

Title: Chemical Recycling of Polyurethane Foams

Abstract: In a groundbreaking collaboration, KraussMaffei, RAMPF, REMONDIS, and BASF are working on a continuous depolymerization process for the recycling of rigid polyurethane (PUR) foams from old refrigerators (EOL). The goal is to close the material loop and optimize energy utilization and material recovery. The process is based on chemical recycling through depolymerization to obtain high-quality recycled polyol, which can be re-used in the production of new PUR materials.

The challenge lies in developing a robust process that efficiently converts post-consumer waste with high levels of contaminants into high-quality recycled polyol. The collaboration aims to commercialize what has been proven on lab-scale, requiring efficient cooperation among all actors in the recycling chain. The ecological and economic evaluation of each phase of the recycling process is crucial.

This continuous process could make a significant contribution to sustainable raw material security and the reduction of CO₂ emissions by keeping carbon in the material cycle and reducing dependence on fossil raw materials.