**PRODUCT DESCRIPTION**

LOCTITE® AA 3060™ provides the following product characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Acrylic</td>
</tr>
<tr>
<td>Chemical Type</td>
<td>Methacrylate</td>
</tr>
<tr>
<td>Appearance, Resin (A)</td>
<td>Off-white to yellow liquid</td>
</tr>
<tr>
<td>Appearance, Hardener (B)</td>
<td>Green to blue-green liquid</td>
</tr>
<tr>
<td>Appearance (Mixture)</td>
<td>Green/Blue</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Thixotropic</td>
</tr>
<tr>
<td>Cure</td>
<td>Room temperature cure</td>
</tr>
<tr>
<td>Components</td>
<td>Two component - requires mixing</td>
</tr>
<tr>
<td>Mix Ratio - Part A:Part B</td>
<td>1:1</td>
</tr>
<tr>
<td>Solids Content</td>
<td>100%</td>
</tr>
<tr>
<td>Application</td>
<td>Bonding</td>
</tr>
</tbody>
</table>

LOCTITE® AA 3060™ is an externally mixed two-component methacrylate adhesive system designed for structural bonding of magnets in the assembly of fractional horsepower electric motors. This product may also be used for structural bonding of metals. Typical applications include bonding ferrite and rare earth magnets to metal rotors and stators as well as structural bonding of metals.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

**Part A:**
- Specific Gravity @ 25 °C: 1.1
- Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
  - Cone CP50-1 @ shear rate 1 s⁻¹: 18,000 to 45,000
  - Cone CP50-1 @ shear rate 10 s⁻¹: 6,500 to 15,000
- Flash Point - See SDS

**Part B:**
- Specific Gravity @ 25 °C: 1.09
- Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
  - Cone CP50-1 @ shear rate 1 s⁻¹: 5,600 to 18,000
  - Cone CP50-1 @ shear rate 10 s⁻¹: 2,000 to 8,600
- Flash Point - See SDS

**Mixed:**
- Specific Gravity @ 25 °C: 1.1
- Open Time @ 22 °C, seconds: ≤150

**TYPICAL CURING PERFORMANCE**

**Fixture Time**
- Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².
- Fixture Time, ISO 4587, seconds:
  - Steel, as received: 30 to 120
  - Steel (grit blasted) to Ferrite: 45
  - Mild steel to Mild steel: 50
  - Aluminum to Aluminum: 60
  - Steel (grit blasted) to Steel (grit blasted):
    - 0.05 mm gap: 30
    - 0.25 mm gap: 45

**Peak Exotherm Temperature**
- Peak Exotherm Temperature, 10 gram mass:
  - Peak Temperature Time, seconds: 140
  - Peak Temperature, °C: 95

**Cure Speed vs. Time**
- The graph below shows the shear strength developed over time at 22 °C / 50% RH on Mild Steel (degreased) and tested according to ISO 4587.

```
<table>
<thead>
<tr>
<th>Cure Time, hours</th>
<th>% of Full Strength on Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>0</td>
</tr>
<tr>
<td>5 min</td>
<td>10</td>
</tr>
<tr>
<td>10 min</td>
<td>20</td>
</tr>
<tr>
<td>30 min</td>
<td>40</td>
</tr>
<tr>
<td>1 h</td>
<td>60</td>
</tr>
<tr>
<td>3 h</td>
<td>80</td>
</tr>
<tr>
<td>6 h</td>
<td>90</td>
</tr>
<tr>
<td>24 h</td>
<td>100</td>
</tr>
</tbody>
</table>
```

*MS denotes measured value.*
TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:
- Glass Transition Temperature (Tg), °C: 104
- Shore Hardness, ISO 868, Durometer D: 77
- Coefficient of Thermal Expansion, ISO 11359-2 K⁻¹:
  - Pre Tg: 101×10⁻⁶
  - Post Tg: 163×10⁻⁶
- Linear Shrinkage, %: 2.0
- Volume Shrinkage, %: 6.0
- Elongation, at break, ISO 527-3, %: 6.4
- Tensile Strength, at break, ISO 527-3: N/mm² 36 (psi 5,330)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties:
Cured for 48 hours @ 25 °C
- Impact Strength, ISO 9653, J:
  - Steel (grit blasted) to Steel (grit blasted): >13.5
  - Steel (grit blasted) to AINiCo: >13.5
- Lap Shear Strength, ISO 4587:
  - Steel (grit blasted): N/mm² 29 (psi 4,270)
  - Aluminum (abraded): N/mm² 18 (psi 2,660)
  - Anodized Aluminum: N/mm² 17 (psi 2,480)
  - Stainless steel: N/mm² 19 (psi 2,810)
  - Zinc Galvanized: N/mm² 6 (psi 900)
  - Zinc dichromate: N/mm² 10 (psi 1,460)
  - Nylon: N/mm² 1.6 (psi 240)
  - Steel (grit blasted) to Ferrite: N/mm² 13 (psi 1,830)
  - Steel (grit blasted) to AINiCo: N/mm² 18 (psi 2,700)
  - Steel (grit blasted) to Neodymium: N/mm² 15 (psi 2,200)
  - Steel (grit blasted) to Samarium Cobalt: N/mm² 8 (psi 1,230)
- Block Shear Strength, ISO 13445:
  - PVC: N/mm² 0.7 (psi 110)
  - ABS: N/mm² 0.3 (psi 50)
  - Epoxy: N/mm² 2.7 (psi 400)
  - Acrylic: N/mm² 0.5 (psi 70)
  - Glass: N/mm² 8.8 (psi 1,275)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 48 hours @ 22 °C
Lap Shear Strength, ISO 4587:
Steel (grit blasted)

<table>
<thead>
<tr>
<th>Temperature, °C</th>
<th>% Strength @ 22 °C</th>
<th>% Strength @ 22 °C</th>
<th>% Strength @ 22 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>177</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Time, hours</th>
<th>% Strength @ 22 °C</th>
<th>% Strength @ 22 °C</th>
<th>% Strength @ 22 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>70</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>750</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Environment</th>
<th>°C</th>
<th>500 h</th>
<th>1000 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>87</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Motor oil (10W30)</td>
<td>87</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Unleaded gasoline</td>
<td>87</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Water/glycol</td>
<td>87</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>Water immersion</td>
<td>87</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Acetone</td>
<td>22</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>22</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Diesel fuel</td>
<td>22</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Salt fog</td>
<td>22</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Condensing Humidity</td>
<td>49</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>95% RH</td>
<td>38</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>85% RH</td>
<td>85</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

For the most direct access to local sales and technical support visit: www.henkel.com/industrial
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. Bulk Containers: Normally material is dispensed through an external mix dispensing system. This system consists of two dispense tips that are closely positioned approximately 1.6 mm apart such that when product is dispensed, the two components mix in the air as the adhesive falls on the part. Minimum height of the dispense tips above the part is 15 cm, with best results achieved when a height of 30 cm is used. Optimal dispense angle (from horizontal) of dispense value is 60°. The product will cure when the mix ratio is between 1:2 and 2:1 parts A:B. However, the varying the mix ratio from 1:1 may affect cure speed and ultimate strength and should be verified.
4. Static mix tips are not needed to adequately mix this class of material.
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.
8. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Loctite Material Specification
LMS dated April 03, 2008 (Part A) and LMS dated January 16, 2008 (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
The product is classified as flammable and must be stored in an appropriate manner in compliance with relevant regulations. Do not store near oxidizing agents or combustible materials. Store product in the unopened container in a dry location. Storage information may also be indicated on the product container labelling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel 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.

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