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## METAL RECYCLING OUR solutIONS

In the context of supply pressures and regulatory changes, developing metal recycling solutions becomes all the more relevant.

Building on its R&D, IFPEN, in partnership with Axens and Eurecat, is able to provide a closed-loop solution to two application areas: catalysts and batteries.

### Metal catalyst recycling

**In 2021, IFPEN, Axens and Eurecat launched a project dedicated to the recycling of metal catalysts.** It aims to develop a process to extract the metals directly from hydrotreatment catalysts, allowing their reuse in the preparation of catalysts without the need for separation. The project draws on the knowledge of extraction

processes and solution chemistry developed by IFPEN. Initial results have been very promising, allowing the project to pass the first technical and economic milestones. IFPEN and Axens are also aiming to develop one or more 100% recycled catalysts as part of their range of hydrotreatment catalysts.

## Battery metal recycling

**IFPEN is positioning itself on the development of processes for battery metal recycling and synthesis of cathode active materials (CAM).** Its knowledge and expertise in processes for conversion of materials and solvents for purification/separation stages are major assets when it comes to offering solutions that are technologically innovative, cost-effective and environmentally friendly

In 2022, a roadmap was developed with Axens and Eurecat, with the objective of deploying industrial units for the recycling and re-synthesis of CAM metals from lithium-ion batteries in France. The deployment process will begin in 2023, with the set-up of experimental and pilot tools, and the diversification of industrial partnerships. This ambitious project, led by the IFPEN group, aims to establish French sovereignty over the critical metals and CAM manufacturing sectors, a strategic high-tech field that is currently controlled by several major Asian players and two European manufacturers.

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Metal Recycling: Our solutions

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