

Industrialization of Chemical Recycling – Technical, Regulatory and Market Perspectives from OMV's ReOil® Scale-Up Journey

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Chemical recycling is increasingly recognised as an essential complement to mechanical recycling for processing post-consumer polyolefin waste streams that cannot be effectively recycled through conventional routes. However, the transition from pilot and demonstration facilities to commercially viable industrial assets remains one of the greatest challenges facing the circular plastics economy. This paper presents OMV's experience gained during the development and industrialisation of the proprietary ReOil® technology, highlighting key technical learnings, regulatory requirements, and market dynamics shaping future deployment.

ReOil® converts mixed post-consumer polyolefin waste into circular hydrocarbon feedstocks through a continuously operated pyrolysis process integrated into refinery and petrochemical infrastructure. Following more than fifteen years of development, the technology progressed from laboratory and pilot-scale operation to the industrial ReOil® Plant in Schwechat, Austria. Continuous operation at nominal design capacity has validated critical scale-up assumptions, including feedstock flexibility, refinery integration, pyrolysis oil upgrading, and product certification pathways.

Beyond technology, the future of chemical recycling in Europe is strongly influenced by regulation. Ongoing discussions surrounding the Packaging and Packaging Waste Regulation (PPWR) and associated mass-balance methodologies will affect investments and market development.

Market developments reveal a growing divergence between Europe and China. While regulatory uncertainty and slower project development have tempered European growth, China has positioned chemical recycling as a strategic industrial priority, supported by substantial investments and rapid capacity expansion.

The paper concludes that successful industrialisation of chemical recycling requires the alignment of technology, regulation, and business models. OMV's ReOil® journey demonstrates that technical feasibility has been established, while future deployment will depend on robust regulatory frameworks, effective refinery integration, disciplined scale-up, and market demand.