ThermaCool® Thermal Interface Products
Gap Fillers

Saint-Gobain® has launched a proprietary line of highly compliant gap fillers designed to meet the needs of smaller, high performance electronic circuitry. These new gap fillers provide an outstanding heat transfer interface across a range of component heights with minimal compression force.

- Available in a range of thicknesses from 20 mils to 280 mils
- Intrinsically tacky surfaces for excellent self-adhesion
- Available with various surfaces (no-stick, fabric) for specific application needs and a range of compliance and thermal conductivities to fit specific applications
- UL94 V-0 flame retardancy & RTI 150°C rating
- Available in Large 24” × 24” sheet sizes for improved die-cutting yield with custom sizes available

Product Features

TC2006
- Soft and compliant gap filler with good thermal performance
- Excellent balance between thermal conductivity (1.6 W/mK) and compression force

TC2007G
- Economical, highly compliant gap filler useful for many applications
- Thermal conductivity = 1.6 W/mK
- Fabric and high cohesion provides good die cut workability & ability to take higher load

TC3006
- Outstanding compression performance allows for 45-50% compression without exceeding 15psi on components
- Best in class blend of thermal conductivity (1.1 W/mK) and compression pressure
- Useful when extreme differences in component heights are found, requiring large compression ratios with very low component pressures

TC3008
- High performance gap filler with excellent thermal conductivity (3 W/mK) while maintaining exceptional compression latitude
- Provides best in class thermal performance where large component height differences are found
**TC2006**

**Features**
- Highly compliant gap filler with excellent balance between thermal conductivity and softness
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

**Benefits**
- Soft and compliant gap filler with good thermal performance
- Suitable to use in sensitive applications such as telecom and aerospace
- Able to tailor product to specific applications

### Typical Properties of TC2006

<table>
<thead>
<tr>
<th>Property</th>
<th>TC2006</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Light Purple</td>
<td>Visual</td>
</tr>
<tr>
<td>Total Thickness, nominal (mm) (1)</td>
<td>0.5-7.0</td>
<td>ASTM D374</td>
</tr>
<tr>
<td>Density (g/cc)</td>
<td>1.83</td>
<td>ASTM D792</td>
</tr>
<tr>
<td>Hardness (Shore 00)</td>
<td>50</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>Continuous Use Temp (°F) / (°C)</td>
<td>-65°F to 392°F / -54°C to 200°C</td>
<td>—</td>
</tr>
<tr>
<td>100mil, 50% Deflection Force (psi)</td>
<td>36</td>
<td>—</td>
</tr>
</tbody>
</table>

**Electrical**
- Voltage Breakdown (VAC) > 5000 ASTM D149
- Volume resistivity (ohm-cm) $1.02 \times 10^{11}$ ASTM D257
- Flame Rating V-0 UL94

**Thermal**
- Thermal Impedance (°C-in²/W) 100mil (2) 1.72 ASTM D5470
- Thermal conductivity (W/m-K) 1.6 ASTM D5470

1) 0.5 mm increments. 2) Deflection 30% strain
*All properties are typical values and should not be used for writing specifications. Data reflects non-supported option.

![Graph](image-url)
**TC2007G**

**Features**
- Economical gap filler suitable for a wide range of critical applications
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

**Benefits**
- Cost effective gap filler solution for many applications
- Improved die cutting and part stability while handling
- High cohesion for higher load applications

### Typical Properties of TC2007G

<table>
<thead>
<tr>
<th>Property</th>
<th>TC2007G</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Light Orange</td>
<td>Visual</td>
</tr>
<tr>
<td>Total Thickness, nominal (mm) (1)</td>
<td>0.5-7.0</td>
<td>ASTM D374</td>
</tr>
<tr>
<td>Density (g/cc)</td>
<td>1.85</td>
<td>ASTM D792</td>
</tr>
<tr>
<td>Hardness (Shore 00)</td>
<td>60</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>Continuous Use Temp (°F) / (°C)</td>
<td>-65°F to 392°F / -54°C to 200°C</td>
<td>—</td>
</tr>
<tr>
<td>100mil, 50% Deflection Force (psi)</td>
<td>67</td>
<td>—</td>
</tr>
</tbody>
</table>

