

Alexandra Chaumonnot

Chemical Engineer with expertise in catalytic materials and advanced plastics recycling.

Alexandra is a chemical engineer driven by a passion for sustainable innovation and material transformation. She graduated from the École Nationale Supérieure de Chimie de Toulouse (ENSCT) and earned her PhD in Organometallic Chemistry through a collaboration between LCC-CNRS and Rhodia. In 2013, she completed her habilitation to direct research (HDR) at Université Pierre et Marie Curie, focusing on oxide-based materials for industrial catalysis.

Two Decades of Expertise: From Oxide Synthesis to Recycling Innovation

Since 2002, she has worked at IFP Energies Nouvelles (IFPEN) in the Catalysis, Biocatalysis and Separation department. Initially, her work revolved around the synthesis and development of oxide materials such as silicas, aluminas and aluminosilicates. These materials are essential for refining and petrochemical applications and were a key focus of her work as a research engineer.

In 2018, she shifted her focus towards advanced plastics recycling, reflecting the growing importance of sustainability in her research. Her areas of interest include:

- understanding the physicochemical mechanisms underlying recycling loops, such as deformation, depolymerisation and conversion,
- improving analytical tools to better support the various stages of recycling,
- supporting the scaling up of innovative recycling technologies from laboratory concepts to industrial applications,
- understanding of the overall value chain around recycling in order to address relevant solutions.

These interests guide her work and inspire her to explore innovative solutions in the field.

She has also been actively involved in mentoring and supervising doctoral students. To date, she has supervised 17 theses, including four as Principal Supervisor on the topic of advanced recycling since 2022. Furthermore, she is a key actor in the national French PEPR program on 'Recycling, Recyclability, and Reuse of Materials', contributing specifically to the PVC recycling initiative.

Publications, Patents and Outreach

Up to date, she has contributed to 79 patents and authored or co-authored 33 publications in scientific journals. She frequently participates in plenary lectures and conferences focusing on advanced plastics recycling to share insights and research updates with the broader scientific community.

Alongside her academic work, she collaborates with engineering schools and master's programs to educate future engineers in advanced plastics recycling. She has also engaged with the general public by contributing to media appearances and documentaries aimed at raising awareness of recycling and sustainability, including an appearance on "L'esprit sorcier" <https://www.youtube.com/watch?v=h6TMvbToNDg>.

Focusing on collaboration and practical solutions, Alexandra continues to contribute to the advancement of cutting-edge recycling technologies while fostering dialogue around sustainable innovation.