

# TRP SERIES

## Thermal Runaway Protection Pad

**Saint-Gobain® Norseal®** TRP Series is a soft, compressible pad that provides a high degree of protection against battery thermal runaway event. TRP Series keeps pouch/prismatic cells under a defined range of compression throughout the life of the battery pack. The thermal cushioning of TRP protects adjacent cells from going exothermic and helps prevent the propagation of a thermal event from one cell to another.

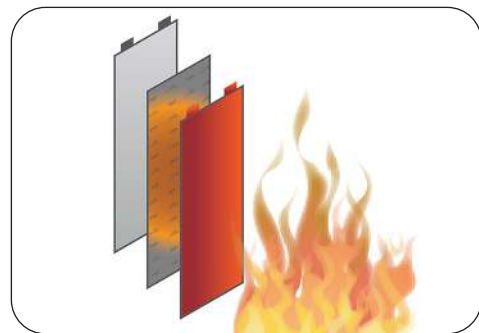
**Norseal** TRP is a homogeneous, soft, compressible material that is supplied either in rolls or sheets, making it very safe and easy to handle for assembly processes.

**Norseal** TRP is specially designed to provide the following features:

- Minimize thermal runaway event by protecting adjacent cells, thereby preventing a cascading event
- Predictable Compression Force Deflection behavior across a wide temperature range and throughout the life of the product
- Excellent compression set resistance

### Available Sizes

Standard thickness: 2.0, 3.2 and 4.78 mm



## APPLICATIONS

- Compression pads for pouch cell battery packs
- Cushioning pads for hard shell cell battery packs
- Pads between modules to contain thermal runaway event

## Norseal TRP Series — Properties

Performance tests are run using standard test procedures.

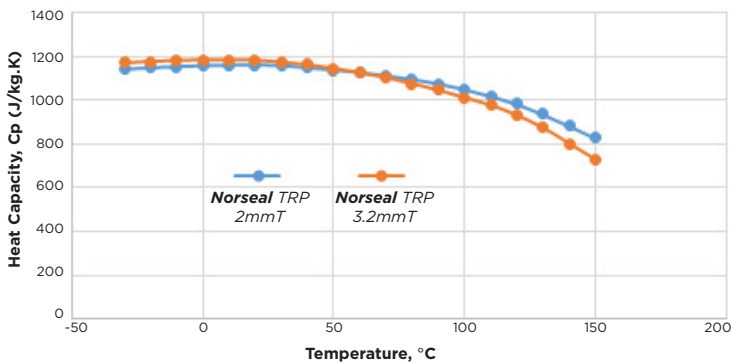
The values presented are typical values and should not be used for specification purposes.

Property	Test Method	Typical Value
Color	-	Blue
Thickness, mm (in)	-	2.0 (0.078), 3.2 (0.125), 4.78 (0.188)
Areal Density (for 3.2 mm thickness), kg/m <sup>2</sup> (lbs/ft <sup>2</sup> )	-	1.02 (0.21)
Compression Force Deflection, kPa (psi) @ 25%	ASTM D1667	76 (11)
Compression Force Deflection, kPa (psi) @ 50%	ASTM D1667	170 (25)
Compression Set, %	ASTM D1056	5
Thermal Insulation (R-value), K.m <sup>2</sup> /W(h.ft. <sup>2</sup> °F/Btu.in)	ASTM C518	0.33 (1.9)
Temperature Range (conservation of mechanical properties), °C (°F)	Internal	-50 - 200 (-58 - 392)
Dielectric Strength	ASTM D-149	85 (V/mil), 3.4 (kV/mm)
Flammability (UL File E57750)	UL94	Pass V-0, 5VA

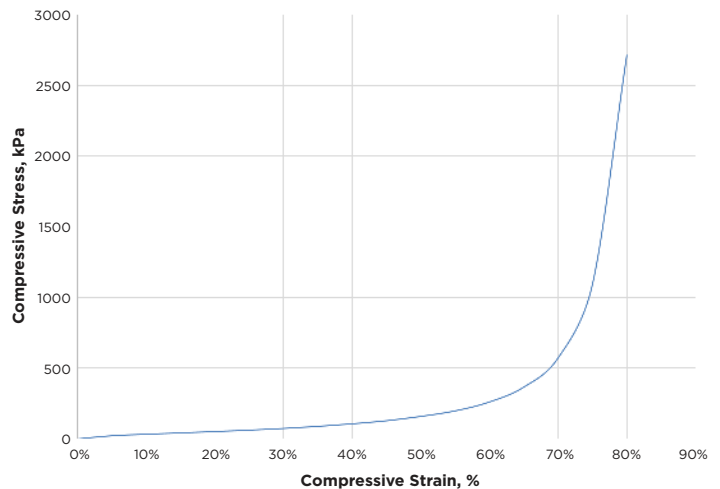
## Thermal Conductivity vs. Compression Rate (for 3.2mmT material)

% compressed	Thermal Conductivity
	W/mK
0	0.09
27	0.09
53	0.12

## Specific Heat Capacity vs. Temperature



## Typical Compression Force Deflection Curve



## 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.

**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.

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## 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).



### Saint-Gobain Tape Solutions

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