

POLY4EV – Sustainable Polymers for Electric Vehicles

This MSCA DN proposal aims to develop an array of polymer materials and additives specifically designed for increasing the efficiency and sustainability of electrified vehicles (EVs). POLY4EV polymer materials are molecularly designed for enhancing the performance of EV lubricants, thermal management systems, and battery electrodes. Our intersectoral and multidisciplinary team, composed of leading academics and industrial partners, including established companies and SMEs, will synthesize the sustainable polymers, comprise them into formulations, and comprehensively characterize their physical and chemical properties, rheology and tribology aspects, while also developing models for understanding and predicting their behavior and performance. To respond to the sustainability needs of the EV market and of our society, POLY4EV will generate: (i) polymer additives for EV lubricants and thermal management systems with tailored composition and structural features to optimize fluidic and thermal properties, contributing to extend EVs' lifespan; (ii) polymer binders that are fluorine-free and processable in non-toxic solvents, designed to actively aid in stabilizing battery cycling performance.

The cooperation between experimental and computational polymer chemists, physicists, and engineers ensures that robust structure-property-performance relationships will be determined. The partnership with both established and nascent companies committed to advancing sustainable product development and innovative EV solutions guarantees that the project will generate tangible impact and benefit for European industries and society. Through research and a vast dedicated training program, this Consortium aims at training young scholars in developing the design principles, characterization methods, and prediction tools for sustainable polymer systems that raise the efficiency and sustainability of EVs.

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Project Duration in months: 48

Find out more: [POLY4EV](#)