CellBlock®

Fire Containment Systems


The demand for green energy is driving a battery-powered world.
LI-ION BATTERY PACK

Revolutionizing the way the world safely handles, transports, and stores lithium-ion batteries and other dangerous goods.

LITHIUM POWERS THE WORLD

As the demand for greener energy and greater mobility increases, so does the demand for lithium power. It is estimated that the lithium-ion battery market for devices alone will reach 54 gigawatt hours by 2025, while battery mega-factories manufacturing all sizes of batteries will experience a 400% increase in capacity to 1 terawatt by 2028.

Lithium batteries, while generally safe, nonetheless have potential for catastrophic thermal events. Companies need peace of mind knowing their people, products and profits are protected.

SAFE, SIMPLE, EFFECTIVE SOLUTIONS

CellBlock FCS LLC specializes in fire prevention and containment as it pertains to lithium-ion battery fires and other class-D hazardous goods. A goal of safety and simplicity drives product development to produce solutions that are extremely effective and easy to implement.

What began as a solution for PED (Personal Electronic Device) fires, has grown into a comprehensive line of fire suppression products suitable for any industry including technology, automotive, battery recycling, and shipping and cargo. CellBlock FCS helps you safely handle, transport and store LI batteries and other dangerous goods – from flammable liquids to flammable solids – with confidence.

CellBlock® Fire Containment Systems

CellBlockEX® FIRE/HEAT/SMOKE SUPPRESSANT

LIBIK® Lithium Ion Battery Incident Kit

CellBlockEX is manufactured from 100% post-consumer recycled glass.

CELLBLOCKEX FOR FIRE PREVENTION AND SUPPRESSION

CellBlockEX is a multi-functional environmentally friendly, non-combustible, mineral-based fire extinguishing agent comprised of recycled glass spheres with a closed cellular pore structure. It is the core of our products.

Used as a packaging filler, CellBlockEX prevents thermal propagation in devices, batteries, or cells. CellBlockEX's smooth spherical shape safely covers and encloses products and packaging and won't degrade when exposed to vibration or friction. It also protects products from damage and impact.

- Green, sustainable and non-combustible; made from post-consumer recycled glass
- Effectively binds liquids, gases and vapors; absorbs approximately 200% of its own weight
- Displaces oxygen, absorbs energy and suffocates the fire
- Forms an impervious silicate shell around the fire load
- Versatile - serves as a fire suppressant media and as an absorption agent
- Environmentally safe, reusable and harmless to health (does not contain Crystalline Silica)
- Unaffected by heat, moisture, and chemicals
- Multi-functional - suitable for class A, B, D and K fire loads, i.e. metal fires, lithium-ion battery fires and combustible liquids
- Low dust content; extinguishes flames without the mess or dangers of water, vermiculite, pumice or sand

CellBlockEX is available in
50L bags and 700 lb. Supersacks.

HOW CELLBLOCKEX WORKS

Suffocation Effect

Covering a fire load with CellBlockEX granulate displaces oxygen and separates it from the fuel, suffocating the fire.

Cooling Effect

Due to its specific thermal capacity, CellBlockEX absorbs heat, thereby cooling the fire, and disrupting the thermal reaction.

Isolation Effect

Like glass, CellBlockEX melts at a high temperature. The granulates absorb heat in the form of melting energy, and cools the fire while forming an impervious layer over the fire load, preventing a reaction with oxygen. Even difficult to control metal fires, such as sodium or magnesium, can be extinguished with CellBlockEX.

