

## Fire Suppression for Energy Storage Systems and Battery Energy Storage

Stat-X® condensed aerosol fire suppression is a solution for energy storage systems (ESS) and battery energy storage systems (BESS) applications.



### What is a lithium battery?

A lithium-ion battery or Li-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode to the positive electrode during discharge and back when charging.

### The Risk

The deep-seated nature of battery fires creates extinguishing challenges for all extinguisher types.

Due to out gassing prior to and during ignition of the batteries, reflash is a potential hazard.

Unlike gas systems operating under high pressure seeking exit of the hazard area, Stat-X aerosol operates at a low pressure and remaining in the environment to provide ongoing protection.

Gas systems will exit the hazard area through any unclosed openings. The Stat-X aerosol remains buoyant and allows for unclosed opening(s), whereas in high pressure gas systems the gas will exit rapidly.

### Advanced Technology

Stat-X highly-advanced fire suppression technology offers the lightest, most compact, and economical fire extinguishing solution available. Our Stat-X generator is an extremely rugged, hermetically sealed, stainless steel canister containing a stable, solid compound.

In the event of a fire, Stat-X units automatically release ultra-fine particles and propellant inert gasses which effectively extinguish fires using less mass of agent than any other conventional extinguishing system.



### TEST RESULTS

The Stat-X aerosol extinguishing product was tested for efficacy in suppressing Li-ion battery fires. It was found that the Stat-X agent successfully extinguished single and double cell battery fires. This testing was conducted in parallel with a large battery fire testing program. Fireaway Inc. contracted with DNV GL for testing to have its Stat-X product line included in the program.



The following conclusions were provided by DNV GL post testing of Stat-X aerosol fire suppression system.

1. Stat-X can put out a Li-ion battery fire.
2. Residual Stat-X airborne aerosol in the hazard will provide additional extended protection against a re-flash of the fire.
3. Stat-X can reduce oxygen in an enclosed environment during a battery fire. Our DNV-GL Fireaway test for O<sub>2</sub> levels that shows 18% and no drop.
4. Due to the deep-seated nature of a stacked battery fire, the Stat-X extinguisher removed heat from the interior of the cells more slowly than the exterior.
5. The residence time of gases and aerosols during Stat-X deployment is a function of when the atmosphere is ventilated.

Advantages of Stat-X aerosol systems for lithium ion battery hazards

- The hazard area does not have to be airtight. Calculations allow for uncloseable openings.
- Residual Stat-X aerosol can remain in hazard area for a finite period of time after discharge. While sufficient density is maintained, Stat-X can play a role in controlling potential re-flash typical with lithium ion battery fires.
- Stat-X systems are bracket mounted within the hazard on the ceiling or walls taking no valuable floor space within the hazard.
- There is no manifold or piping required reducing installation labor and material costs.

- Stat-X will not breakdown nor create byproducts like HF. However, some Stat-X residue will eventually settle on equipment and must be blown clear and cleaned. NOTE: No fire suppression system manufacturer can claim 100% that electronic will not be affected by post discharge. There is no perfect solution.
- Our Stat-X solution requires no cylinder weighing or hydrostatic testing.
- Ten (10+) year operating life cycle



## Contact

For more information, please contact Fireaway Inc. directly or contact a local distributor partner, see [www.statx.com/distributors/](http://www.statx.com/distributors/)

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