Low Pressure Molding Solutions
**PROCESS**

**TRADITIONAL POTTING PROCESS FLOW**

1. MOLD CASE
2. PALLETIZE
3. INSERT ELECTRONICS
4. PRE-HEAT
5. ENCAPSULATE
6. SETTLING OR VACUUM
7. CURE
8. TEST

**LOW PRESSURE PROCESS FLOW**

1. INSERT ELECTRONICS
2. OVERMOLD
3. TEST

**KEY BENEFITS**

**DESIGN**
- Additive design allows for alternative solutions (simplified process vs. traditional technologies)
- “Sky Lining” allows use of less material, precise encapsulation and less weight
- Functional design removes process steps
- Improved look and image

**PROCESS**
- Reduces total cost of ownership (TCOO)
- Increased throughput
- Low capital equipment costs and reduced footprint
- Low viscosity materials allow for low injection pressures

**PRODUCTS**
- Adhesion to multiple surfaces
- Complete watertight encapsulation
- Safe, 1-component, UL 94-V0 approved
- High temperature resistance
- Compliant materials suitable for sensitive electronic components
- Less handling and shorter process
- No cure process required

**SUSTAINABILITY**
- Zero waste
- All excess material and scrap are recyclable
- Natural ingredients

Through the combination of Product, Process and Design, Low Pressure Molding with TECHNOMELT® delivers customers an advanced and environmentally sustainable solution to Circuit Board Protection.
OVERVIEW
LOW PRESSURE MOLDING

Henkel's renowned TECHNOMELT® low pressure molding solution is delivering superior sealing adhesion and excellent temperature and solvent resistance. The simplicity of these materials is their advantage: because the entire TECHNOMELT® operation takes place at low pressure, cycle time is short and fine or fragile circuitry is not damaged, delivering measurable improvements over that of traditional potting or encapsulating processes. PCB and circuitry protection is essential in modern, challenging applications, and Henkel delivers manufacturers proven, reliable solutions and peace of mind.

WHAT IS TECHNOMELT®?

An innovative technology to serve the increasing demands for circuit board protection in the electronics market. Its low pressure and high speeds are suitable for sensitive electronic components in manufacturing environments. The technology allows for unique design beyond the form/fit/function of traditional encapsulating materials.

APPLICATIONS

- Automotive Sensors
- Switches
- Engine Control Units
- Lighting Display Boards
- Micro-Inverters
- Power Regulators
- Industrial Sensors
- Medical Sensors
TECHNOMELT® Low Pressure Molding was used to overmold the product below; these photos illustrate the production process from start to finish.

**ASSEMBLY MATERIALS**

**PCB PROTECTION / LOW PRESSURE MOLDING**
## Polyamide: High Temperature Resistance

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>FORMER NAME</th>
<th>DESCRIPTION</th>
<th>COLOR</th>
<th>PERFORMANCE TEMPERATURE</th>
<th>SHORE A HARDNESS</th>
<th>SOFTENING POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECHNOMELT® PA 673</td>
<td>MACROMELT OM 673</td>
<td>Moldable polyamide with good adhesion for higher temperature applications, such as in an automotive under-hood.</td>
<td>Amber</td>
<td>-40°C TO 140°C</td>
<td>90</td>
<td>187°C ± 5°C</td>
</tr>
<tr>
<td>TECHNOMELT® PA 678</td>
<td>MACROMELT OM 678</td>
<td>Moldable polyamide for the most demanding high humidity applications, such as on the inside of an automobile tire. Formulated for very low water vapor transmission.</td>
<td>Amber</td>
<td>-40°C TO 140°C</td>
<td>88</td>
<td>188°C ± 5°C</td>
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## Polyamide: Adhesion to Plastics

