

FCPI- Series

The ContraFlame® FCPI- Series is a cell divider and spacer for prismatic and pouch battery cells with advanced fire resistance and low thermal conductivity. Engineered to withstand temperatures up to 1300 °C, it forms a protective barrier during thermal events, reducing the risk of thermal runaway propagation. Available in multiple thicknesses, ContraFlame® FCPI- Series is ultra-lightweight and highly adaptable for various applications, adding minimal weight to electric vehicles while providing lasting structural support. Its compression properties maintain stability throughout battery life, and its low-smoke, low-toxicity characteristics enhance safety. Flexible and easy to shape, this solution is compatible with a range of adhesives. It is compatible with typical manufacturing processes for optimised battery protection.

Product characteristics

Extreme event performance:

- Helps to stop cell-to-cell propagation
- Protects against temperatures of 1300 °C for a one-off event, it forms a highly stable insulative ceramic foam
- Insulative properties ensure a low back face temperature during an extreme heat event
- Compliant with live cell propagation-based tests
- Low smoke and toxicity.

In service performance:

- Compression can be adjusted to specific needs
- Very low thermal conductivity
- Highly electrically insulative
- Highly flexible and resistant to vibrations
- Operating temperature from -40 °C up to 200 °C
- High level of technical cleanliness
- Excellent water and chemical resistance.

Components can be supplied as:

- Rolls with lengths 10 m, 20 m, 50 m, 100 m
- The material is available with a frame for easier manufacturing integration
- Widths between 600 mm and 1000 mm
- Thicknesses between 2 mm and 10 mm.

Typical applications

- Placed between either prismatic or pouch cell formats, offering compression and protection against direct thermal runaway
- Thermal protection of a substrate or component from a high temperature event such as thermal runaway when:
 - Compression is needed
 - The variation in tolerance stack-up of adjacent components calls for a cell divider/ space material to be compressible
 - The potential for adjoining components to move relative to one another calls for a material which can manage that movement
- Barriers between modules and packs.

Performance and properties

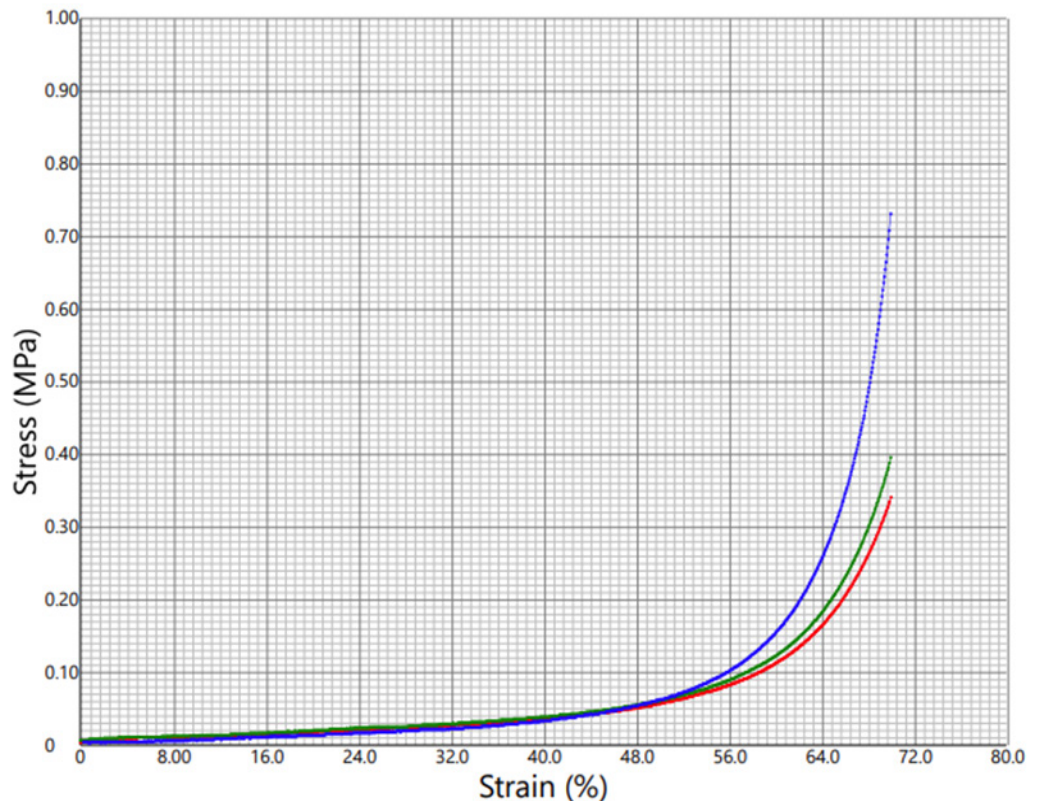
Typical general characteristics	Value	Units
Density * (nominal)	350 to 500	kg/m ³
In service temperature range	-40 to +200	°C
One-off temperature resistance	1300	°C
Specific heat capacity (Cp value) at 60 °C	1.17	J/(g K)
Thermal conductivity (k - value) at 22 °C	0.127	W/(m K)
Dielectric Strength	10	kV/mm
Thickness	2 to 10	mm
Compatible with adhesive tapes	Yes	-
UL94 V-0	Yes	
Real battery cell-to-cell propagation test		
Prismatic 170 Ah NCM 811**	Pass	

* Increasing the thickness of the ContraFlame® FCPI- Series foam will decrease the overall density.

** Internal tests for indicating performance in a live battery module or pack

Compression data

3.0 mm	10%	30%	50%	70%
FCPI- Series	10 KPa	20 KPa	60 KPa	489 KPa



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