Protect your values.

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AIK FLAMRO ROLF*KUHN*GMBH

Patented Particle Impact Test

Check out the testing options!

Integrity is Key

The safety of battery cells, modules, packs and thus of entire energy storage systems crucially depends on their ability to withstand external and internal stress. Even the smallest energy unit of a battery, i. e. each individual battery cell, must be sealed and thus well protected against mechanical, chemical and thermal influences so as to maintain their integrity in all circumstances. This is because the heavy particle impact (“bombardment”) that occurs in a thermal runaway incident not only inflicts damage on the battery cell in which it has originated, but will also spread “in a flash” to adjacent battery cells, to higher-level units and to the battery case (thermal propagation). Once underway, this process is irreversible, which is why prevention through appropriate measures is a vital necessity.

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Particle Impact – What Is It?

Particle impact occurs when a thermal runaway event causes the internal pressure of a battery cell to increase to such an extent that the outer shell ruptures, allowing a powerful jet of gas to escape at approx. 1,500 °C whilst triggering ejection of combustion particles from the inside of the battery cell. Particle impact basically works like sandblasting at 1,500 °C – it poses an enormous danger to surrounding cells, components and the battery case!

Safety Through Simulation: Keeping Track of Reality

Simulations are an effective means for obtaining reliable results about processes and their interrelationships. Therefore, nothing goes without simulation when it comes to battery safety testing – in the form of our patented particle impact test! Before batteries are allowed to power real vehicles, they are subjected to severe stress and strain (worst-case scenarios) in our patented safety test. It enables us to determine, for example, in which way and under what conditions certain parameters (e. g. increased temperatures and pressure changes) affect a battery and its components (here, for example, a major focus is on the hot spot caused by thermally induced particle impact) and how such effects can be reliably prevented in each case.

The Key Benefits of Our Lithium Battery Fire Tests

- Lower material input, lower cost
- Quick screening options for fast results
- Well-founded advice on optimum material selection
- Enhanced safety for humans, the environment and sustainable business success

Click here to learn more about our patented test procedure – and be sure to watch the video of our Particle Impact Test!

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