

AlkeGel™ Prism

INTRODUCTION

AlkeGel Prism cell spacers and compression pads are a family of high-temperature, lightweight, aerogel-based insulating materials designed to prevent or delay thermal runaway propagation. These components also ensure consistent and predictable pressure distribution on the cell faces throughout the lifespan of the battery pack.

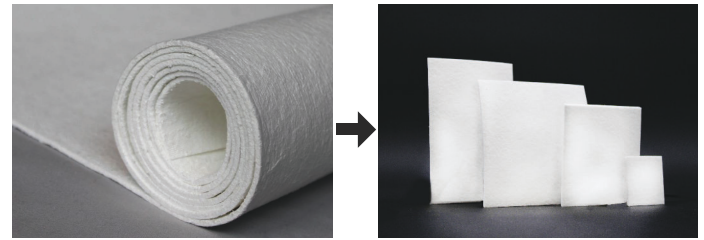
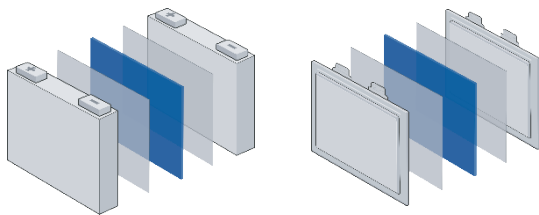


Fig. 1 AlkeGel Prism Cell Spacers



PROPERTIES

Temperature Resistance	Up to 1260°C
Thickness (mm)	2-10
Breakdown Voltage	≥3.5 kV
UL94	V0
Density	145-300 kg/m ³

ADVANCED MANUFACTURING & PERFORMANCE

As a vertically integrated manufacturer, Alkegen leverages state-of-the-art processing technology to develop high-temperature resistant, low-density, thermally and electrically insulating cell spacers. These spacers offer consistent compression properties, effectively managing heat during thermal runaway events, while also ensuring everyday mechanical performance requirements are met.

By incorporating Alkegen's advanced cell spacers, battery pack manufacturers can optimize both performance and safety with a multifunctional, cell-to-cell solution. Designed for easy integration, these solutions fit seamlessly into battery packs, even within tight space constraints, making them adaptable for both current and future pack designs.

FEATURES OF ALKEGEL PRISM CELL SPACERS & COMPRESSION PADS

Exceptional Thermal Protection

- Ultra-low thermal conductivity for superior insulation
- Fire-resistant and flame-barrier properties
- Tunable thermal performance to meet specific application requirements
- Capable of withstanding temperatures up to 1260°C

Optimized Mechanical Performance

- Tunable compression properties to support both pouch and prismatic cells
- Effectively manages mechanical stress from cell breathing and aging
- Helps maintain consistent pressure over the pack's lifespan
- Compression characteristics supporting cell stacking and battery assembly processes
- A cost-effective solution enabled by vertically integrated manufacturing processes

Lightweight & Clean Technology

- Extremely lightweight for minimal impact on overall pack weight
- Low dust and superior cleanliness compared to competitive aerogel technologies
- Designed to minimize assembly challenges while maximizing thermal runaway mitigation
- Meets European regulatory requirements

Electrical Insulation & Safety

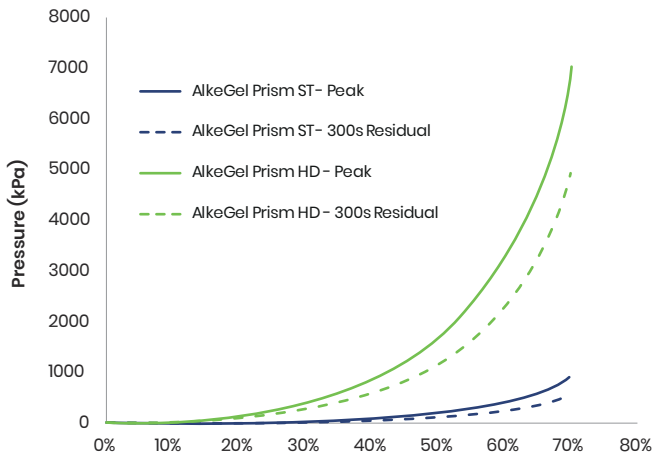
- Provides high-temperature electrical insulation
- Engineered to enhance thermal runaway mitigation for improved safety