Gas Tightness

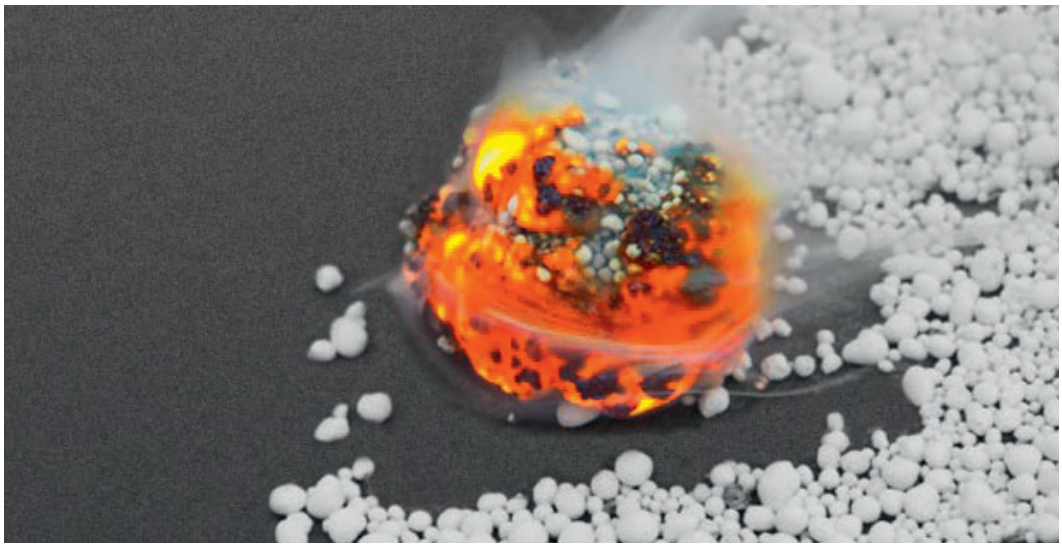
Due to the CellBlockEX grain shape, very dense sphere packing is achieved. The supply of oxygen is impeded by the packed bed, and the formation of combustible gases is prevented.

Sorbency of Liquids

The special granulate mixture combined with the porous, large grain surface, effectively binds liquids.

Fire Gas Filtering

Just like liquids, gases and vapors accumulate on the large surface area of the CellBlockEX granulate and are bound for disposal.



LITHIUM-ION BATTERIES EXTINGUISHING TEST

- Coverage with approx. 20 cm CellBlockEX
- No flames visible after 60 seconds
- Fire was extinguished after 10 minutes
- Cooled down after 6-12 hours
- Suffocates the fire
- Absorbs heat energy

SODIUM FIRE EXTINGUISHING TEST

- Coverage with approx. 10 cm CellBlockEX
- No flames visible after 10 seconds
- Fire was extinguished after 10 minutes
- Cooled down after 6-12 hours
- Suffocates the fire
- Absorbs heat energy

MAGNESIUM FIRE EXTINGUISHING TEST

- Coverage with approx. 30 cm CellBlockEX
- No flames visible after 10 seconds
- Fire was extinguished after 10 minutes
- Cooled down after 6-12 hours
- Suffocates the fire
- Absorbs heat energy

CELLBLOCKEX® VS VERMICULITE

CellBlockEX is 100% recycled material and is made from post-consumer-recycled glass that's destined for the land-fill prior to being diverted to one of two manufacturing plants worldwide.	Vermiculite is a product of mining operations which are harmful to the environment, as well as to human health.
CellBlockEX is an active fire suppressant and has been proven to halt propagation in thermal events.	Vermiculite is non-combustible, but lacks the ability to extinguish class-D fires or halt propagation.
CellBlockEX is a manufactured material and is capable of maintaining a consistent physical property specification regardless of where in the world the material is ordered from, or delivered to. It achieves the same exact dimensions every time.	Packaged Vermiculite is inconsistent from region to region. As a mined material, the physical properties including density, porosity, water content, etc., vary from region-to-region making it difficult to accurately calculate performance.
CellBlockEX's smooth spherical shape safely covers and encloses products and packaging without degradation when exposed to vibration and friction in the shipping process.	Vermiculite's angular and irregular geometry can degrade packaging and present a greater opportunity to damage products during transport.
CellBlockEX contains no crystalline silica or asbestos.	The dust present on Vermiculite has been identified as containing crystalline silica and asbestos, a known carcinogen. Vermiculite also has a very low compressive strength. The more handling and shipping it endures the more it breaks down and the more fine dust particles are generated.

CELLBLOCKEX® TECHNICAL DATA

Grain size	[mm]	1 - 4
Particle size	[mesh #]	18 - 5
Dry loose bulk density	[kg/m³]	240 ± 30
	[lb/ft³]	15 ± 1.9
Particle density	[kg/m³]	360 ± 60
	[lb/ft³]	22 ± 3.7
Crushing resistance	[N/mm²]	1.5
	[PSI]	217
Oversize	[M.-%]	≤ 10
Undersize	[M.-%]	≤ 15
pH value		8 - 11
Moisture content	[M.-%]	< 0.5
Color		creamy white
Thermal conductivity	[W/(m·K)]	0.07
	[BTU-in/hr-ft²-°F]	0.486
Main Component		silicon dioxide
Thermal capacity	[kJ/(kg·K)]	0.7
	[BTU/lb-°F]	0.167
Porosity approx.	[%]	85


CellBlockEX technology
offers solutions for numerous
industries and applications.

