Materials for MICRO-ELECTRO-MECHANICAL SYSTEMS (MEMS)
When one considers the average smartphone contains approximately eight to 10 MEMS – a number which is projected to grow in the coming years – one gets a sense for the breadth of MEMS applications. The ability to design, test and commercialize new MEMS devices quickly is critical to a MEMS manufacturer’s market competitiveness. In order to meet the average three-to-six month cycle time, MEMS manufacturers need to leverage proven materials solutions that are market-ready, market-tested and supported globally to facilitate multi-site design and manufacturing.

For trusted, proven MEMS materials, a full-solutions approach, quick materials delivery for fast production ramp-up, supply chain simplification, global support and capability, along with an expert, knowledgeable team, Henkel is the obvious – and only – choice.
**MEMS Application Overview**

*Microphones, Pressure Sensors*
Henkel has a full portfolio of proven materials for a range of processes from die attach to underfill to lid attach and glob top. And Henkel’s global support structure ensures quick delivery of Henkel materials around the globe for just about any MEMS application.

**MEMS Application Overview**

*Accelerometers, Gyroscopes, Magnetometers*
Henkel provides multiple materials for quick evaluation and testing. This, combined with Henkel’s global infrastructure, ensures expert on-site worldwide technical support.
## Henkel's MEMS Material Portfolio

<table>
<thead>
<tr>
<th>Application</th>
<th>Products</th>
<th>Description</th>
<th>Modulus at 25°C (MPa)</th>
<th>Modulus at 250°C (MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASIC Attach or MEMS Attach</strong></td>
<td><strong>Non-Conductive Paste</strong></td>
<td><strong>LOCTITE® ABLESTIK QMI536NB</strong></td>
<td>Low stress and low moisture absorption, no bleed</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK QMI538NB</strong></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK ABP 8142B</strong></td>
<td>Ultra low stable modulus across reflow temperature</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td><strong>Non-Conductive Paste Print B-Stage</strong></td>
<td><strong>LOCTITE® ABLESTIK 8006NS</strong></td>
<td>B-stageable, wafer backside coating, fillet control</td>
<td>4,400</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK 6202CX</strong></td>
<td>B-stageable, printed BOC, fillet control</td>
<td>900</td>
</tr>
<tr>
<td><strong>ASIC Attach</strong></td>
<td><strong>Non-Conductive Film B-Stage</strong></td>
<td><strong>LOCTITE® ABLESTIK ATB F125E</strong></td>
<td>DDAF, compatible with non-UV and UV dicing tape, very good laser / SDBG performance, suitable for &lt; 3 mm x 3 mm die</td>
<td>5,256</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK ATB 120HA</strong></td>
<td>Low modulus DDAF, laser &amp; stealth dice able, suitable for &gt; 3 mm x 3 mm die</td>
<td>2,299</td>
</tr>
<tr>
<td><strong>ASIC Attach or MEMS Attach</strong></td>
<td><strong>Conductive Paste</strong></td>
<td><strong>LOCTITE® ABLESTIK ABP 8060T</strong></td>
<td>High thermal and electrical conductivity, high die shear strength</td>
<td>6,230</td>
</tr>
<tr>
<td></td>
<td><strong>LOCTITE® ABLESTIK 8290</strong></td>
<td></td>
<td>High reliability and good adhesion on different surfaces</td>
<td>3,034</td>
</tr>
<tr>
<td><strong>Lid or Cap Attach</strong></td>
<td><strong>Non-Conductive Paste</strong></td>
<td><strong>LOCTITE® ABLESTIK 3128</strong></td>
<td>Low cure temperature and good adhesion on different surfaces including LCP</td>
<td>3,900</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK 8387B</strong></td>
<td>High adhesion, fast cure, low weight loss</td>
<td>1,400</td>
</tr>
<tr>
<td><strong>Lid or Cap Attach</strong></td>
<td><strong>Conductive Paste</strong></td>
<td><strong>LOCTITE® ABLESTIK CE3920</strong></td>
<td>Sn compatible, stable adhesion after 5X reflow, low weight loss</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK ABP 2032S</strong></td>
<td>High adhesion on Au and steel, low temperature curable</td>
<td>4,600</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK 84-1LMISR4</strong></td>
<td>Good adhesion on different surfaces</td>
<td>3,900</td>
</tr>
<tr>
<td><strong>Lid or Cap Attach</strong></td>
<td><strong>Conductive Paste Print B-stage</strong></td>
<td><strong>LOCTITE® ABLESTIK 8007</strong></td>
<td>Stencil printable, B-stageable, good thermal and electrical conductivity</td>
<td>5,792</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® ABLESTIK 8008MD</strong></td>
<td></td>
<td>3,880</td>
</tr>
<tr>
<td><strong>Lid or Cap Attach</strong></td>
<td><strong>Solder Paste</strong></td>
<td><strong>LOCTITE® GC 10</strong></td>
<td>Pb-free, no-clean, halogen-free, RT storage, long term stability</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Glob Top</strong></td>
<td><strong>Non-Conductive Liquid</strong></td>
<td><strong>LOCTITE® ECCOBOND FP 4802</strong></td>
<td>Good flow, 260°C compatible</td>
<td>13,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOCTITE® STYCAST EO 1058</strong></td>
<td>High T&lt;sub&gt;g&lt;/sub&gt;, low CTE</td>
<td>4,800</td>
</tr>
<tr>
<td><strong>Underfill</strong></td>
<td><strong>Non-Conductive Liquid</strong></td>
<td><strong>LOCTITE® ECCOBOND UF 8830S</strong></td>
<td>Good flow with self filleting, bleeding control, 260°C compatible</td>
<td>11,500</td>
</tr>
<tr>
<td></td>
<td><strong>Non-Conductive Paste</strong></td>
<td><strong>LOCTITE® ECCOBOND FP 5201</strong></td>
<td>Self fluxing, high T&lt;sub&gt;g&lt;/sub&gt;, low CTE</td>
<td>5,800</td>
</tr>
</tbody>
</table>