URBAN BIOREFINERY: ADVANCED BIOETHANOL, BIOPRODUCTS AND BIOENERGY FROM ORGANIC MUNICIPAL SOLID WASTE

Working for a circular bioeconomy at local and regional level

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Metal mechanical company funded in 1979.
High technological capacity.
Experience in petrochemical and refinery sectors.
25,000 m² of facilities. 180 employees.
Semi-industrial plant PERSEO Bioethanol®.
About 100 Mt of municipal biowaste is generated every year in Europe.

Only about a third (30 Mt) of this was separately collected and composted and/or digested (European Compost Network (ECN)).

**Waste Framework Directive**
Demand of sustainable and competitive biowaste treatment processes
Biotechnological process:
Transform the organic fraction of municipal waste into advanced bioethanol, bioproducts and bioenergy.
BIOREFINERY FROM ORGANIC URBAN WASTE

PERSEO Bioethanol® Process

PERSEO + AD
- Municipal Solid Waste
  - Sorting
  - AD
  - Bioethanol
  - Biogas
  - Biofertiliser
  - Reject

PERSEO + WTE
- Municipal Solid Waste
  - Sorting
  - Waste to Energy
  - Bioenergy
  - Reject (ashes)
  + 50%

PERSEO + composting
- Municipal Solid Waste
  - Sorting
  - Composting
  - Bioethanol
  - Biofertiliser
  - Reject

*From sorted OFMSW
The Process is Real, Feasible, Replicable and Profitable.

- Proven Pre-industrial process.
  Pilot plant 25 t/d from 2007.

Technology:
- Simple biotechnological process.
- Compatible with the existing MSW treatment facilities.
- Better economical results than current MSWT
Demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste (MSW) into new BioBased products (GA 745785).

Project Budget: 15 M€ (Grant 10.9 M€).
4 years project (6/2017 – 5/2021)
URBIOFIN Project Objective

Most sustainable and profitable MSW management model

Landfill
Composting
Anaerobic Digestion

Biorefinery

URBIOFIN - Biorefinary

OFMSW

BIO-BLOCKS

- Bioethanol
- Volatile fatty acids
- Biogas

BIO-POLYMERS

- Polyhydroxyalkanoates
- Combined PHA's

ADDITIVES

- Bioethylen
- Biochemical products

VALUE
Benefits of an urban biorefinery:

**Profitability**

- Higher annual benefits, when compared to current MSW technologies

**Versatility**

- Versatility to treat different fractions of waste to obtain maximum added value and profitability

**Circular Economy**

- Improvement of the performance through the use of by-products generated in their own processes – landfill diversion

**Bioresources**

- Reduction of fossil resources dependence in energy and products.

**Sustainability**

- Evolution towards the path of the bioeconomy defined by the EU.

- Waste is a resource: Circular economy.

- Boost competitiveness, foster sustainable economic growth and generate new jobs
Thank you for your attention!!

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