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15 minutes of reading

News

Fundamental Research

Renewable energies | Biofuels and e-fuels | Bio-based chemistry | Responsible oil and gas | Fuels | Petrochemicals



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Catalysis and separation are essential fields when it comes to conceiving **environmentally friendly innovations** in the energy and chemistry sectors. By combining

catalytic and separation steps, innovative, more **energy-efficient processes** can be developed, with better yields and limiting the production of **by-products**. This has a major impact given that over 80% of the products we use today have undergone one or more of these steps during their manufacturing process!

Drawing on its expertise and advanced methodologies, combining high-throughput experimentation with molecular modeling, IFPEN has established itself as an internationally recognized player in the design of **differentiated catalytic and/or separation solutions**. For example, it is now one of the world leaders for publications and patents in the field of s**ulfide catalysis, metal catalysis, acid-base catalysis and molecular catalysis**. It is also actively involved in the development of new sectors, such as **biofuels, bio-based chemistry, or CO_2 conversion.**

Its broad influence is illustrated here by a few studies published recently in liaison with academia.

I hope you enjoy reading this issue.

Denis Guillaume, Director of the Catalysis and Separation Division

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Summary:

- **Zeolite based adsorbents and xylene separation**: cracking the combination
- **Quantum chemistry** sheds light on catalytic mechanisms
- A catalytic combination for **bio-based plastics**
- **Cracking heavy crudes**
- **Effective fuel desulfurization**: a question of orientation
- **Fischer-Tropsch**: a synthesis process that’s still green

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