

Demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste (MSW) into URB (FIN new BioBased products (URBIOFIN)

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Each person in Europe generates an average of 500 kg of municipal solid waste (MSW) per year.

Around 50 percent of this is organic waste, made up of carbohydrates, proteins and lipids, all of which represent useful raw materials for creating valuable products.

Organic waste as a resource



Therefore the URBIOFIN project will demonstrate the techno-economic and environmental viability of converting 10 tonnes per day of the organic fraction of MSW (OFMSW) into chemical building



urban biorefinery

However, until today this potential has not been fully exploited.

blocks, biopolymers and additives.

Converting OFMSW into valuable products



IMPACT

The URBIOFIN project is aiming to deliver the following results:

- To demonstrate an enhanced valorization pathway of the entire organic fraction of MSW, as compared to the current valorization processes, by converting it into chemical building blocks, biopolymers and additives.
- To achieve a competitive price for the products derived by the URBIOFIN process. To prepare the market for future introductions and commercialisations by ensuring products comply with requirements of EU legislation for safety, quality and purity. • To boost the uptake of the Urban-biorefinery concept in Europe by offering a sustainable and economically interesting approach to valorise the OFMSW.
- To reduce GHG emissions and contribute to the shift from a linear to a circular bioeconomy.

Module 1 OFMSW to bio-ethylene

The Organic Fraction of MSW will be processed at PERSEO Bioethanol® Pilot Plant



Bio-ethanol obtained after hydrolysis and fermentation will be further used for Bio-ethylene production





 \geq Dehydration of ethanol to ethylene module.

- Use of very active and selective catalysts for the production of ethane from ethanol.
- Operating at low temperatures
- Suppressed the formation of non-desired byproducts, especially carbon oxides
- Not necessary scrubber, and no need of consumption of caustic solutions.

Bio-Ethanol Flow: 50 l/day Bio-Ethylene Production: 0.81 kmol/day (856 ln/h) Purity of Ethylene: 99%



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