

Orano commissions its industrial pilots for the recycling of electric vehicle batteries

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Orano has taken a major step forward with the commissioning of its two industrial pilots allowing its process for the recycling of materials contained in electric vehicle batteries to be tested. Hosted at the group's Center for Innovation in Extractive Metallurgy (*Centre d'Innovation en Métallurgie Extractive – CIME*), the two pilots are being deployed two years after the project launch announcement.

The Orano recycling process consists of two main steps: pre-processing with the purpose of obtaining a mixture in powder form known as "active material", followed by the hydrometallurgy step which completes the recovery of the metals contained in the batteries.

The pre-processing pilot commenced at the start of November 2023, according to schedule, having received the permit from the Regional department for the environment, town and country planning and housing (*Direction Régionale de l'Environnement, de l'Aménagement et du Logement – DREAL*), granted by the Prefect of the Haute-Vienne. This permit allows end-of-life battery modules and production scrap from gigafactories to be recycled on the site.

This pre-processing process had been designed and validated in advance on a laboratory scale at CEA Liten within the framework of a joint partnership with Orano. It is now being tested on a pre-industrial scale. Orano is thus generating its own active material, from its innovative process that allows the materials of interest to be preserved and salts of nickel, cobalt, manganese, and lithium of a very high level of purity to be generated, which can be re-used in new battery components. The active material that comes out of the pre-processing stage is purified in the existing hydrometallurgy pilot.

All the recycling steps are integrated into the two pilots, with the capacity to recycle the equivalent of two to three electric vehicles a day.

"These two pilots are allowing the process to be scaled up, to produce samples of materials for customers and to test new technologies. This is making it possible to gather the necessary feedback for the construction of future plants", points out Guillaume Dureau, Orano's Senior Executive Vice President, New Activities, Innovation and R&D.

About Orano

As a recognized international operator in the field of nuclear materials, Orano delivers solutions to address present and future global energy and health challenges. Its expertise and mastery of cutting-edge technologies enable Orano to offer its customers high value-added products and services throughout the entire fuel cycle. Every day, the Orano group's 17,000 employees draw on their skills, unwavering dedication to safety and constant quest for innovation, with the commitment to develop know-how in the transformation and control of nuclear materials, for the climate and for a healthy and resource-efficient world, now and tomorrow. Orano, giving nuclear energy its full value.

"It is also the culmination of two years work on the design, dimensioning and construction of the pilots at Bessines. The teams at the controls of these new facilities are committed and motivated to demonstrate the robustness of the process on an industrial scale", adds Didier David, Director of the Orano Batteries program.

The Orano battery recycling program is benefiting from financial support from the France Relance plan, as well as an additional subsidy from the Nouvelle-Aquitaine region and funding from the European Union's Horizon Europe research and innovation programme.