



Post-doc Position

<i>Title : Mechanical recycling of silicone</i>	<i>Duration : 12 months</i>	<i>Date: October2024</i>
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Context :

Leader in the mobility sector, Michelin designs, manufactures and distributes the tires best suited to their needs and uses, as well as services and solutions to improve transport efficiency. Michelin also develops high-tech materials for a wide range of applications fields. All these developments are aligned with a request in preserving the environment and its resources. Besides, the recyclability of all the materials or products are crucial. In that context, the recyclability in particular of silicone parts opens up new prospects for reducing waste volumes and the associated pollution. Promoting a more sustainable use of this material to reduce the environmental impact by encouraging its reuse rather than disposal is essential.

Postdoctorant subject:

As part of the IMP/Michelin joint laboratory, the aim of this post doc is to investigate the mechanical recycling of silicone by grinding and its reincorporation into host formulations. The aim is firstly to explore the grinding processes and conditions, and to evaluate the properties of the grindings. Supercritical fluids may also be envisioned as an additional impacting parameter. A second part of the research will then be devoted to optimizing the conditions for reincorporating silicone grindings into the targeted mixtures/formulations. Specifically, the aim will be to link the intrinsic characteristics (nature, size, shape, distribution) of the grindings to the final properties of the system envisaged, and to determine the least environmentally impacting production route. A preliminary life cycle analysis will be carried out to establish the most discriminating scenarios.

Key-words: Mechanical Recycling, silicones, blends, relations structure-process-properties

Localisation and date :

*UMR-CNRS 2223 « Ingénierie des Matériaux Polymères », <https://imp-umr5223.cnrs.fr/>.

*Michelin, Centre d'Étude et de Recherche de Ladoux. <https://www.michelin.fr/>

The researches will be realized at IMP@UJM (Saint Etienne) and IMP@INSA (Villeurbanne). The candidate will also be required to travel to the Michelin/Ladoux site. The project is expecting to begin 1st of October 2024.

Profil :

The candidate should possess a PhD in polymer science. Knowledges in polymer physico-chemical properties and experiences in polymer processing will be an advantage.

Contacts: Francois Ganachaud, DR CNRS, IMP, site INSA Lyon, francois.ganachaud@insa-lyon.fr

Yvan Chalamet, Pr, IMP, site UJM, yvan.chalamet@univ-st-etienne.fr