**PRODUCT DESCRIPTION**

**LOCTITE® AA V5004™** provides the following product characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology</strong></td>
<td>Acrylic</td>
</tr>
<tr>
<td><strong>Chemical Type</strong></td>
<td>Acrylic</td>
</tr>
<tr>
<td><strong>Appearance, Resin (Component A)</strong></td>
<td>Light blue, slightly opaque&lt;sup&gt;MS&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Appearance, Hardener (Component B)</strong></td>
<td>Light pink, clear&lt;sup&gt;MS&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Components</strong></td>
<td>Two component - requires mixing</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Medium, thixotropic</td>
</tr>
<tr>
<td><strong>Cure</strong></td>
<td>Two part acrylic</td>
</tr>
<tr>
<td><strong>Mix Ratio, by volume</strong></td>
<td>1 : 1</td>
</tr>
</tbody>
</table>

| **Application**         | Bonding                                          |

**Specific Benefit**
- Fast, room temperature cure
- Clear bond lines
- Well suited for bonding clear plastics
- Excellent adhesion to plastics & metals
- Durable
- High peel & impact strength

**LOCTITE® AA V5004™** is a structural acrylic adhesive that provides toughness and excellent adhesion to plastics, metals and composites. The cured product is virtually transparent making it well suited for bonding applications requiring clear, invisible glue lines. **LOCTITE® AA V5004™** has very high shear strength and resistance to peel, fatigue, and impact loads. This product will adhere to a wide variety of surfaces including most structural thermoplastics, thermosets, FRP, stone, ceramics, steel and aluminum. **LOCTITE® AA V5004™** is useful to join dissimilar materials.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

**Part A**
- Specific Gravity @ 25 °C: 1.0
- Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP): Spindle 6, speed 10 rpm: 16,000 to 22,000<sup>MS</sup>
- Flash Point - See SDS

**Part B**
- Specific Gravity @ 25 °C: 1.0
- Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP): Spindle 5, speed 10 rpm: 15,000 to 21,000<sup>MS</sup>
- Flash Point - See SDS

**TYPICAL CURING PERFORMANCE**

This product cures rapidly when the components are dispensed through a static mixer at room temperature.

**Gel Time**
- Gel time, 25 °C, seconds: 45 to 70<sup>MS</sup>

**Fixture Time**
- Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².
- Fixture Time, mixed, minutes: Grit Blasted Mild Steel (degreased): ≤3<sup>MS</sup>

**Cure Speed vs. Substrate**

The rate of cure will depend on the substrate used. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different materials and tested according to ISO 4587.
The graph below shows the shear strength developed with time on grit blasted steel lap shears at different temperatures and tested according to ISO 4587.

Cure Speed vs. Temperature

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:
- Shore Hardness, ISO 868, Durometer D: 59
- Glass Transition Temperature (Tg), °C: 66
- Refractive Index: 1.54
- Tensile Strength, at break, ISO 527-3: N/mm² ≥12
- Tensile Modulus, ISO 527-3: N/mm² 600
- Elongation, at break, ISO 527-3, %: 5
- Coefficient of Thermal Expansion, ISO 11359-2 K⁻¹:
  - Pre Tg: 176×10⁻⁶
  - Post Tg: 207×10⁻⁶

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties:
- Cured for >16 hours @ 25 °C
  - "T" Peel Strength, ISO 11339:
    - Aluminum (grit blasted): N/mm ≥4
    - (lb/in) ≥22.8
- Cured for 24 hours @ 22 °C
  - Lap Shear Strength, ISO 4587:
    - Mild Steel (grit blasted): N/mm² 21.4
    - PVC: N/mm² 10.2
- Cured for 168 hours @ 22 °C
  - Lap Shear Strength, ISO 4587:
    - PVC: N/mm² 9
    - Stainless steel: N/mm² 16
    - Aluminum: N/mm² 13
    - ABS: N/mm² 7.5
    - Mild steel (grit blasted): N/mm² 22.5
    - Polycarbonate: N/mm² 4
    - PMMA: N/mm² 7

