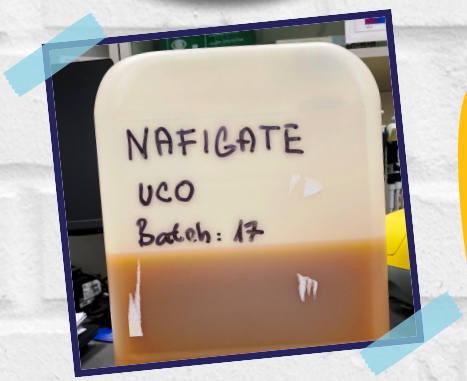
WaysTUP!

VALUE CHAINS FOR DISRUPTIVE TRANSFORMATION OF URBAN BIOWASTE INTO BIOBASED PRODUCTS IN THE CITY CONTEXT

BIOPLASTICS FROM USED COOKING OIL (UCO)

TURNING UCO INTO BIOPLASTICS: SOCIAL, ECONOMIC AND ENVIRONMENTAL BENEFITS

UCO (Used Cooking Oil) → Physico-Chemical conversion into Free Fatty Acids (FFAs) → Biotechnological Conversion of FFAs into lcDCA (long chain dicarboxylic acids) → Refining and Purification of lcDCA → Chemical Conversion → Polymerization and Reactive Extrusion → Bio-Plastics for Packaging Applications



1.66 Mt of UCO per year in EU: 0.854 Mt household and 0.806 Mt HORECA

THE PRODUCT

The technologies developed by Novamont valorize and convert a waste (UCO) with relevant environmental impact into a suitable building block (lcDCA) to be used for the synthesis of bio-polyesters in blending with other building blocks coming from renewable sources. The bio-polyesters obtained are used to produce innovative, biodegradable and compostable bioplastics suitable for packaging applications.

THE PROJECT

The EU funded WaysTUP! project aims to demonstrate the establishment of new value chains for urban biowaste utilisation to produce higher value purpose products through a multi-stakeholder approach in line with the circular economy.

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no. 818308.

THE PLANS

Commercialization of Biodegradable and Compostable Bio-Plastics based on bio-based lcDCA suitable for Packaging applications.

NOVAMONT

Novamont is a Benefit Company, B Corp certified, international leader in the bioplastics sector and in the development of bioproducts and biochemicals obtained through the integration of chemistry, environment and agriculture. Novamont pursue the common benefit objective of territorial regeneration, through the promotion of a circular bioeconomy. The technology was developed in the frames of WaysTUP! pilots' activities.

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INDUSTRIAL STRUCTURE

Turnover 2021
€414mln

Employees
>650

Mater-Bi / Bioplastics
total production capacity
>180,000 ton/y

Origo-Bi / Biopoliesters
total production capacity
>110,000 ton/y

Bio BDO
from fermentation
total production capacity
30,000 ton/y

Bioplastic applications
troduction capacity
(BioBag)
90,000 Mton/y

Pelargonic Acid
Azelaic Acid
(Matrica – JV Novamont Eni Versalis)

Dielectric oils and biolubricants
Matrol-Bi

Tetrahydrofuran – Thf

Biomethane

RESEARCH AND DEVELOPMENT

3 research centers

5 world's first technologies

~1,500 patents/patent applications to 2022

50ML industrial investment & R&D in 2021

~20% people dedicated to research, development and innovation activities

3 technology hubs with pilot plants and demo plants

TRAINING CENTER

>450 training activities since 1966 for young researchers and expert figures, multidisciplinary training paths activated with national and international universities and research centers.

THE PILOT

Two Novamont's facilities are involved in the process development:

- The Research Center for the development of industrial biotechnologies located in Piana di Monte Verna (CE), for the development and optimization of the Biotech Conversion of UCO into lcDCA.
- The Headquarter and Research Centre located in Novara and the Production Plant located in Terni, for the development and optimization of the use of lcDCA to produce Bio-Polyesters and Bio-Plastics.

Biotech Process lcDCA

Bio-Polyesters & Bio-Plastics

Process was developed in cooperation with two WaysTUP! Partners:

- Nafigate (UCO provider)
- Hayat (Packaging Applications)

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