

Innovative approaches in plastic waste chemical recycling

Effective waste management represents a critical global environmental issue. Both waste management and circular economy aim to reduce waste and improve resources use. The most recent waste management systems focus on maximizing recycling and reuse, reintroducing materials into the economy instead of relegating them to landfills or incineration. Due to their wide heterogeneity, plastics are among the most difficult kind of waste to manage; indeed, plastics recycling processes require a mix of different technologies, from mechanical selection for simpler and cleaner waste streams, to chemical recycling for more complex materials that need regeneration.

In such framework, MyRemono, NEXTCHEM subsidiary (MAIRE Group), has developed a proprietary and innovative continuous modular technology for the chemical recycling of plastic waste based on depolymerization of the feedstock in a molten metal based medium. The disruptive approach of NXRe technology already allows the large-scale production of high-quality recycled Methyl Methacrylate (r-MMA) from secondary raw materials sourced from PMMA (poly-methyl-methacrylate) waste and is expected to achieve about 96% Greenhouse Gas (GHG) emissions saving respect to traditional MMA production process.

The technology also aims to expand its application to other types of plastics, such as polystyrene (PS) and polyolefin (PO), thereby representing an effective solution to improve the production of sustainable plastic products, gradually helping in reducing dependence on fossil raw materials for intermediates and embracing a fully circular model.