

RePPPy - Reduction of process emissions from phenol production using alternative carbon sources via pyrolysis

CHALLENGE

Plastics are mainly produced from fossil raw materials such as crude oil. The petrochemical processes required for this inevitably generate by-products and emissions, in particular CO₂.

In this context, phenol is an important basic chemical and a key intermediate product in the manufacture of various plastics, including polycarbonate (PC). Phenol is mainly produced industrially using an established process that is associated with high greenhouse gas emissions and offers only limited potential for further emission reductions.

OUR PROJECT

The joint project RePPPy aims to significantly reduce process emissions from phenol production by replacing fossil oil with plastic waste as a carbon source. The core idea is a selective pyrolysis process in which mixed polycarbonate waste streams (including PC blends with ABS, SAN, PMMA) are converted into a pyrolysis oil from which phenol in particular, but also styrene and MMA, are recovered as valuable products. This is expected to reduce raw material-related greenhouse gas emissions to almost zero, save up to approx. 50% CO₂ compared to the conventional phenol route, and at the same time reduce fossil resources and plastic waste.

PARTNERS

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