

MobiBag – Development of a safety bag for storing and transporting mobile electrical devices with lithium-ion and lithium-polymer batteries

Objective

Rechargeable batteries and accumulators can be found in many areas of application, e.g. in mobile phones, laptops, cordless screwdrivers, e-bikes and electric vehicles. These energy storage devices, usually lithium-ion and lithium-polymer batteries, are a source of danger that should not be underestimated. In the event of damage or overheating/overcharging, as well as due to unpredictable processes inside the storage tanks, the storage cells inside may collapse, causing a fire and subsequently an explosion. Every battery, every rechargeable battery can collapse. For this reason, electrical mobile devices should not be transported and stored without packaging.

The aim of the research project was the development of a textile-based safety system for the storage and transport of individual batteries or battery packs and devices with permanently installed batteries with permanently installed accumulators.

Approach and results

The project comprised the development of fire-retardant textile structures with a cooling effect and the inhibition of the escape of toxic or flammable gases. The bag with integrated additional functions should both prevent a battery explosion and provide protection in the event of an accident. In contrast to other developments of battery safety containers, the project did not only aim to provide protection in case of accidents, but also to prevent explosions through appropriate measures whenever possible. The research work resulted, for example, in the development of two demonstrators as a complete solution in bag form and as an insert solution in a high-quality bag cover for laptops or tablets with the integration of a cooling solution to prevent fire and thus inhibit the occurrence of toxic and flammable gases.



Complete solution: bag closed (left) and open (right)



High-quality outer pocket for insertion

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The final report on this project is available on request.

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