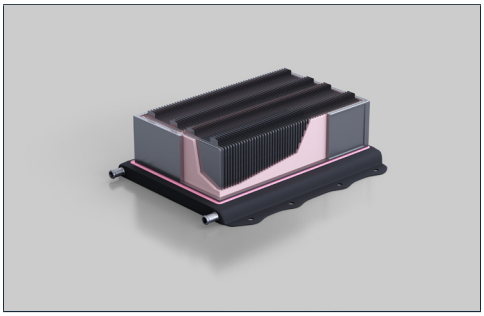
COOLTHERM® MATERIALS

Battery Pack Applications

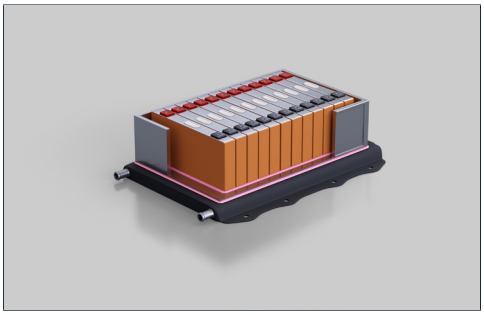
Heat can be a real drain - As battery technologies evolve to have increased energy density, the ability to manage heat during charge and discharge cycles is crucial for optimizing performance. CoolTherm® gap fillers, adhesives and encapsulants are fully customizable and compatible with cylindrical, pouch and prismatic battery cells. Our dedicated application engineers will work with you to ensure your project's specific performance requirements, cost targets and deadlines are met quickly.

With CoolTherm tailored thermal management materials and our responsive technical experts at your service, get ready to achieve a different kind of cool.



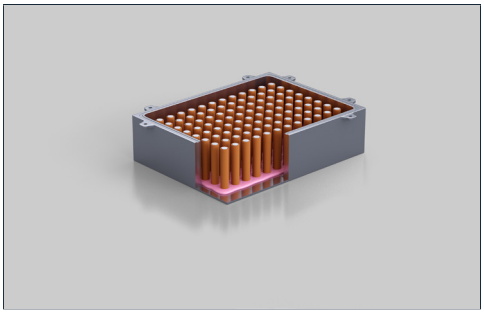
Pouch Cells

Our thermal management materials are designed to conform to the flexible nature of the cells, ensuring efficient heat dissipation and minimal thermal resistance. This is crucial for maintaining the integrity and performance of the cells, which are prone to swelling and require careful thermal considerations.



Prismatic Cells

Our materials are tailored for prismatic battery cells, essential for high-capacity applications. Our thermal materials enhance heat conduction, ensuring optimal operation and extended lifespan while adhesives provide strong bonds, reducing mechanical stress during thermal cycling. Protective coatings guard against arcing, corrosion and wear while promoting thermal conductivity.



Cylindrical Cells

For cylindrical battery cells, our electrification solutions enhance heat management, performance and reliability. Ideal for use in passenger EVs, these solutions ensure secure bonding, protect against environmental damage and prevent overheating. This comprehensive approach boosts the efficiency, safety and lifespan of cylindrical cells.

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Gap Fillers

Get the best performance out of your batteries by filling in surface imperfections with a thermally conductive gap filler designed with electric vehicle applications in mind. Our gap fillers are available in a range of options, from flexible, low-strength options that ensure serviceability, to products with higher tensile strength and adhesion properties, providing increased strength and structure upon full cure. We also offer low ppm siloxane solutions for sensitive electronic applications.

GAP FILLERS

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	SHORE HARDNESS (OO)	DENSITY (g/cm³)
CoolTherm® SC-3500	Silicone	3.5	80	3.3
CoolTherm SC-1600	Silicone	3.7	89	3.3
CoolTherm SC-3000 LD	Silicone	3.0	75	2.4
CoolTherm SC-2000 SLW	Silicone	2.0	65	2.0
CoolTherm UR-2000	Urethane	2.0	D55	2.6

- Two-Component
- Low Outgas Options
- Room Temperature and Heat Curing
- Electrically Isolative
- 1:1 Mix Ratio
- Protect Against Shock
- Damp Vibration

Adhesives

Formulated for dispensability, either in high flow rate environments in MMD equipment or manually dispensed via cartridge or convenience packaging, our adhesives provide rigidity, structural integrity and a thermal connection where heat is a problem. With our adhesives, you are no longer constrained by mechanical fixtures and can bond a variety of substrates, which can simplify your overall battery pack design.

ADHESIVES

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	LAP SHEAR STRENGTH (MPa)
CoolTherm TC-2002	Acrylic	1.0	15.8 on aluminum
Maxlok® T6S	Acrylic	–	24.3 on aluminum
LORD® 5206/55GB	Acrylic	–	19.3 on aluminum
LORD AC-902 LC	Acrylic	–	15 on nickel-plated steel

- Variable Cure Speeds
- Electrically Isolative
- Improve Design Flexibility
- Reduce Complexity
- Room Temperature or UV Cure

Encapsulants

Our encapsulants facilitate optimum heat transfer because of their high thermal conductivity and low viscosity. Additionally, potting and encapsulants provide protection from dust, moisture and vibration. Our two-component encapsulants exhibit minimal shrinkage during cure, high dielectric strength and thermal conductivity.

ENCAPSULANTS

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	VISCOSITY (cP @25°C)	DENSITY (g/cm³)
CoolTherm SC-309	Silicone	1.0	3,600	1.7
CoolTherm SC-252	Silicone	2.5	18,000	2.9
CoolTherm SC-320	Silicone	3.2	22,000	3.1
CoolTherm SC-324	Silicone	4.0	30,000	3.2
CoolTherm UR-389	Urethane	0.7	14,000	1.5

- Room Temperature and Heat Curing
- Electrically Isolative
- 1:1 Mix Ratio
- Improve Performance
- Protect Electronics
- Reduce Component Stress

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