PRODUCT DESCRIPTION
LOCTITE® 4203™ provides the following product characteristics:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Cyanoacrylate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Type</td>
<td>Ethyl cyanoacrylate</td>
</tr>
<tr>
<td>Appearance (uncured)</td>
<td>Colorless to slightly pale yellow liquid</td>
</tr>
<tr>
<td>Components</td>
<td>One part - requires no mixing</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Low</td>
</tr>
<tr>
<td>Cure</td>
<td>Humidity</td>
</tr>
<tr>
<td>Application</td>
<td>Bonding</td>
</tr>
<tr>
<td>Key Substrates</td>
<td>Rubbers, Plastics and Metals</td>
</tr>
</tbody>
</table>

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 600
Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
Physica MC100, Cone MK 22, shear rate 100 s⁻¹ 150 to 600
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.

<table>
<thead>
<tr>
<th>Substrate</th>
<th>Fixture Time, seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel (degassed)</td>
<td>10 to 20</td>
</tr>
<tr>
<td>Aluminum</td>
<td>10 to 20</td>
</tr>
<tr>
<td>ABS</td>
<td>10 to 20</td>
</tr>
<tr>
<td>SBR (smooth)</td>
<td>90 to 120</td>
</tr>
<tr>
<td>NBR</td>
<td>10 to 20</td>
</tr>
<tr>
<td>EPDM</td>
<td>45 to 55</td>
</tr>
<tr>
<td>Phenolic</td>
<td>40 to 50</td>
</tr>
</tbody>
</table>

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, N/mm² (psi):
Steel (grit blasted) 21.2 to 21.7 (3,075 to 3,145)
Aluminum 13.7 to 14.2 (1,990 to 2,060)
SBR 0.3 to 0.4 (45 to 60)
Nitrile 0.4 to 0.7 (60 to 100)
Phenolic 8.6 to 9.5 (1,250 to 1,380)
Neoprene 0.5 to 0.6 (70 to 90)

Block Shear Strength, ISO 13445:
ABS 5.4 to 5.8 (780 to 840)
Phenolic 10 to 12 (1,450 to 1,740)
G-10 Epoxy 11 to 12 (1,600 to 1,740)

Side Impact Resistance, J:
Aluminum, as received, (Isopropanol wiped) ≥4.5

Cured for 24 hours @ 22 °C, followed by 24 hours @ 121 °C, tested @ 121 °C
Lap Shear Strength, N/mm² (psi):
Steel (grit blasted) ≥5.6 (≥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) ≥18.6³/₄MS (≥2,700)

Cured for 48 hours @ 22 °C
Lap Shear Strength, :
  Steel (grit blasted)  N/mm² (psi) ≥12.4³/₄MS (≥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, :
  Mild steel (grit blasted)

Hot Strength
Tested at temperature

Heat Aging
Aged at temperature indicated and tested @ 22 °C

<table>
<thead>
<tr>
<th>Environment</th>
<th>°C</th>
<th>100 h</th>
<th>500 h</th>
<th>100 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor oil</td>
<td>40</td>
<td>105</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>Gasoline</td>
<td>22</td>
<td>105</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>Ethanol</td>
<td>22</td>
<td>105</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>22</td>
<td>105</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Heat/humidity 95% RH</td>
<td>40</td>
<td>90</td>
<td>95</td>
<td>100</td>
</tr>
</tbody>
</table>

Chemical/Solvent Resistance
Aged under conditions indicated and tested @ 22 °C

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 Specification³/₄MS
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 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

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Reference 1.6