THERMACOOL®

# ThermaCool® Thermal Interface Products

SAINT-GOBAIN

# Gap Fillers

**Saint-Gobain**® has launched a proprietary line of highly compliant gap fillers intended to meet the needs of smaller, high performance electronic circuitry. These new gap fillers are manufactured by **Saint-Gobain** Performance Plastics Corporation, Tape Solutions business, and are intended to 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 (0.5 mm to 7 mm)
- 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

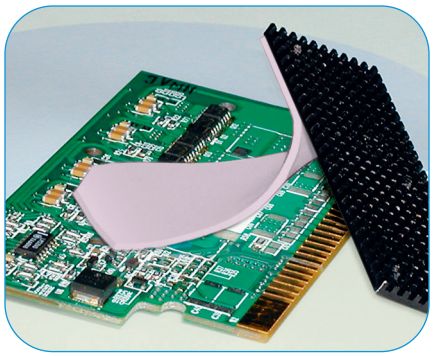
- Economical, highly compliant gap filler useful for many applications
- Thermal conductivity = 1.6 W/mK
- Fabric and high cohesion provides good die cut workability & ability to take higher load

### TC3006S

- Outstanding compression performance allows for 45–50% compression without exceeding 15 psi on components
- Best in class blend of thermal conductivity (1.4 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

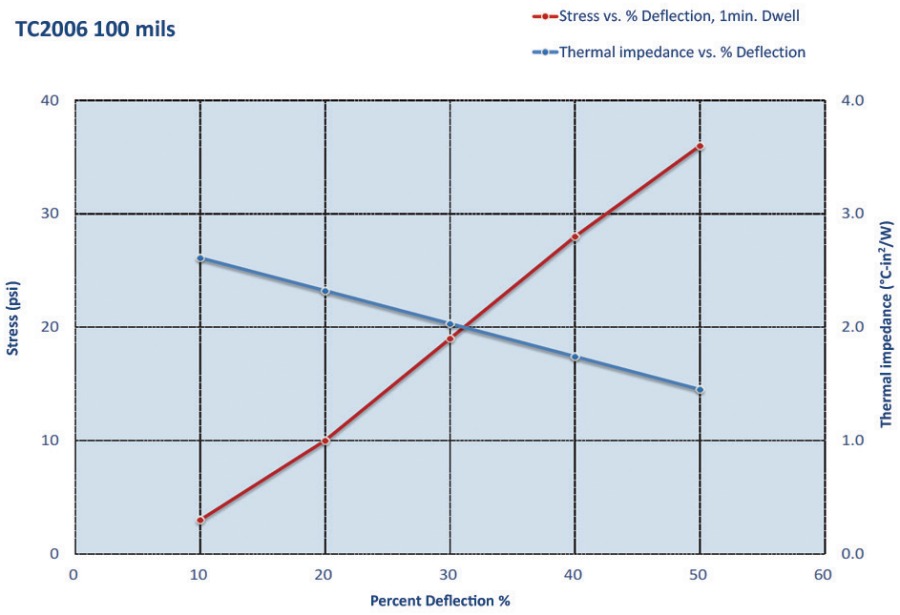
- Highly compliant gap filler with excellent balance between thermal conductivity and softness
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

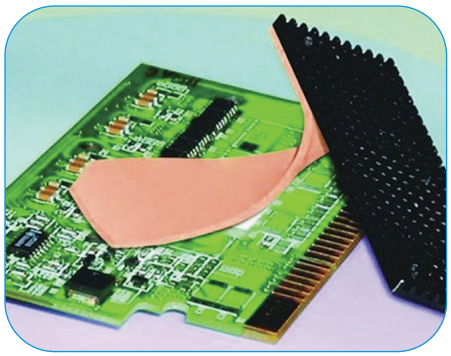
## Benefits

- 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 | | |
|---|---|---|
| **Property** | **TC2006** | **Test Method** |
| Color | Light Purple | Visual |
| Total Thickness, nominal (mm) (1) | 0.5-7.0 | ASTM D374 |
| Density (g/cc) | 1.94 | ASTM D792 |
| Hardness (Shore 00) | 40 | ASTM D2240 |
| Continuous Use Temp (°F) / (°C) | -65°F to 392°F / -54°C to 200°C | — |
| 100mil, 50% Deflection Force (psi) | 30 | — |
| **Electrical** | | |
| Voltage Breakdown (VAC) | > 5000 | ASTM D149 |
| Volume resistivity (ohm-cm) | $1.8 \times 10^{10}$ | ASTM D257 |
| Flame Rating | V-0 | UL94 |
| **Thermal** | | |
| Thermal Impedance (°C-in²/W) 100mil (2) | 2.03 | 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

