



Recruitment within the IMP laboratory (Lyon) of a PhD student in the framework of a collaborative project with industrial partners (PLAIRE project: high-performance plastics from 100% recycled materials).

Title : In situ polymerization by reactive extrusion of paint in polypropylene or polyamide thermoplastics.

Research Topic :

This research project concerns the recycling of thermoplastics and paint powders in the same formulation. Paint powders are solid formulations comprising a resin that polymerizes to form a thermoset or thermoplastic resin. The idea is based on the concept of in situ polymerization of these paints in a thermoplastic phase during the reactive extrusion process.

In terms of academic researches, the study will focus on several points:

- 1- Study of polymerization kinetics using rheology, mainly to assess the match between polymerization times and extruder residence times.
- 2: Study of mixing conditions between a molten polymer phase and a paint whose viscoelastic properties change with the degree of polymerization.
- 3: Study of the in situ compatibility of the thermoplastic phase with the paint phase. Influence on the morphologies of these blends and their control.
- 4: Study of the properties of the formulations thus developed: mainly mechanical properties

Candidate:

With a Master's degree or an engineering degree, the candidate must have skills in the physical chemistry and processing of polymers.

Salary : 2100 € gross/month, Duration : 36 months

Contact : Send CV and covering letter to:

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