**Electrical**
- Voltage Breakdown (VAC) > 5000 ASTM D149
- Volume resistivity (ohm-cm) 1.1 x 10¹⁰ ASTM D257
- Flame Rating V-0 UL94

**Thermal**
- Thermal Impedance (°C-in²/W) 100mil (2) 1.84 ASTM D5470
- Thermal conductivity (W/m-K) 1.6 ASTM D5470

1). 0.5 mm increments. 2). Deflection 30% strain
*All properties are typical values and should not be used for writing specifications. Data reflects non-supported option.

**TC2007G 100 mils**

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Saint-Gobain Tape Solutions
**TC3006**

**Features**
- Extremely soft gap filler with best in class compliance
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

**Benefits**
- Able to compress to over 45% with 15psi compression force
- Suitable to use in sensitive applications such as telecom and aerospace
- Able to tailor product to specific applications

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### Typical Properties of TC3006

<table>
<thead>
<tr>
<th>Property</th>
<th>TC3006</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Light Green</td>
<td>Visual</td>
</tr>
<tr>
<td>Total Thickness, nominal (mm) (1)</td>
<td>0.5-7.0</td>
<td>ASTM D374</td>
</tr>
<tr>
<td>Density (g/cc)</td>
<td>1.78</td>
<td>ASTM D792</td>
</tr>
<tr>
<td>Hardness (Shore 00)</td>
<td>35</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>Continuous Use Temp (°F) / (°C)</td>
<td>-65°F to 392°F / -54°C to 200°C</td>
<td>—</td>
</tr>
<tr>
<td>100mil, 50% Deflection Force (psi)</td>
<td>15</td>
<td>—</td>
</tr>
</tbody>
</table>

**Electrical**
- Voltage Breakdown (VAC) > 5000 ASTM D149
- Volume resistivity (ohm-cm) 2.03 x 10^10 ASTM D257
- Flame Rating V-0 UL94

**Thermal**
- Thermal Impedance (°C-in²/W) 100mil (2) 2.51 ASTM D5470
- Thermal conductivity (W/m-K) 1.1 ASTM D5470

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1). 0.5 mm increments. 2). Deflection 30% strain

*All properties are typical values and should not be used for writing specifications. Data reflects non-supported option.*
**TC3008**

**Features**
- High performance gap filler with 3W/m-K conductivity and excellent compliance
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

**Benefits**
- Useful for higher conductivity applications where compression is more than 10%
- Suitable to use in sensitive applications such as telecom and aerospace
- Able to tailor product to specific applications

### Typical Properties of TC3008

<table>
<thead>
<tr>
<th>Property</th>
<th>TC3008</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Light Blue</td>
<td>Visual</td>
</tr>
<tr>
<td>Total Thickness, nominal (mm) (1)</td>
<td>0.5-7.0</td>
<td>ASTM D374</td>
</tr>
<tr>
<td>Density (g/cc)</td>
<td>2.85</td>
<td>ASTM D792</td>
</tr>
<tr>
<td>Hardness (Shore 00)</td>
<td>65</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>Continuous Use Temp (°F / °C)</td>
<td>-65°F to 392°F / -54°C to 200°C</td>
<td>—</td>
</tr>
<tr>
<td>100mil, 50% Deflection Force (psi)</td>
<td>36</td>
<td>—</td>
</tr>
</tbody>
</table>

**Electrical**

- Voltage Breakdown (VAC) > 5000 ASTM D149
- Volume resistivity (ohm-cm) 2.0 × 10^14 ASTM D257
- Flame Rating V-0 UL94

**Thermal**

- Thermal Impedance (°C-in²/W) 100mil (2) 0.92 ASTM D5470
- Thermal conductivity (W/m-K) 3.0 ASTM D5470

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1). 0.5 mm increments.  2). Deflection 30% strain
*All properties are typical values and should not be used for writing specifications. Data reflects non-supported option.