## Features

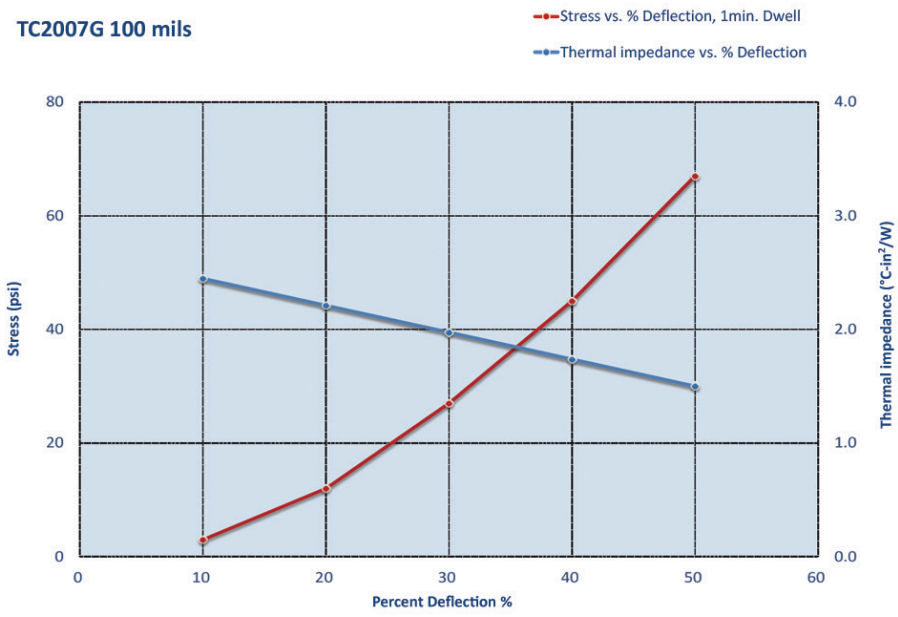
- Economical gap filler suitable for a wide range of critical applications
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

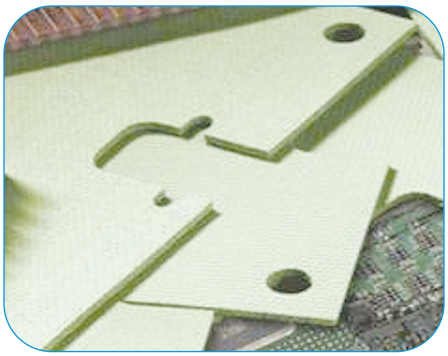
## Benefits

- 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 | | |
|---|---|---|
| **Property** | **TC2007G** | **Test Method** |
| Color | Light Orange | Visual |
| Total Thickness, nominal (mm) (1) | 0.5-7.0 | ASTM D374 |
| Density (g/cc) | 2.0 | ASTM D792 |
| Hardness (Shore 00) | 50 | ASTM D2240 |
| Continuous Use Temp (°F) / (°C) | -65°F to 392°F / -54°C to 200°C | — |
| 100mil, 50% Deflection Force (psi) | 67 | — |
| **Electrical** | | |
| Voltage Breakdown (VAC) | > 5000 | ASTM D149 |
| Volume resistivity (ohm-cm) | $1.02 \times 10^{10}$ | ASTM D257 |
| Flame Rating | V-0 | UL94 |
| **Thermal** | | |
| Thermal Impedance (°C-in²/W) 100mil (2) | 1.97 | 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.





