Nitrile	N/mm²	0.4 to 0.7
	(psi)	(60 to 100)
Phenolic	N/mm²	8.6 to 9.5
	(psi)	(1,250 to 1,380)
Neoprene	N/mm²	0.5 to 0.6
	(psi)	(70 to 90)
Block Shear Strength, ISO 13445:		
ABS	N/mm²	5.4 to 5.8
	(psi)	(780 to 840)
Phenolic	N/mm²	10 to 12
	(psi)	(1,450 to 1,740)
G-10 Epoxy	N/mm²	11 to 12
	(psi)	(1,600 to 1,740)
Side Impact Resistance, J:		
Aluminum, as received, (Isopropanol wiped)		≥4.5LMS

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

Lap Shear Strength, :		
Steel (grit blasted)	N/mm²	≥5.6LMS
	(psi)	(≥810)

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

Lap Shear Strength, :

Steel (grit blasted)	N/mm² (psi)	≥18.6[LMS] (≥2,700)

Cured for 48 hours @ 22 °C

Lap Shear Strength, :

Steel (grit blasted)	N/mm² (psi)	≥12.4[LMS] (≥1,800)

180° Peel Strength, ISO 8510-2:

Steel (grit blasted)	N/mm (lb/in)	3.5 (20)

TYPICAL ENVIRONMENTAL RESISTANCE

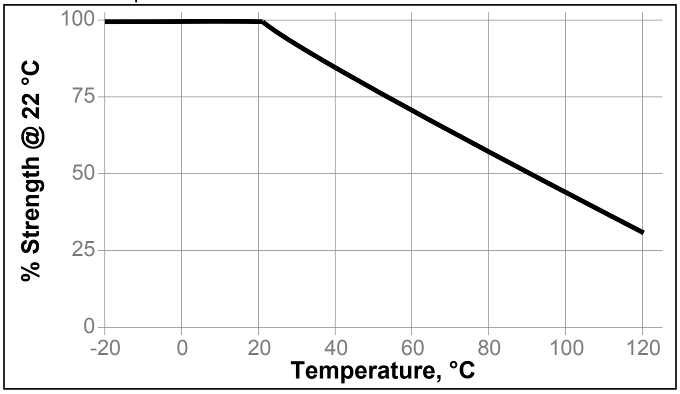
Cured for 72 hours @ 22°C

Lap Shear Strength, ISO 4587:

Mild steel (grit blasted)

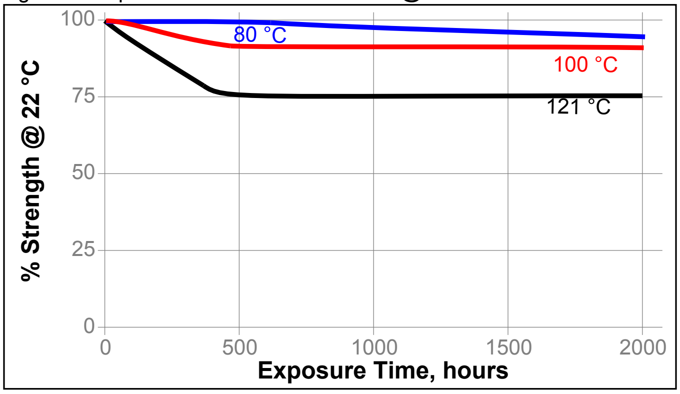
Hot Strength

Tested at temperature



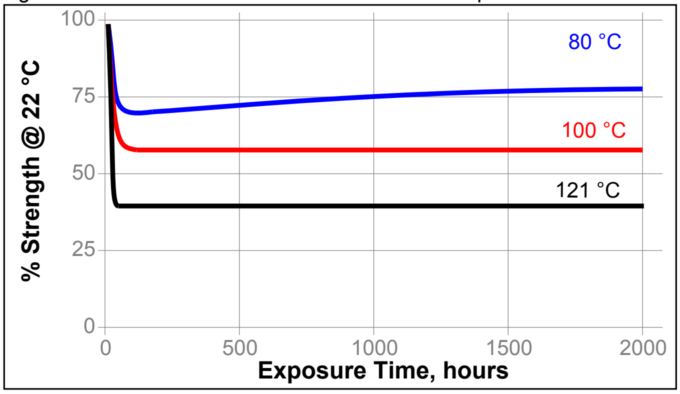
Heat Aging

Aged at temperature indicated and tested @ 22 °C



Heat Aging/Hot Strength

Aged under conditions indicated and tested at temperature



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C

		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**100 h**
Motor oil	40	105	105	105
Gasoline	22	105	100	90
Ethanol	22	105	100	100
Isopropanol	22	105	100	100
Heat/humidity 95% RH	40	90	95	100

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 October 14, 2009. 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 Henkel 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

Reference 1.7