

FCP2- Series

The ContraFlame® FCP2- Series is designed for use as a cell divider in battery packs, providing the highest level of fire resistance and protection against side-wall rupture. With low thermal conductivity and the ability to withstand extreme temperatures up to 1300 °C, the ContraFlame® FCP2- Series forms a protective barrier under high thermal stress, safeguarding surrounding cells and containing thermal runaway. Designed to withstand the thermal runaway of the most volatile high energy dense cell chemistries, such as NMC, the ContraFlame® FCP2- Series supports long-term battery performance, with compression properties that stabilise cells and reduce degradation. Highly flexible and effective as a thermal barrier, the ContraFlame® FCP2- Series enhances safety and extends battery life in demanding environments.

Product characteristics

Extreme event performance:

- Helps to stop cell-to-cell propagation
- Highest level of flame and particle resistance through the integrated thermal barrier
- Capable of withstanding a direct thermal runaway hard vent (side wall rupture)
- Protects against temperatures of up to 1300 °C for a one-off event
- Insulative properties ensure a low back face temperature during an extreme heat event
- Compliant with UL 2596 and other live cell propagation-based tests
- Low smoke and toxicity.

In service performance:

- Compression can be adjusted to specific needs
- Electrically insulative
- Excellent water and chemical resistance
- Highly flexible and resistant to vibrations
- Will maintain flexibility at temperatures as low as -40 °C
- High continuous in-service temperatures up to 200 °C.

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

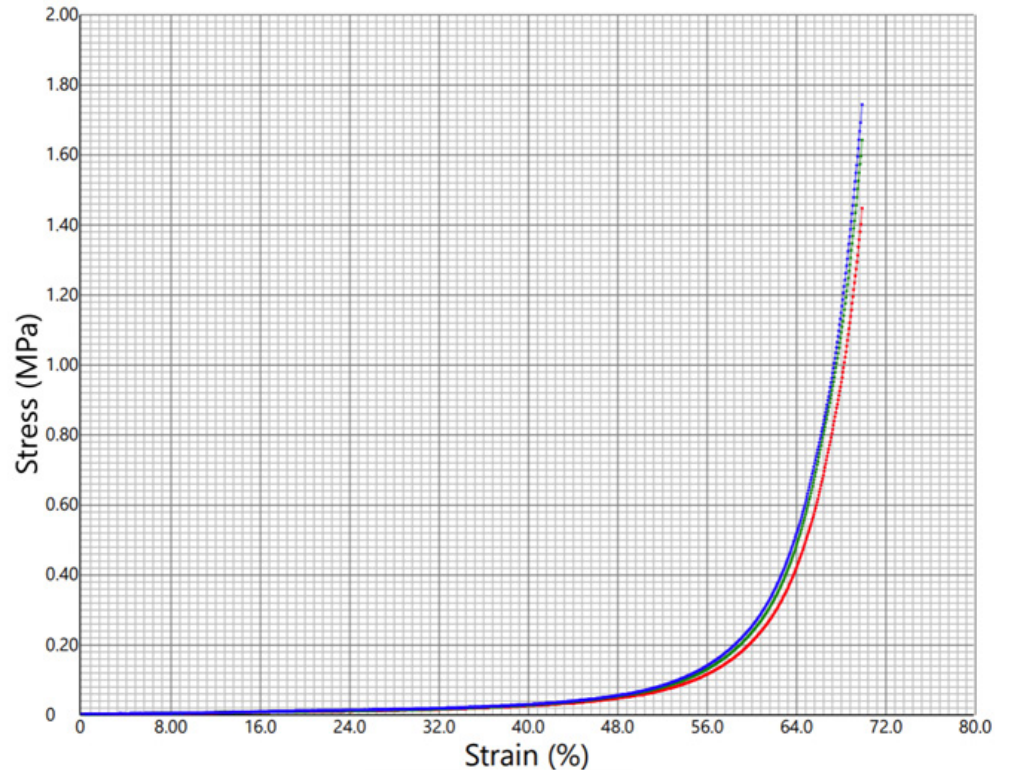
Typical general characteristics	Value	Units
Density * (nominal)	350 to 500	kg/m ³
In service temperature range	-40 to +200	°C
One-off temperature resistance	1300	°C
Specific heat capacity (Cp value) at 60 °C	1.17	J/(g K)
Thermal conductivity (k - value) at 22 °C	0.137	W/(m K)
Dielectric Strength	10	kV/mm
Thickness	2 to 10	mm
Compatible with adhesive tapes	Yes	-
UL 94 V-0	Yes	
Real battery cell-to-cell propagation test		
UL 2596	Pass	
Prismatic 170 Ah NCM 811**	Pass	

* Increasing the thickness of the ContraFlame® FCP2- 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%
FCP2- Series	10 KPa	20 KPa	60 KPa	1611 KPa



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For further details about AIS and our products or services, please contact us:

Quedgeley West Business Park, Bristol Road, Gloucester, GL2 4PA, UK

t: +44 1452 880880

e: info@aisltd.com

w: aisltd.com

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