Demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste (MSW) into new BioBased products (GA 745785)

BUDGET: 15 M€; GRANT 10.9 M€
4 YEARS (June 2017–May 2021)

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IMECAL
BIOMASA PENINSULAR


**BIOWASTE AS A RESOURCE**
URBIOFIN Project OBJECTIVE

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, med or short VFAs, biogas),
- Biopolymers (low and medium chain PHAs, composites combining PHAs)
- Additives (Bioethylene, Microalgae derived biochemicals).
- Other (Bio-based fertilisers)

NEW MODEL OF OFMSW TREATMENT

Landfill
Composting
Anaerobic Digestion

Biorefinery
**CONSORTIUM**

- 16 partners covering the value chain of OFMSW to bio-based products
- Coordinator: IMECAL

- 2 Industries
- 7 SMEs
- 5 RTOs
- 2 Associations

**OBJECTIVES**

[Image of various logos and a map of Europe]
URBIOFIN technical Objectives

TECHNOLOGIES DEMONSTRATED IN URBIOFIN PROJECT

- Bioethanol from OFMSW as chemical building block
- Ethylene from OFMSW
- VFA from 2 phase AD
- VFA Elongation to MCFA
- SCL-PHA production
- MCL-PHA production
- Open pond photobioreactor for integral biogas upgrading
- Two-stage biological system for biogas revalorization by PHAs production
- Biological polishing unit removing volatile methyl siloxanes from biogas

<table>
<thead>
<tr>
<th>Biobased product</th>
<th>Use/ final application</th>
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<tbody>
<tr>
<td>Bioethanol</td>
<td>Chemical building block for bioethylene production and VFAs elongation</td>
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<td>Mcl fatty acids (MCFA)</td>
<td>Chemical platform for mcl-PHA production</td>
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<tr>
<td>Biogas</td>
<td>Chemical building block for scl-PHA</td>
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<td>Bioethylene gas</td>
<td>Ripening Gas in Post-Harvest Fruit Chambers</td>
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<td>Short chain (scl-PHAs)</td>
<td>Agriculture Bioplastic and use for household bags</td>
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<td>Medium chain (mcl-PHAs)</td>
<td>Bioplastic for packaging</td>
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<tr>
<td>Biocomposites of scl and mcl-PHA</td>
<td>Cosmetic and hygienic applications</td>
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<tr>
<td>Aminoacids rich liquid fertiliser</td>
<td>High added value liquid biofertilisers</td>
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<td>Bio-based fertilisers</td>
<td>Solid Biofertiliser</td>
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DEMONSTRATION Activities

L´Alcudia (Valencia).
IMECAL-PERSEO Bioethanol Plant

Puertollano (Ciudad Real).
IRIAF. CLAMBER

Zaragoza . URBASER
Centro Alfonso Maillo
URBIOFIN *Expected Impacts*

Demonstration of higher added-value production than current valorisation of the organic fraction of MSW (Biogas /Compost).

Competitive price of the URBIOFIN bio-based products.

Safety, quality and purity of the (new) bio-based products in line with EU legislation and meeting intl´standards and market demands.
Thank you for your attention!!