Cathoplasm

Enhancing cathode materials compatibility with eco-friendly manufacturing

This project aims to improve the compatibility of cathode electrode materials with aqueous processing. Conventional manufacturing of Li-ion battery electrodes relies on toxic solvents, such as N-methyl-2-pyrrolidone (NMP), and synthetic fluorinated polymers, such as poly(vinylidene fluoride) (PVDF), as processing components. Replacing PVDF with water-soluble binders, such as xanthan gum or carboxymethyl cellulose (CMC), eliminates the need for NMP-based processing. However, cathode materials such as NMCs are known to be reactive toward water, and the electrochemical performance of batteries incorporating conventionally water-processed cathodes remains below that of benchmark cells.
The solution proposed in this project is to apply plasma coating technology to protect the cathode powder from reacting with water and thereby preserve its electrochemical performance in the final battery. ICS's powder-coating technologies enable the entire process, from start to finish, to be conducted under controlled conditions to guarantee the best results.

Start and end date: 02/2023 – 02/2027

Project partners		Catégorie de la region	Fonds	Montant (€)	Année Budgetaire
Innovative Coating Solutions SA		Région en transition	80% RW	337,797.67	2022
Université de Namur					
Université de Liège					