

Ph.D. Position – University of Bordeaux FRANCE

Valorization of mixture of diols and diacids through the synthesis of PE-like polyesters

Position

This Ph.D. project is inscribed within a "HORIZON European Project" called ACTPAC ("A Complete Transformation Path for C-C backboned plastic wastes to high-value Chemicals and materials"). ACTPAC proposes a complete value-added industry-viable path to convert PE firstly into alkanes, then into high-value chemicals (monomers), and finally into PE-like but fully biodegradable polyesters. A zero-waste solution to the plastic waste management is thus created to keep plastics out of the environment, and reclaim their values. The new properties and specific applications of the new polyester plastics produced from upcycling of PE waste will offer new business opportunities for small and medium enterprises by scalable, flexible and robust multi-product manufacturing processes for on-demand and small-volume output production.

In this context, the objective of the Ph.D. candidate is the valorization of mixture of diols and diacids through the synthesis of PE-like polyesters with tunable properties via a chemical catalysis. To this end, several routes will be followed and compared to find the most suitable one for the production of high molar mass polyesters in mild conditions. The polyester properties will be investigated according to the Methylene/Ester ratios.

The Ph.D. candidate will work within the Laboratoire de Chimie des Polymères Organiques (LCPO), one of the top-tier center of polymer science in France, located on the campus of the University of Bordeaux. The research activities of the laboratory span the whole range of modern polymer science. It aims at the design of functional high value-added polymers and the study of their macroscopic properties for target applications, in particular in the domains of life sciences, energy and chemical engineering. The LCPO offers a stimulating workplace for anyone who wants to gain a top-level training in polymer chemistry.

Candidate's profile

We are looking for a highly motivated student holding a Master degree in organic and/or macromolecular synthesis. Teamwork abilities and good skills in English are required.

Application

Candidates are invited to apply at <https://emploi.cnrs.fr/Offres/Doctorant/UMR5629-FREPER-012/Default.aspx?lang=EN>