

# R10404 SERIES

## Thermally Conductive Silicone Sponge

**Saint-Gobain® ThermaCool®** R10404 Series is manufactured by **Saint-Gobain** Performance Plastics Corporation, Tape Solutions business, and comes with a thermally conductive closed-cell silicone sponge rubber. This material offers thermal conductivity, electrical isolation and compression set resistance (vibration absorption). R10404 is the superior choice for battery pack gap filling, intended to optimize the efficiency and extend the service life of the individual battery cells. Its unique features make it an ideal gap filler for vibration-sensitive heat transfer applications.

The **ThermaCool** R10404 Series viscoelastic core is specially intended to provide the following features:

- Silicone based, for long life and temperature stability
- Closed-cell sponge structure provides compression set resistance, critical for vibration control
- Thermally conductive
- Electrically isolative
- Conforms to irregular (cylindrical and other) surfaces
- Has been tested using FDA 21 CFR 177.2600. Test reports are available upon request

### Available Sizes

| Thickness in. (mm)                          | .031<br>(.79) | .063<br>(1.59) | .094<br>(2.38) | .125<br>(3.18) | .188<br>(4.76) | .250<br>(6.35) |
|---|---------------|----------------|----------------|----------------|----------------|----------------|
| Continuous Roll<br>36 in. (914 mm)          | •             | •              | •              | •              | •              |                |
| Sheets 36 in. × 36 in.<br>(914 mm × 914 mm) | •             | •              | •              | •              | •              | •              |



## APPLICATIONS

- Lithium ion battery pack for electric vehicles
- Computers
- Telecommunications
- Electrical insulation
- Military
- Medical
- Heat pipe assemblies
- Vibration mounts
- Press pads
- Decal transfer

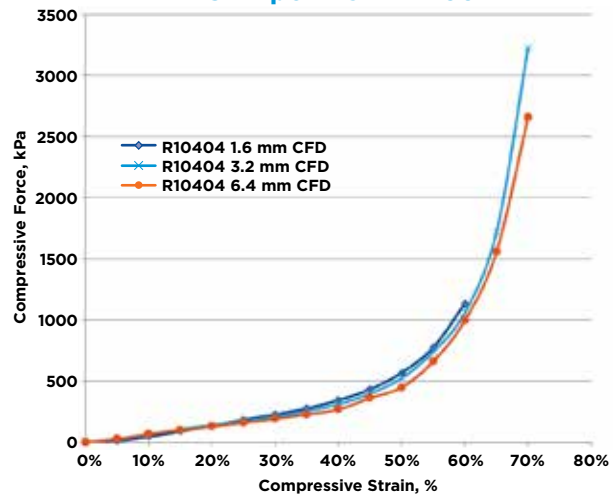
**ThermaCool R10404 Series — Properties**

Performance tests are run using standard test procedures. The values presented are typical values and should not be used for specification purposes.

| Property  | Test Method | Value   |
|---|-------------|---|
| Color   | Visual      | Light green   |
| Thickness: inch (mm)                                | ASTM D374   | 1/32, 1/16, 3/32, 1/8, 3/16, 1/4 (0.8, 1.6, 2.4, 3.2, 4.8, 6.4) |
| Thermal Conductivity: W/mK                          | ASTM E1530  | See chart below   |
| Thermal Impedance: @ 10 psi (°C in <sup>2</sup> /W) | ASTM D1530  | See chart below   |
| Tensile Strength: psi (kPa)                         | ASTM D412   | 120 (828)   |
| Elongation: %                                       | ASTM D412   | 150   |
| Hardness: Shore A                                   | ASTM D2240  | 13  |
| Dielectric Strength: (volts/mil)                    | ASTM D149   | 100   |
| Compression Deflection: @ 25%, psi (kPa)            | ASTM D1056  | 18 (125)  |
| Compression Set: %                                  | ASTM D1056  | 15  |
| Density: lbs./ft. <sup>3</sup> (kg/m <sup>3</sup> ) | ASTM D297   | 69 (1105)   |
| Operating Temperature Range: °F (C°)                | —           | -80 to 400 (-62 to 205)   |

| Compression: % | Thermal Conductivity W/mK |                | Thermal Impedance °C in <sup>2</sup> /W (°C cm <sup>2</sup> /W) |                |
|----------------|---------------------------|----------------|---|----------------|
|                | R10404 @ 1/8"             | R10404 @ 1/16" | R10404 @ 1/8"   | R10404 @ 1/16" |
| 10             | 0.36                      | 0.36           | 13 (86)   | 5.5 (36)       |
| 30             | 0.52                      | 0.46           | 9 (57)  | 3.5 (23)       |
| 50             | 0.86                      | 0.57           | 5 (34)  | 2 (13)         |

CFD per ASTM D1667



**Options** (subject to minimum order requirements)

Adhesive base: Low tack silicone pressure-sensitive adhesive and solvent-resistant acrylic pressure-sensitive adhesive on one side. (PSA increases thermal resistance by 0.05 C/W.)

**Important Instructions**

Because **Saint-Gobain** cannot anticipate or control every potential application, we strongly recommend testing of this product under individual application conditions prior to commercial use.

For PSA options, surfaces must be clean and free of oil, grease, moisture, dust and dirt. Isopropyl alcohol is good for cleaning the surface.

Recommended service temperature of base fabric is -80°F to 400°F (-62°C to 205°C).

**Shelf Life**

120 months from date of shipment for base material when stored in original packaging at temperatures up to 70°F (21°C), < 50% relative humidity, and away from direct sources of heat and direct sunlight. (See the applicable data sheets for pressure sensitive adhesive options).

**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 your actions or inactions, including your use, design, fabrication or application of the products into which the materials are incorporated.

**WARRANTY:** This document should not be considered a warranty or a guarantee. The descriptions of the Product provided hereinabove may vary based on specifications requested and testing protocols. Typically, Saint-Gobain warrants that product(s) will meet mutually agreed specifications at delivery and Saint-Gobain honors any breach of warranty claims for six (6) months from delivery of the products. If a product is determined to be nonconforming with its warranty, Saint-Gobain’s sole obligation is, at its option, to either replace the nonconforming products or reimburse the purchase price for the same.

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