# TC3006S

## Features

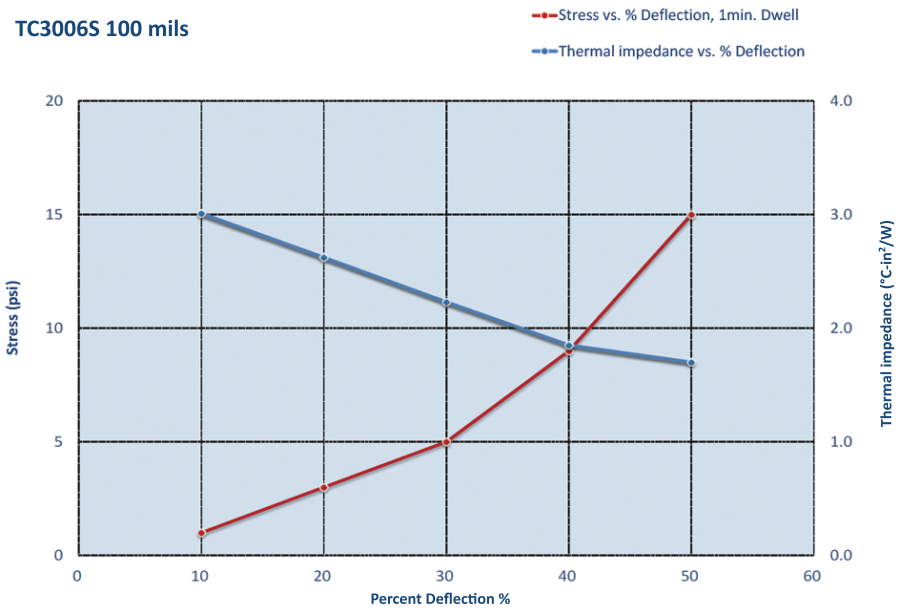
- Extremely soft gap filler with best in class compliance
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

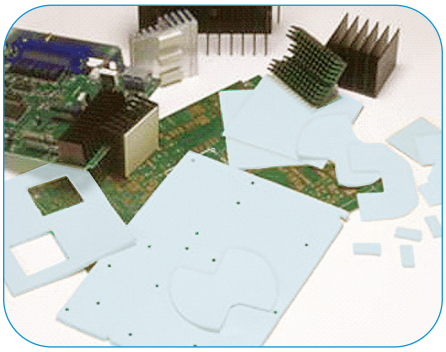
## Benefits

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

| Typical Properties of TC3006S | | |
|---|---|---|
| **Property** | **TC3006S** | **Test Method** |
| Color | Light Green | Visual |
| Total Thickness, nominal (mm) (1) | 0.5-7.0 | ASTM D374 |
| Density (g/cc) | 1.88 | ASTM D792 |
| Hardness (Shore 00) | 30 | ASTM D2240 |
| Continuous Use Temp (°F) / (°C) | -65°F to 392°F / -54°C to 200°C | — |
| 100mil, 50% Deflection Force (psi) | 15 | — |
| **Electrical** | | |
| Voltage Breakdown (VAC) | > 5000 | ASTM D149 |
| Volume resistivity (ohm-cm) | $1.5 \times 10^{10}$ | ASTM D257 |
| Flame Rating | V-0 | UL94 |
| **Thermal** | | |
| Thermal Impedance (°C-in²/W) 100mil (2) | 2.23 | ASTM D5470 |
| Thermal conductivity (W/m-K) | 1.4 | 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.





# TC3008

## Features

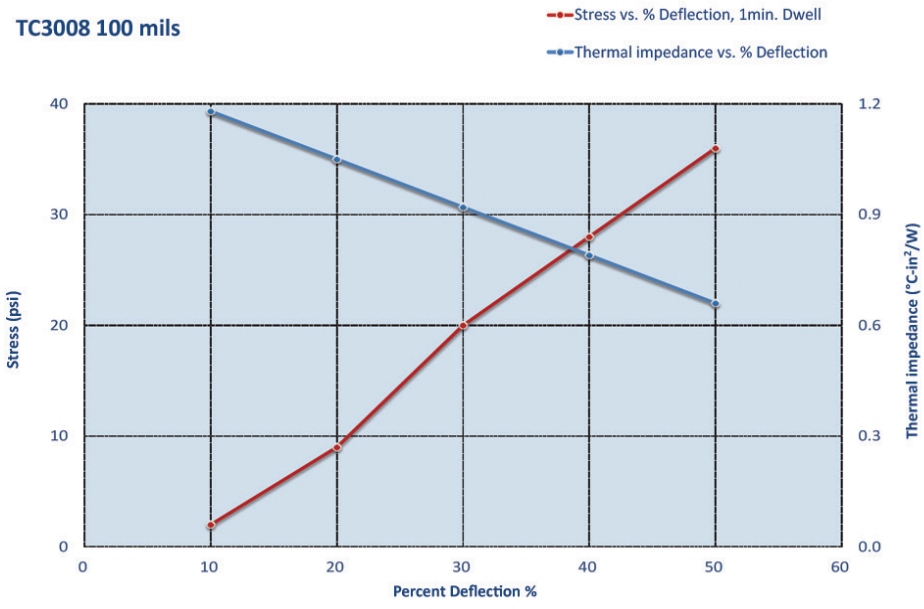
- High performance gap filler with 3W/m-K conductivity and excellent compliance
- Intrinsically tacky material, no adhesive required
- RoHS compliant; UL94 V-0 flame retardancy & RTI 150°C rating
- Multiple surfaces available (tacky, non-tacky, fabric reinforced)

