BMW GROUP
Corporate Communications

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Innovative direct recycling at the BMW Group: New Competence Centre in Lower Bavaria returns battery cell raw materials to the loop

+++ Mechanical process without conventional chemical or thermal processing +++ Method developed by BMW Group in-house +++ Battery cell competence bundled in Bavaria +++

Munich. The BMW Group is building a Cell Recycling Competence Centre (CRCC) for battery cells in Kirchroth, in the Straubing-Bogen district of Lower Bavaria, where it will implement a process referred to as "direct recycling". This innovative procedure enables residual materials from battery cell production, as well as whole battery cells, to be mechanically dismantled into their valuable components. The recovered raw materials are then directly reused in pilot production of battery cells at the company's own Battery Cell Competence Centres.

"The new Cell Recycling Competence Centre brings another element to our in-house expertise: From development and pilot production to recycling, we are creating a closed loop for battery cells," says Markus Fallböhmer, SVP Battery Production at BMW AG, "taking advantage of the short distances between our Competence Centres in Bavaria." The BMW Group is investing around 10 million euros in construction of the new Competence Centre. Installation work at the building is already scheduled to begin in the second half of 2025. Once completed, validation of the recycling method in near-series processes will get underway.

Innovative direct recycling recovers valuable raw materials

Battery cell raw materials – primarily lithium and cobalt, but also graphite, manganese, nickel and copper – are among the main cost factors in cell production. Responsible use of these resources is essential from both environmental and economic

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perspectives. "The direct recycling will help reducing the costs for our battery cell pilot line", explains Fallböhmer. Unlike conventional methods, the main characteristic of direct recycling is that raw materials from battery cells are not reverted to their original state, but are instead fed back "directly" into the cell production cycle. This method dispenses with the previously common energy-intensive chemical or thermal processing. The recycling method was developed by BMW Group experts at the Competence Centres in Munich and Parsdorf. At the new CRCC, it will be implemented on a larger scale and, once the processes are finalised, battery cell material in the mid-double-digit tonne range can be recycled per year.

Optimal location for new Competence Centre in Bavaria

The BMW Group consolidates its battery cell expertise at its Competence Centres in Munich and Parsdorf. The Battery Cell Competence Centre (BCCC) in the north of Munich offers state-of-the-art labs and research facilities for developing the battery cells for next-generation high-voltage batteries and producing them in small quantities. The most promising battery cell from the BCCC will be scaled up for series processes on a pilot line at the Cell Manufacturing Competence Centre (CMCC) in Parsdorf. Once completed, recycling of surplus material from pilot production in Parsdorf will take place at the new Competence Centre in Kirchroth. The recovered raw materials will then be reused in cell production in Parsdorf. This ensures short distances between all Competence Centres and prevents valuable raw materials from being lost. Following on from the BCCC and CMCC, the CRCC thus represents the next step in the BMW Group's battery cell strategy on the road to the circular economy.

Joint venture operates Competence Center, intellectual property at the BMW Group

The new CRCC, spanning an area of 2,200 m², will be integrated into the expansion of an existing building in the Kirchroth-Nord industrial park, near Straubing. Electrical energy from the discharged cells will be captured in energy storage systems within the building and used to operate the recycling systems. The energy concept will be

rounded out by photovoltaic systems installed on the roof of the building. While the intellectual property for the recycling method is fully owned by the BMW Group – the Competence Centre will be built and operated by Encory GmbH. As a joint venture of the BMW Group and Interzero Group, Encory develops and implements logistics and consulting solutions in areas such as collection, recycling, and remanufacturing of vehicle components. Both partners hold a 50% stake in the company. Around 20 people will be employed in the new Competence Center.

Circular economy at the BMW Group

The BMW Group views the circular economy as one of the key issues in designing more resource-efficient vehicles. The premise is to optimize the circularity of materials. This means resources are not lost, but retain their value for long-term use. The BMW Group applies the principles of Re:Think, Re:Duce, Re:Use and Re:Cycle. From vehicle design and production, to recycling and reuse, everything is geared towards ensuring cars can serve as a source of raw materials for new vehicles at the end of their use phase. Recycling focuses, in particular, on the use of innovative methods to recover high-voltage batteries from electrified vehicles.

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The BMW Group

With its four brands, BMW, MINI, Rolls-Royce and BMW Motorrad, the BMW Group is the world's leading premium manufacturer of automobiles and motorcycles and also provides premium financial and mobility services. The BMW Group production network comprises over 30 production sites worldwide; the company has a global sales network in more than 140 countries.

In 2023, the BMW Group sold over 2.55 million passenger vehicles and more than 209,000 motorcycles worldwide. The profit before tax in the financial year 2023 was € 17.1 billion on revenues amounting to € 155.5 billion. As of 31 December 2023, the BMW Group had a workforce of 154,950 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. Sustainability is a key component of the BMW Group's corporate strategy – from the supply chain through production to the end of the use phase of all products.

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