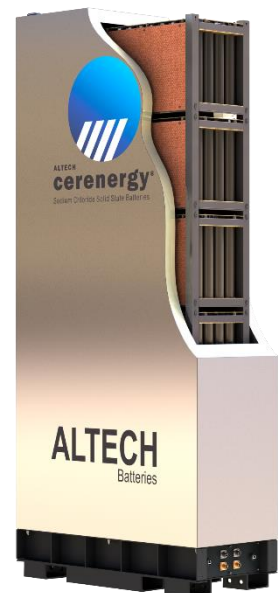


Altech - Substantial progress in the construction of the CERENERGY® BatteryPack prototypes ABS 60 (60 kWh)

- **Production of the ceramic solid electrolyte tube for the 60 kWh CERENERGY® battery "BatteryPack ABS 60" is already 50 % complete**
- **Cell assembly on schedule**
- **Extensive quality controls confirm fully functional battery cells with low reject and defect rates**
- **Completion of these industrial prototypes planned for mid-2024**

Altech Advanced Materials AG (ISIN: DE000A31C3Y4, DE000A31C3Z1 and DE000A3EX2C1) is making good progress as planned with the high-performance ABS60 60 kWh CERENERGY® battery designed in 2023 for the industrial production of prototypes. After CERENERGY® batteries in the original design with capacities of 5 kWh and 10 kWh have already been successfully developed and tested by the joint venture partner, Fraunhofer IKTS, the industrial-grade 60 kWh large batteries for the grid storage market are currently being built according to the final and optimised design and qualified for customer use through corresponding performance tests. The BatteryPack is the basis for the GridPack to be commercialised.

CERENERGY BatteryPack ABS 60 (60 kWh)
Prototype Design



ABS1000 (1 MWh) CERENERGY® GridPack

A GridPack is made up of 18 BatteryPacks. The BatteryPack contains 240 CERENERGY® battery cells, each with a nominal voltage of 2.5 V, which are individually controlled and arranged in five individual modules. The dimensions of the BatteryPack are: (h)2.6m, (l) 0.4m, (b) 1.0m. The battery cells are sealed in a closed, weatherproof and thermally protected casing and can be used anywhere. The GridPack also contains the various control systems of the Battery Management System (BMS) as well as the connections.



GridPack ABS 1000 (1MWh) - Design



IKTS Hermsdorf has successfully completed and tested all the key steps in cell production, from mixing the ceramic components to high-pressure pressing and electrolyte moulding through to the special curing process with temperatures of up to 1,600 degrees Celsius. In the meantime, half of the required solid-state electrolytes (ceramic tubes) have already been produced.

The electrolyte used to produce the battery cathode consists of a special mixture, including sodium chloride and nickel powder granulate. It is the result of an 8-year research process at the Fraunhofer Institute IKTS. The cell assembly process is currently in full swing. Around half of the cells have already been completed and successfully put into operation. Tests are continuing on an ongoing basis. The connection of the various cell components of the individual cells is crucial for the quality and service life of the cells. The specially developed laser welding process should be emphasised here in particular. The exact alignment of all components, the correct fill level and composition and the behaviour of the cathode material after initialisation of the cell following the welding closure of each prototype cell were optimised and verified by means of complex test procedures using an industrial micro-computed tomography μ CT scanner. The subsequent charging and discharging performance tests of the individual cells have so far all been satisfactory and have shown the expected results. The reject rates that have occurred so far are also low and in line with expectations.

Module frame and cell contacting system (CCS) ready

Once the cells have been completed, they are integrated into a module frame and welded and connected to the customised Cell Contacting System (CCS). Together with Fraunhofer, Altech has carefully validated all electrical specifications and tolerances of the CCS.

Battery housing supplied

The prototype BatteryPack housings have already been delivered and are now undergoing various test procedures and modelled application cycles in order to evaluate the heat loss parameters of the vacuum insulation, among other things. The cells will be installed in the battery housing as soon as they are fully produced. The prototypes are currently expected to be completed by mid-2024. The prototypes will then be presented to potential customers. Altech will thus be able to demonstrate the possibilities of practical applications and show the advantages of the ABS60 series in various industries. It will also allow the performance of the GridPacks to be reliably extrapolated.

About Altech Advanced Materials AG

Altech Advanced Materials AG (ISIN: DE000A31C3Y4, DE000A31C3Z1 and DE000A3EX2C1), based in Frankfurt am Main, is a holding company listed on the regulated market of the Frankfurt Stock Exchange. The company's aim is to participate in the market for solid-state batteries for stationary battery use with CERENERGY®.

Another focus is on lithium-ion batteries. An innovative anode material based on high-purity aluminium oxide (HPA) - Silumina Anodes™ - is intended to significantly increase the performance of this battery for electromobility.

CERENERGY® batteries project

Altech Batteries GmbH (ABG) is a joint venture with the world-leading German battery institute Fraunhofer IKTS ("Fraunhofer") to commercialise the revolutionary CERENERGY® sodium aluminium oxide solid-state battery (SAS). CERENERGY® batteries are the ground-breaking alternative to lithium-ion batteries. CERENERGY® batteries are fire and explosion proof, have a lifespan of more than 15 years and operate in extremely cold and desert climates. The battery technology uses common salt and is free of lithium, cobalt, graphite and copper, eliminating dependence on critical metal price increases and supply chain issues.

The joint venture markets its CERENERGY® battery and plans to build a 100 MWh production plant on the Altech site in Saxony. The plant will produce CERENERGY® battery modules for the grid storage solutions market.

Further information at: www.altechadvancedmaterials.com

Altech Advanced Materials AG

Executive Board: Iggy Tan, Uwe Ahrens, Hansjörg Plaggemars
Ziegelhäuser Landstraße 3
69120 Heidelberg
info@altechadvancedmaterials.com
Tel: + 49 6221 649 2482

Press contact

Ralf Droz / Doron Kaufmann, edicto GmbH
Tel: +49 (0) 69 905505-54
e-mail: AltechAdvancedMaterials@edicto.de