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 24 hours @ 22 °C
Lap Shear Strength, ISO 4587:
Mild steel (grit blasted)

<table>
<thead>
<tr>
<th>Material</th>
<th>N/mm²</th>
<th>(psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvanized Steel</td>
<td>13</td>
<td>(1,885)</td>
</tr>
<tr>
<td>FRP</td>
<td>5.6</td>
<td>(810)</td>
</tr>
<tr>
<td>Gelcoat</td>
<td>12</td>
<td>(1,740)</td>
</tr>
<tr>
<td>Block Shear Strength, ISO 13445:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polycarbonate</td>
<td>3</td>
<td>(435)</td>
</tr>
<tr>
<td>Ferrite Magnet</td>
<td>10.6</td>
<td>(1,540)</td>
</tr>
<tr>
<td>Epoxy</td>
<td>11.5</td>
<td>(1,670)</td>
</tr>
<tr>
<td>Acrylic</td>
<td>7.4</td>
<td>(1,070)</td>
</tr>
<tr>
<td>Glass</td>
<td>9</td>
<td>(1,305)</td>
</tr>
<tr>
<td>PVC (grit blasted)</td>
<td>2</td>
<td>(290)</td>
</tr>
<tr>
<td>ABS</td>
<td>7</td>
<td>(1,015)</td>
</tr>
</tbody>
</table>

Hot Strength
Tested at temperature

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

<table>
<thead>
<tr>
<th>Material</th>
<th>% Initial Strength</th>
<th>Exposure Time, hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 °C</td>
<td>130</td>
<td>1000</td>
</tr>
<tr>
<td>150 °C</td>
<td>100</td>
<td>1000</td>
</tr>
<tr>
<td>22 °C</td>
<td>100</td>
<td>1000</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Environment</th>
<th>% of initial strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Acetone</td>
<td>22</td>
</tr>
<tr>
<td>96% RH</td>
<td>40</td>
</tr>
<tr>
<td>7.5% Salt water solution</td>
<td>22</td>
</tr>
<tr>
<td>Water</td>
<td>60</td>
</tr>
<tr>
<td>Water/glycol 50/50</td>
<td>87</td>
</tr>
</tbody>
</table>

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 high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
2. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
3. Dual Cartridges: Insert the cartridge into the application gun and start the plunger into the cylinders using light pressure on the trigger. Next, remove the cartridge cap and expel a small amount of adhesive to be sure both sides are flowing evenly and freely. Attach the static mixing nozzle to the end of the cartridge and begin dispensing the adhesive. Purge and dispose of the first 3 - 5 cm from the end of the mix nozzle, as it may not be sufficiently mixed.
4. For maximum bond strength apply adhesive evenly to both surfaces to be joined.
5. Application to the substrates should be made as soon as possible. Larger quantities and/or higher temperatures will reduce the working time.
6. Join the adhesive coated surfaces and allow to cure. Higher temperatures will speed up curing.
7. Keep assembled parts from moving during cure. The bond should be allowed to develop full strength before subjecting to any service load.

Clean-up
1. Uncured material may be cleaned from dispenser components and surfaces with a variety of solvents; including LOCTITE® 7360™, LOCTITE® Equipment Flushing Solvent™, IPA, acetone, MEK, methylene chloride, etc.
2. Removal of material that has been mixed should be done quickly as polymerization occurs rapidly.
3. After use, the static mixer may be used in place of the cap.
4. When the product is reused, a new static mixer must be used.
5. Contact your equipment supplier to ensure that any solvents used are compatible with individual components.

Loctite Material Specification
LMS dated October 08, 2010 (Part A) and LMS dated November 05, 2010 (Part B). 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 Loctite Quality.

Storage
Store product in the unopened container in a dry location. Material removed from containers may be contaminated during use. Do not return liquid to original container. Storage information may be indicated on the product container labeling. Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those recommended. 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 and 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.

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Reference 0.2