Versatile Design & Customization

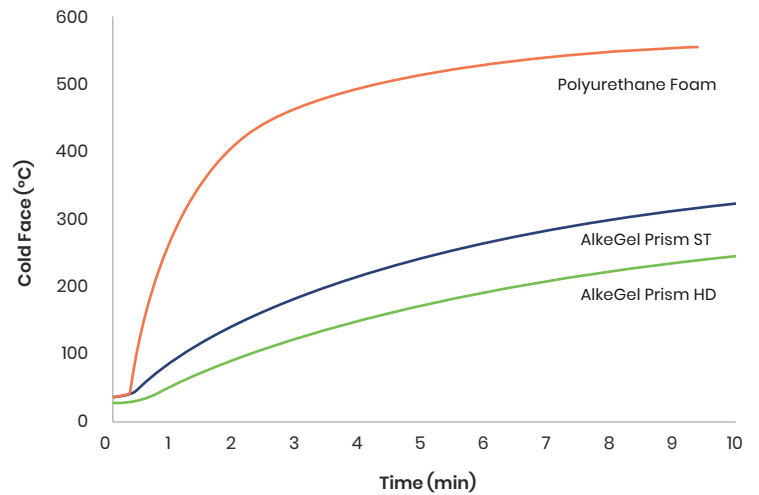
- Available as a stand-alone pad or part of a composite structure
- Options for blast-resistant layers, semi encapsulation, or full encapsulation
- High degree of design flexibility to accommodate various pack configurations

AlkeGel™ Prism

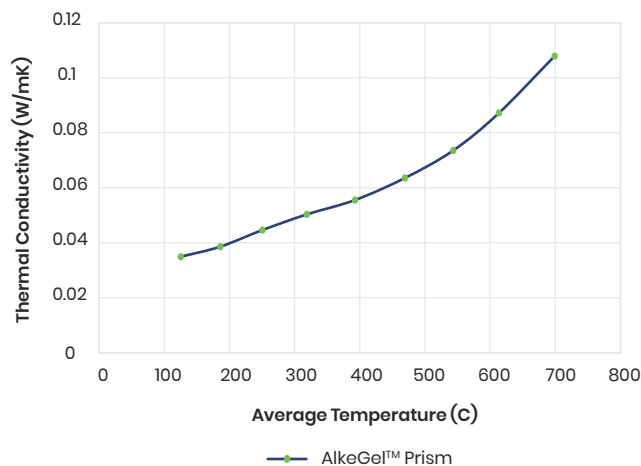
AlkeGel Prism Compression Curve - Range of Performance



Thermal Performance: AlkeGel Prism vs Foam Under 100 kPa of Pressure and 700°C Hot Face Conditions



Thermal Conductivity (ASTM C518)



Test Conditions: At 100 kPa With A 700°C Hot Face, Cold Face Temperature Measured at 6 min

Material Type	Thickness (mm)	Cold Face Temperature (°C) at 6 min
AlkeGel™ Prism ST	3	264
AlkeGel™ Prism HD	3	192
Polyurethane Foam	3	533

IMPROVING EV BATTERY PERFORMANCE AND SAFETY

Alkegen helps OEM's and battery manufacturers improve electric vehicle, electric aviation, and energy storage systems battery performance and safety by offering a range of high-temperature, lightweight products to reduce thermal runaway propagation and provide mechanical, electrical and thermal protections in the battery pack. Please contact the Alkegen Battery team for further information or to obtain samples at +1 716-768-6472.

The following are registered trademarks of Alkegen: AlkeGel Prism.

The test data shown are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes. Product Information Sheets are periodically updated by Alkegen. Before relying on any data or other information in this Product Information Sheet, you should confirm that it is still current and has not been superseded. A Product Information Sheet that has been superseded may contain incorrect, obsolete and/or irrelevant data and other information.

Form A-5841
Effective 02/25
© 2025 Alkegen
All Rights Reserved

Alkegen
Headquarters
5215 N. O'Connor Blvd, Suite 2300
Irving, TX 75039
Telephone: 716-768-6500
Website: www.alkegen.com
Email: batterygroup@alkegen.com