ALL-ROUND EXTINGUISHING AGENT

CellBlockEX is suitable for use in industrial facilities, production operations, data processing centers, archives, warehouses, and for transportation. As an electrical insulator, the granulate is also ideal for the energy sector (i.e. transformer station protection). It has a low dust content, tolerates frost and is easily removable.

DANGEROUS GOODS PACKAGING

The dangerous goods industry has to observe multiple regulations whether transporting over the road, in the air or by sea. CellBlockEX meets the fundamental requirements as a fire protection filler and exceeds DOT requirements for lithium-ion battery transport.

LITHIUM-ION BATTERY FIRE PROTECTION

There are increasing requirements for better fire protection during production, transportation, storage, disposal and recycling of lithium-ion batteries. CellBlockEX is ideal as a dry extinguishing agent and is especially well-suited for processes where the use of extinguishing water or foam is not possible.

FIRE PREVENTION WITH CELLBLOCKEX®

Preventive fire protection encompasses steps taken in advance to counteract the outbreak and spread of fires. In technical fire protection, CellBlockEX can be used as a fire suppressing material by permanently filling cavities, suspended ceilings, cable shafts, lines and pipes.


Ship confidently with
CellBlock's safe packaging
solutions for class-D goods.

STEEL DRUMS AND PAILS

UN-Rated and certified with CellBlockEX used as the packaging filler, these drums and pails provide a best-practice method for handling damaged, defective, recalled, spent, prototype, and medium/large format batteries. An environmentally-friendly solution using no vermiculite or mineral oil. Ship domestically and internationally, or use for safe on-site storage.

CELLBLOCK TRANSPORTATION AND STORAGE CASES

These reusable, CellBlockEX-lined aluminum cases are engineered, not just to contain a thermal event, but to completely suppress a fire. A gravity-fed dispensing method utilizes CellBlockEX to rapidly encompass and isolate a fire within the case. Tested by Stress Engineering and Underwriters Laboratories. Proven to halt propagation in a lithium-ion battery fire.

4DV PACKAGING

Plywood boxes are an affordable solution for shipping new and prototype batteries. Lined with a robust fire-resistant felt, these are DOT and UN rated when CellBlockEX is used to fill the negative space. Approved for land and sea shipping, these cases are available in a range of sizes to allow for an appropriate loose-fill to watt hour ratio for optimal safety.

RECALL PACKAGING

CellBlock FCS offers affordable customizable solutions for consumer recalls of lithium-ion batteries and devices. Containing reusable fire-suppression pillows filled with CellBlockEX, these offer a compact package that is simple to distribute and use.

CUSTOM SOLUTIONS

CellBlock's team of engineers, product specialists, and industry consultants collaborate with clients to supply innovative solutions. Contact CellBlock today to discuss your lithium-ion battery storage and transportation needs.


Reliable fire suppression
when it matters most.

LIBIK AND EDE KITS

Developed for the airline industry, but embraced by all companies that desire to protect and empower their staff in a battery fire situation. This is not just a fire containment bag. No product on the market gives you more tools to suppress a fire in-place while simultaneously reducing toxic smoke and hazardous fumes. The LIBIK and EDE are incredibly robust solutions that owe their effectiveness to CellBlockEX to quickly extinguish a thermal runaway event and uptake vapors without the use of halon or liquids.

PED-PAD FIRE SUPPRESSION PILLOWS

Fire suppression PED-Pads were originally designed for the technology sector, but the applications for this versatile product are numerous. The PED-Pad pillow can be placed over a compromised device, battery or cell in the event of a thermal runaway. The inner CellBlockEX loose-fill will be released from the pillow, smothering the burning object, extinguishing the fire and consuming smoke and fumes. The pillows also provide cushioning when shipping class-D goods.

FIRE SHIELD BLANKETS

Constructed from durable flame-resistant fabrics, our fire blankets are integral to many of our kits and are a valuable multi-purpose tool in dealing with lithium-ion battery fires. They may be used as a personal shield or to protect surrounding surfaces when dealing with a compromised device, battery or cell. The blankets are a completely customizable solution.