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![Stress vs. % Deflection, 1min. Dwell](image)

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![Thermal impedance vs. % Deflection](image)
Gap Filler Selection Guide

**ThermaCool TC Series Soft Ceramic-Filled Silicone Elastomers**

**Saint-Gobain ThermaCool** TC Series is an economical, soft ceramic-filled silicone elastomer typically supplied with a PET release liner on both sides. The product is intrinsically tacky and has excellent compression performance over a wide range of stack up tolerances with minimal force applied to component parts. TC Series can be supplied with a fabric or film on one side for additional support during handling and assembly. With UL 94 V-0 & RTI 150°C certification, the product can be used in critical applications without flame concern.

<table>
<thead>
<tr>
<th>Color</th>
<th>TC2006</th>
<th>TC2007G</th>
<th>TC3006</th>
<th>TC3008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Property/Specialty</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Type</td>
<td>• Balanced softness &amp; performance</td>
<td>• High cohesion</td>
<td>• Extremely soft</td>
<td>• High thermal conductivity</td>
</tr>
<tr>
<td>Balanced softness &amp; performance</td>
<td>• Moderate compressibility</td>
<td>• High compressibility</td>
<td>• Moderate compressibility</td>
<td>• High compressibility</td>
</tr>
<tr>
<td>Good compressibility</td>
<td>• Sticky surface</td>
<td>• Sticky surface</td>
<td>• Sticky surface</td>
<td>• Sticky surface</td>
</tr>
<tr>
<td>Sticky surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Thermal Conductivity</strong></td>
<td>1.6 W/mK</td>
<td>1.6 W/mK</td>
<td>1.1 W/mK</td>
<td>3.0 W/mK</td>
</tr>
<tr>
<td>100mil, 50% Deflection Force (psi)</td>
<td>36</td>
<td>67</td>
<td>15</td>
<td>36</td>
</tr>
<tr>
<td>Structure</td>
<td>PET release liner on both sides (Fabric supports 0.5mmT product as reinforcement)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>0.5 - 7.0mm (Contact us for any customization request)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension</td>
<td>305mm × 305mm / 305mm × 610mm 610mm × 610mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td>UL 94 V-0 Flame Resistance; RTI 150°C Rating; RoHS Certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>• LCD display</td>
<td>• Notebook, Desktop, IPC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Power supplier</td>
<td>• Server storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Automobile electronics</td>
<td>• Heat pipe thermal solution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Test method: ASTM D5470*
Other ThermaCool Products

Thermally Conductive Gap Fillers

• **R10404**: Thermally conductive closed cell sponge for gasketing, heat transfer and cushioning.

• **TC100**: Thermally conductive solid silicone rubber for filling air gaps under high load force.

• **TC100U**: Similar to TC100 but supplied in uncured configuration to fill gaps and bond dissimilar materials.

Thermally Conductive Tapes

• **KAPTON® Tapes**: Thermally conductive and electrically isolating.
  — **K271**: One-side adhesive coated Kapton MT tape
  — **K275**: Two-side adhesive coated Kapton MT tape

• Thermally Conductive Transfer Adhesives
  — **TR3**: Thermally conductive acrylic adhesives.

Thermally Conductive Coated Fabrics

• **TF1870 Series**: Similar to TF400Series but improved thermal performance.

• **TF1860 Series**: Lowest cost thermally conductive silicone coated fabric.
  — All products can be supplied acrylic adhesive on one side.

IMPORTANT: It is the user’s responsibility to ensure the suitability and safety of Saint-Gobain products for all intended uses and that the materials to be used comply with all applicable regulatory requirements. Saint-Gobain assumes no responsibility for any product failures that occur due to misuse of the materials it provides arising out of the design, fabrication or application of the products into which the materials are incorporated.

WARRANTY: For a period of 6 months, Saint-Gobain warrants this product(s) to be free from defects in manufacturing. The only obligation under any applicable product warranty will be to replace any portion proving defective, or at our option, to refund the purchase price thereof. SAINT-GOBAIN DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.