HORIZON-CL4-2021-TWIN-TRANSITION-01-17

Plastics2Olefins

Full Title: Recycling plastic waste into high-value materials - Closing the Loop

Aim:

Plastics2Olefins project will design, build, and run a demonstration plant for recycling of unsorted plastic waste at Repsol's industrial site (Spain), which will be digitalized and run on 100% renewable (electric) energy. The project estimates to reduce the lifecycle GHG emissions by 70-80% compared to incineration and existing plastics recycling processes, providing an important contribution to the EU reaching climate neutral by 2050 and set a pathway for commercialization of recycled plastic feedstock replacing fossil feedstocks.

Concept:
Plastics2Olefins aims to demonstrate a novel plastics recycling process based on high-temperature pyrolysis, as the main product will be a gas stream instead of a liquid, so it will reduce the lifecycle GHG emissions by more than 70% compared to existing plastics recycling processes for unsorted plastic waste. It also will reduce by more than 80% compared to the current end-of-life options for these wastes, i.e., incineration. The project will realize this in a two-step approach: first by adapting and testing a scaled pilot plant at Repsol Technology Lab to optimize the components and process conditions and finally, a pioneering full-scale industrial demonstration plant at Repsol's petrochemical site, which will be finally operated in a six-months validation campaign. To optimize the carbon footprint of such a plant, the project will design and construct a plant that can be fully electrified by renewably generated electricity.

Start date:
01/06/2022

End date:

31/05/2027