# LOKISTIX GmbH - LOKI-Pack

modular and configurable system for compliant, safe, and monitored transportation and storage of batteries

## *the challenge*

Transporting and storing high-risk batteries—such as non-certified prototypes, damaged or defective units, critically defective batteries, and end-of-life or waste batteries—poses significant safety challenges due to their elevated likelihood of thermal runaway. These batteries may have unknown internal faults, compromised separators, mechanical deformation, contamination, or unstable chemistries, making them far less predictable than certified products. The primary hazards include self-heating, off gassing of toxic and flammable electrolytes, internal short circuits, and the potential for rapid escalation into fires that are extremely difficult to extinguish.

Once thermal runaway starts, it can spread to nearby cells and modules, releasing dense smoke, high heat, and hazardous gases such as HF, which endanger workers, equipment, and the environment. Especially maritime transportation amplifies these risks. Ships carry large quantities of cargo in confined, metal-enclosed spaces where ventilation is limited and fire suppression options are restricted. Lithium-ion battery fires at sea can overwhelm conventional extinguishing systems, reignite repeatedly, and jeopardize vessel integrity and crew safety. Additionally, long transit times, stacking of containers, and exposure to vibration, humidity, and changing temperatures increase stress on already unstable batteries. Misdeclared or improperly packaged high-risk batteries further heighten the danger.

These challenges require specialized packaging designed to contain thermal runaway, filter hazardous gases, limit oxygen access, and prevent propagation between battery units. Robust testing, clear regulatory compliance, and transparent documentation are essential to ensure safe maritime transport and storage of these high-risk energy systems. It is our mission to provide a safe, smart, and future-proof solution for the industry.

## *the innovation*

Lokistix provides a portfolio of assets to improve safety, transparency, and convenience throughout the battery supply chain. The LOKI-Pack is our modular and configurable system for compliant, safe, and monitored transportation and storage of batteries. It comes in various sizes and variants, meeting the requirements of all existing transport regulations (ADR, IMDG, RID, IATA) and beyond. The right product can be configured for the respective use case, ensuring optimum cost-benefit ratio. The inlay ensures high flexibility. We are using straps, cushions, and flame-retardant bags (LOKI-Bags) to allow battery cells, modules and packs of different sizes. LOKI-Bags are made of passive cooling materials, entirely wrap the battery, and have a roll-top closure. Like all our materials in contact with batteries, they are highly temperature resistant, non-conductive, and non-flammable. In combination with proven insulation technology, an over-pressure relief valve and an integrated filter, LOKI-Pack is the perfect asset for high-risk battery logistics.

An integrated sensor module enables essential, digital features. To improve safety, we implement LOKI-Alert, which notifies operators as soon as high temperatures or characteristic gases are detected. For transparency and convenience, we offer LOKI-ADC, an analogue to digital converter, that allows required shipping documents like the shippers declaration for dangerous goods, to be digitally attached to the shipment. To improve product quality, we implement LOKI-Inspect, a condition monitoring system that gives recipients as well as stakeholders along the way information about position, temperature, and humidity of batteries within the supply chain.

*how it was implemented*

Start of LOKI-Pack mass production is scheduled for Q1 of 2026. It is intended for logistics providers, recycling companies, R&D centres and basically everyone dealing with batteries, who is not forced to use disposable packaging. It is reusable packaging with an expected lifetime of 7 to 10 years.

Lokistix digital assets are launched as a beta in Q2 of 2026 and will be fully available 2027. It includes real-time features like alerting and digital shipping documentation as well as a condition monitoring platform, where shipments can be managed.

LOKI-Bags are already available and can be used for safe storage of batteries in offices, warehouses, and homes. It improves safety during charging to a great deal and can be conveniently applied to existing batteries. No matter whether a forklift, an e-bike, an e-scooter or just a notebook battery, LOKI-Bags come in various sizes and can be applied as easy as a bag pack.

## *what was the* result

The intended result of LOKI-Pack in action is a significant reduction of battery related incidents. Moreover, our digital assets should achieve transparency along the entire supply chain, enabling traceability and compliance with the EU battery pass.

The result of the utilization of LOKI-Bags is a significant reduction of the impact of thermal runaway. No flames will be affecting nearby people or equipment.


*conclusion*

The production of batteries plays and will continue to play an important role in decarbonisation. Demand as well as the requirements to power- and energy-density will increase, which consequently leads to more incidents with bigger impact. Regulating bodies such as the national fire protection agency in the United States, or the United Nations in Europe, are constantly working on stricter regulations in regard to safety along the entire battery supply chain. All these trends and developments point towards a huge market to be addressed by the Lokistix battery packaging solution. We are eager to contribute to a safer, more transparent as well as more efficient future of logistics in an uprising industry.


LINK: https://www.lokistix.com/

LOKISTIX
Packaging Pioneers

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