New developments in post-consumer PVC waste advanced recycling - Eric Romers

Currently, about 30% of PVC waste in Europe undergoes mechanical recycling. INEOS Inovyn's Project Circle aims to address the challenge of recycling the remaining PVC waste by developing innovative technologies such as dissolution, pyrolysis, and gasification.

Internally, we are advancing dissolution technology and, in May 2024, launched two pilot plants in Jemeppe-sur-Sambre, Belgium, where our main R&D center is located. Building on the expertise gained from Vinyloop™ technology, these pilot units are designed to recycle complex PVC waste, including materials containing legacy additives. Test show that we are REACH compliant in extracting stabilisers and plasticisers.

In collaboration with partners, we are also advancing gasification technology, with successful pilot plant tests conducted. The main goal is to recover chlorine for reuse in our vinyl production chain and convert carbon into syngas, which can be further processed into valuable products.

For pyrolysis technology, INEOS Inovyn is developing a two-step approach: first, dechlorinating PVC, and then pyrolyzing the dechlorinated material. Working with partners, we have successfully conducted pilot plant tests, aiming to recover chlorine for recycling in our vinyl production chain and convert carbon into pyrolysis oil.