



## The demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste into new Biobased products

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

Therefore the URBIOFIN project will demonstrate the techno-economic and environmental viability of converting the organic fraction of MSW into **chemical building blocks, biopolymers and additives**.



# ABOUT

The aim of the URBIOFIN project is to demonstrate the techno-economic and environmental viability of the conversion of 10 tonnes per day of the organic fraction of MSW into:

- Chemical building blocks  
(bioethanol, volatile fatty acids, biogas)
- Biopolymers  
(short and medium chain polyhydroxyalkanoates, composites combining different PHAs)
- Additives  
(bioethylene, microalgae derived biochemicals)



## ORGANIC FRACTION OF MUNICIPAL SOLID WASTE (OFMSW)

### URBIOFIN - Biorefinery

#### BIO-BLOCKS

- Bioethanol
- Volatile fatty acids
- Biogas

#### BIO-POLYMERS

- Polyhydroxyalkanoates
- Combined PHA's

#### ADDITIVES

- Bioethylene
- Aminoacids rich liquid biofertilizers
- Solid biofertilizers

VALUE

## BIOBASED PRODUCT

Bioethanol

Medium chain fatty acids (MCFA)

Biogas

Bioethylene

Short chain polyhydroxyalkanoates (scl-PHA)

Medium chain polyhydroxyalkanoates (mcl-PHA)

Biocomposites of scl-PHA and mcl-PHA

Aminoacids

Dry organic-mineral granules

## USE/FINAL APPLICATION

Chemical building-block for bioethylene production and VFAs elongation

Chemical platform for mcl-PHA production

Chemical building-block for scl-PHA production and for biomethane production

Ripening gas in post-harvest fruit chambers

Agriculture bioplastics and household plastic bags

Cosmetic bio-packaging

Cosmetic and hygiene bio-packaging

High value-added liquid biofertilizers

Solid biofertilizers

### PERSEO Biorefinery



### CIAM Innovation Center



### CLAMBER Pilot Plant



# 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 organic fraction of MSW.
- To reduce GHG emissions and contribute to the shift from a linear to a circular bioeconomy.



# PARTNERS

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 URBIOFIN Project




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