



UNIVERSITÉ
CÔTE D'AZUR

AGENCE NATIONALE DE LA RECHERCHE
ANR



Cemef
CENTRE DE MISE EN FORME
DES MATÉRIAUX

Post-doctoral position starting in march 2023

Université Côte d'Azur, Institut de Chimie, Nice, France

Mines ParisTech, Center for Materials Forming (CEMEF) Sophia Antipolis, France

Understanding and preventing toxic Non-Intentionally Added Substances (NIAS) formation in commonly used plastic parts

Overview of the project. Thermoplastics polymers are always compounded with additives. These additives, sometimes with interactions with impurities present in the polymer, are reacting during the compounding and processing steps used to produce a material. These unwanted chemical reactions lead to many toxic Non-Intentionally Added Substances, called NIAS. The presence of NIAS is known, but their occurrence is only measured in the limited case of food-grade products. The current published literature on NIAS is studying industrial polymer-based products, having thus no knowledge of the exact chemical composition of the additives used and of the processing conditions.

Financed by Agence Nationale de la Recherche, the present project is departing from these studies by processing three major, well-characterised polymers with their most common additives in order to understand how NIAS are formed, evaluate their toxicity, see if their occurrence can be decreased by modifying processing parameters.

Context and mission. The role of the post-doctoral researcher is to (a) demonstrate how NIAS are formed, even in very classical and simple conditions, with only a few additives used, (b) show that by modifying processing conditions, NIAS amount and danger can be decreased and (c) assess the safety of recycling.

The project is highly interdisciplinary as it combines analytical, organic and polymer chemistry, processing and toxicology. It will involve constant collaborations with other scientists of the project, specialists of other disciplines. The work is taking place in Nice and Sophia Antipolis (near Antibes).

This position is financed by Université Côte d'Azur via ANR and is open from march 2023 for 18 months.

Candidate's profile: chemist with excellent theoretical and practical knowledge in analytical chemistry and organic chemistry & polymer science, with very solid know-how on chemical characterization to be able to work at the interface organic – macromolecular chemistry; fluent in English; highly motivated, pro-active, enthusiastic and dynamic researcher with scientific creativity and with very good communication skills; PhD thesis completed.

Duration: 18 months, starting in march 2023.

Salary: ≈ 2800 €/month.

Locations: Université Côte d'Azur, Institut de Chimie de Nice (Parc Valrose- 28 Avenue Valrose, 06108 Nice) and Centre de Mise en Forme des Matériaux, Cemef, Sophia Antipolis (<https://www.cemef.minesparis.psl.eu>).

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Application: Please send to the two contact persons (emails above): your detailed CV, motivation letter, a summary of their research/training experience, marks of your Master, PhD (PhD defence report, PhD thesis manuscript reviews) and at least two e-mail addresses and phone numbers of reference persons.