CASE STUDY

BTRY – RETHINKING BATTERIES

Problem – Challenge

Lithium-ion batteries are everywhere: from smartphones and laptops to cars and satellites orbiting the earth. It is currently our most mature battery technology. Nevertheless, it is not ideal for all applications. Lithium-ion batteries lose capacity with every charging and discharging cycle, charge relatively slowly and only work well in a rather narrow temperature range.

Solution

To address these issues, Empa and ETH Zurich spin-off BTRY is developing a next-generation battery technology: Thin-film solid-state batteries that are not only safer and more durable but can also be charged and discharged in just one minute. The battery achieves a high energy density thanks to an innovative process in which thin layers are precisely stacked on top of each other. What's more, it is non-flammable, temperature-resistant and more environmentally friendly to manufacture. Thin-film batteries have a wide range of applications. They could be used in consumer electronics such as smartphones or smartwatches, but also in sensors, robots, drones or satellites.

Until recently, thin-film batteries could only store very little energy. The founders have succeeded in stacking the thin-film cells, which are only a few micrometers thick, into more powerful batteries. They have developed a new process that uses a high-precision vacuum coating and no toxic solvents. Production is scalable and uses advanced but proven techniques to ensure efficiency and quality.

With funding secured from an initial financing round, BTRY is starting pilot production to manufacture the first prototypes and obtain customer feedback. The goal: to further optimize the battery and tailor it to the requirements of different markets.

BTRY exclusively licenses the technology originally developed at Empa. The founders Abdessalem Aribia and Moritz Futscher see great potential in their technology and want to optimize it to revolutionize energy storage in the long term.

Working thin-film battery from BTRY