## 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 | | |
|---|---|---|
| **Property** | **TC3008** | **Test Method** |
| Color | Light Blue | Visual |
| Total Thickness, nominal (mm) (1) | 0.5-7.0 | ASTM D374 |
| Density (g/cc) | 2.85 | ASTM D792 |
| Hardness (Shore 00) | 65 | ASTM D2240 |
| Continuous Use Temp (°F) / (°C) | -65°F to 392°F / -54°C to 200°C | — |
| 100mil, 50% Deflection Force (psi) | 36 | — |
| **Electrical** | | |
| Voltage Breakdown (VAC) | > 5000 | ASTM D149 |
| Volume resistivity (ohm-cm) | $3.5 \times 10^{11}$ | 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 |

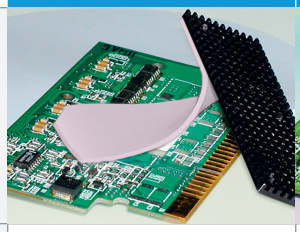
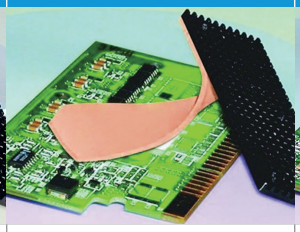
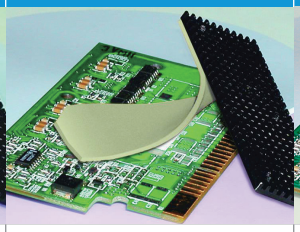
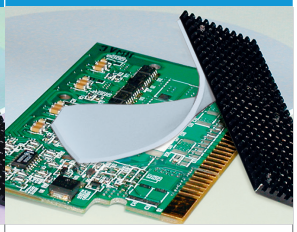
1). 0.5 mm increments. 2). Deflection 30% strain
*All properties are typical values and should not be used for writing specifications.
Data reflects non-supported option.



# 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.

| | TC2006 | TC2007G | TC3006S | TC3008 |
|---|---|---|---|---|
| Color |  |  |  |  |
| Product Property/ Specialty | • General Type<br>• Balanced softness & performance<br>• Good compressibility<br>• Sticky surface | • High cohesion<br>• Moderate compressibility<br>• Sticky surface | • Extremely soft<br>• High compressibility<br>• Sticky surface | • High thermal conductivity<br>• Moderate compressibility<br>• Sticky surface |
| Thermal Conductivity* | 1.6 W/mK | 1.6 W/mK | 1.4 W/mK | 3.0 W/mK |
| 100mil, 50% Deflection Force (psi) | 30 | 67 | 15 | 36 |
| Structure | PET release liner on both sides (Fabric supports 0.5mmT product as reinforcement) | | | |
| Thickness | 0.5 ~ 7.0mm (Contact us for any customization request) | | | |
| Dimension | 305mm × 305mm / 305mm × 610mm<br>610mm × 610mm<br>(Contact us for any customization request) | | | |
| Certification | UL 94 V-0 Flame Resistance; RTI 150°C Rating; RoHS Certification | | | |
| Application | • LCD display<br>• Power transformer<br>• Power supplier<br>• LED lighting<br>• Automobile electronics<br>• Electrical inverter | | • Notebook, Desktop, IPC<br>• Telecommunication<br>• Server storage<br>• Memory module<br>• Heat pipe thermal solution<br>• Base station | |

*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.
- Thermally Conductive Transfer Adhesives
  - **TR3**: Thermally conductive acrylic adhesives.

## Thermally Conductive Coated Fabrics

- **TF1870 Series**: Similar to TF400 Series but improved thermal performance.
- **TF1860 Series**: Lowest cost thermally conductive silicone coated fabric.
  - All products can be supplied acrylic adhesive on one side.

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Form #1372 | 