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<tr>
<td>TECHNOMELT® PA 633</td>
<td>MACROMELT OM 633</td>
<td>Moldable polyamide with service temperature up to 130°C, such as in an automotive firewall.</td>
<td>Amber</td>
<td>-40°C TO 130°C</td>
<td>90</td>
<td>175°C ± 5°C</td>
</tr>
<tr>
<td>TECHNOMELT® PA 638</td>
<td>MACROMELT OM 638</td>
<td>Moldable polyamide, where excellent adhesion and cold temperature flexibility are important, such as in an automotive exterior. Also used extensively in white goods.</td>
<td>Black</td>
<td>-40°C TO 100°C</td>
<td>77</td>
<td>151°C ± 5°C</td>
</tr>
<tr>
<td>TECHNOMELT® PA 652</td>
<td>MACROMELT OM 652</td>
<td>Moldable polyamide with excellent adhesion to tough substrates. Great flexibility offers incredible strain relief on cables and wires. Ideal for encapsulation of heat-producing components in appliance and consumer electronics, UL RTI 95°C.</td>
<td>Amber</td>
<td>-40°C TO 100°C</td>
<td>78</td>
<td>155°C ± 5°C</td>
</tr>
<tr>
<td>TECHNOMELT® PA 657</td>
<td>MACROMELT OM 657</td>
<td>Moldable polyamide with excellent adhesion to tough substrates. Great flexibility offers incredible strain relief on cables and wires. Ideal for encapsulation of heat-producing components in appliance and consumer electronics, UL RTI 95°C.</td>
<td>Black</td>
<td>-40°C TO 100°C</td>
<td>78</td>
<td>155°C ± 5°C</td>
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## Polyamide: Increased Hardness

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<tr>
<td>TECHNOMELT® PA 341</td>
<td>MACROMELT OM 341</td>
<td>High performance thermoplastic polyamide designed to offer safety blaze orange color for easy identification of components. Typically used to encapsulate high voltage modules.</td>
<td>Safety Blaze Orange</td>
<td>-25°C TO 125°C</td>
<td>92</td>
<td>173°C ± 5°C</td>
</tr>
<tr>
<td>TECHNOMELT® PA 641</td>
<td>MACROMELT OM 641</td>
<td>Moldable polyamide, where strength and hardness are needed, such as in memory sticks and computer connectors.</td>
<td>Amber</td>
<td>-40°C TO 130°C</td>
<td>92</td>
<td>175°C ± 5°C</td>
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## Polyamide: Solvent Resistant

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<tr>
<td>TECHNOMELT® PA 2384</td>
<td>N/A</td>
<td>Thermoplastic hot melt adhesive based on polyamide chemistry. Exhibits good adhesion to filter papers, excellent heat resistance and excellent resistance against gasoline containing 20% alcohol as well as many other solvents or chemicals.</td>
<td>Opaque Light Amber</td>
<td>-20°C TO 175°C</td>
<td>65-75</td>
<td>189°C ± 7°C</td>
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## Polyamide: UV Resistant

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<tr>
<td>TECHNOMELT® PA 668</td>
<td>N/A</td>
<td>Thermoplastic hot melt adhesive based on polyamide chemistry. Exhibits a crisp bright white color with excellent UV stability and is ideal for outdoor use as well as LED applications. Good adhesion to a range of substrates.</td>
<td>White</td>
<td>-25°C TO 130°C</td>
<td>90</td>
<td>155°C ± 5°C</td>
</tr>
<tr>
<td>TECHNOMELT® PA 6344</td>
<td>N/A</td>
<td>High performance UV-resistant thermoplastic hot melt adhesive based on polyamide chemistry. Exhibits good adhesion to a variety of substrates including fabrics, plastic, leather, glass, metals, wood, ABS and flexible vinyl.</td>
<td>Black</td>
<td>20°C TO 100°C</td>
<td>76</td>
<td>147°C ± 9°C</td>
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## Polyolefin: Excellent Adhesion to Metals, Plastics, Tough Surfaces

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<tr>
<td>TECHNOMELT® AS 5375</td>
<td>MACROMELT MM Q-5375</td>
<td>Moldable polyolefin for demanding moisture and solvent resistance. Excellent adhesion to the most difficult substrates. Compatible with a secondary overmold with a harder polyamide.</td>
<td>Opaque White</td>
<td>-30°C TO 100°C</td>
<td>55</td>
<td>139°C ± 5°C</td>
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