BATTERY STORAGE CABINETS

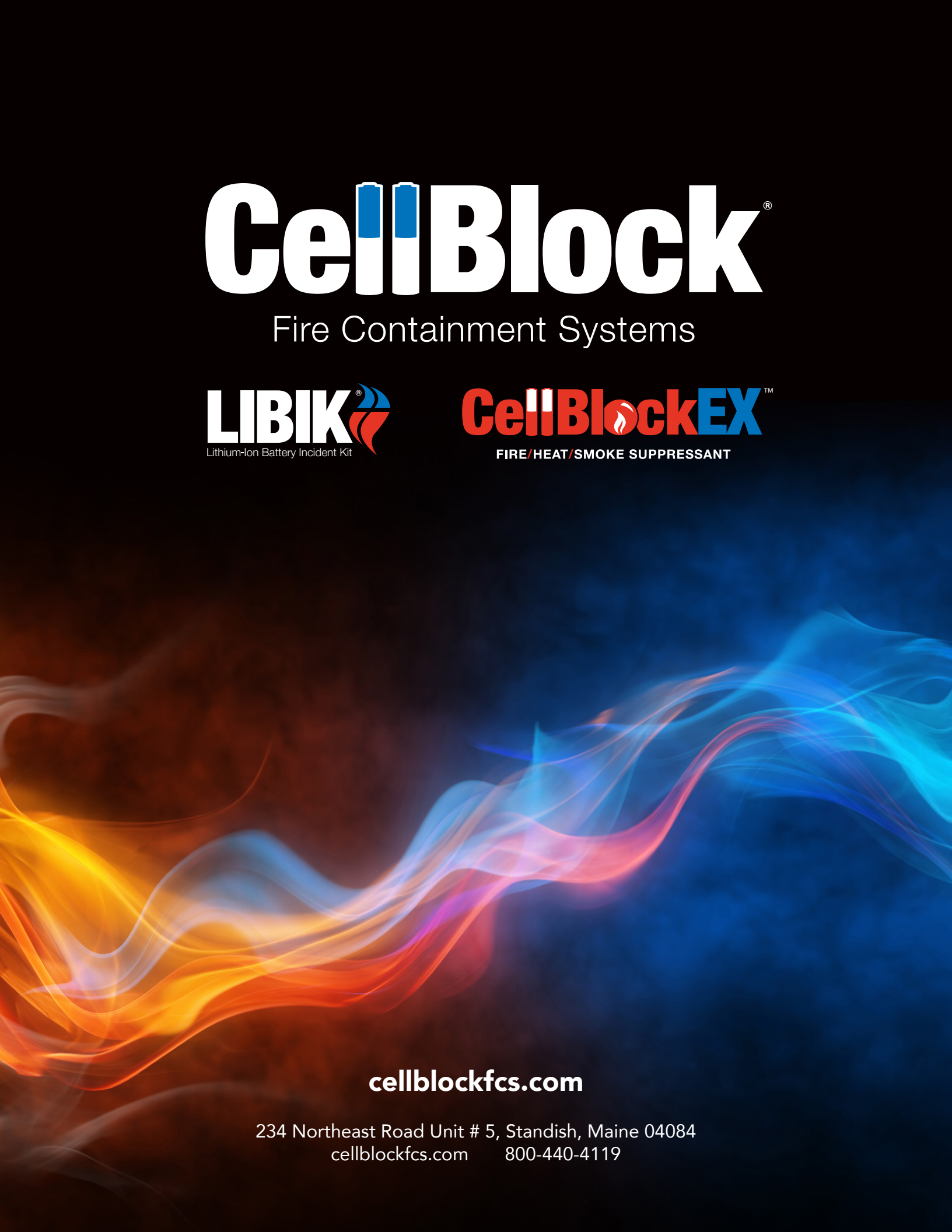
Constructed similar to our aluminum cases to provide safe storage for batteries, cells and devices. Shelves feature a gravity-fed CellBlockEX dispensing method that rapidly encompasses and isolates a fire within the cabinet, halting propagation. These cabinets may be custom engineered to your specifications.

CellBlock®

Fire Containment Systems

LIBIK®
Lithium-Ion Battery Incident Kit

CellBlockEX™
FIRE/HEAT/SMOKE SUPPRESSANT



cellblockfcs.com

234 Northeast Road Unit # 5, Standish, Maine 04084
cellblockfcs.com 800-440-4119