

DEEP PURPLE



BIO- POLYESTER AND BIO-FILM

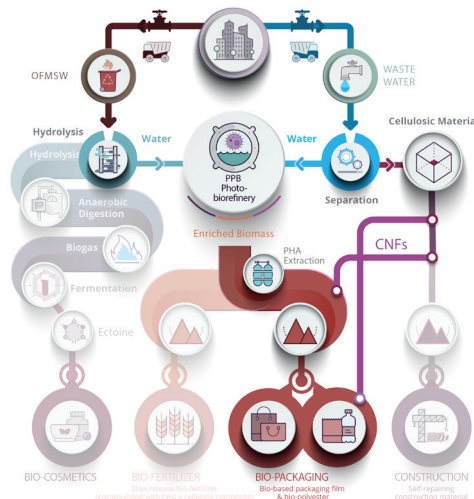
Biobased products derived with the help of PURPLE PHOTOTROPHIC BACTERIA



Challenge: Currently 75% of the up to **138 million tons** of **urban biowaste** are **incinerated and landfilled** in the EU with huge ecological and economical costs.

Opportunity: Biowaste and wastewater hold a great potential as a **source of renewable energy and recycled materials**. Wastewater contains valuable components such as cellulose and nutrients that can be used as feed-stock for many breakthrough applications.

Objective: Create **high value bioproducts** through a **Multi-Platform Photobiorefinery** approach. Develop bio-packaging and bio-film applications made out of PHA and CNF extracted from biowaste.



Solution: **Biobased polyesters for film applications** based on 1,4 Butanediol (BDO), derived from fermentable sugars obtained from cellulose and PHA as well as bio-based materials for **bio-packaging applications** developed using PHA combined with cellulose nanofibers (CNFs).

ITENE and ACTIVATEC provide the extracted PHA and cellulose materials which are then used by NOVAMONT for the industrialised production of 1,4 bio-BDO.

The process has been **validated at pilot scale**, and it was **upscaled to a demo level**, enabling the production of biobased compounded polyesters suitable for sustainable film applications.

PHA was also combined with CNF bio-packaging applications. CNF is obtained from wastewater sludge by ITENE. NATUREPLAST formulated and produced compounds with (PHA + CNF), and NOVAMONT conducted pilot injection trials for cosmetic packaging.



Bio-BDO plant

The EU funded project **DEEP PURPLE** aims to extract valuable resources from urban waste like the organic fraction of municipal solid waste, as well as wastewater and sewage sludge using a Multi-Platform Biorefinery centred around the integration of **Purple Phototrophic Bacteria**, focuses on recovering high value compounds for use in the bio-based industry. Learn more about the project at <https://deep-purple.eu/>

Bio-based Industries Consortium

This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 837996. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium



PARTNERS



**DEMO SITES
FLEXIBLE
BIOREFINERY:
FEED-STOCK
PRODUCTION**



**MATERIALS &
PRODUCTS
DEMO SITES:**



Construction
material



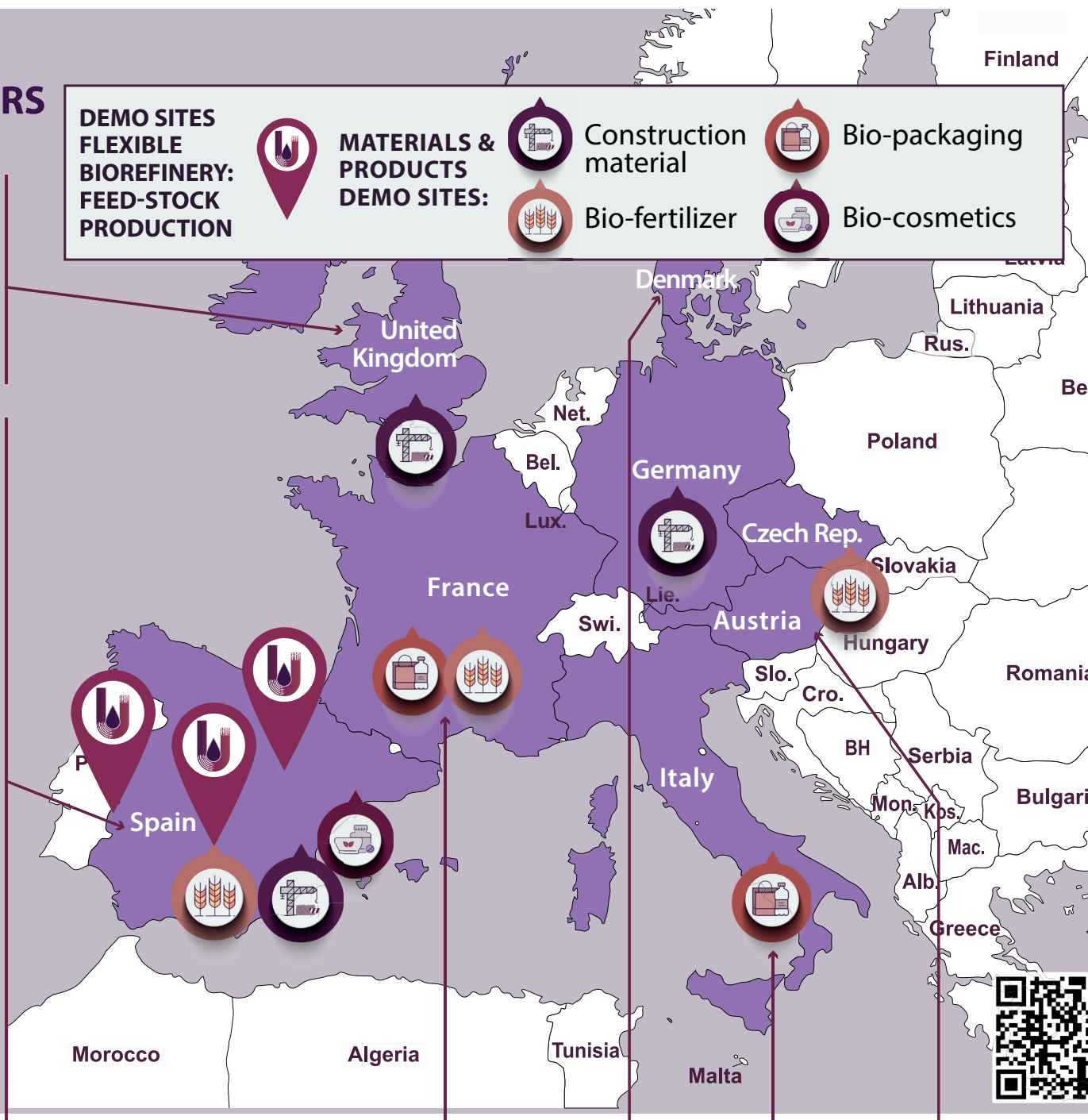
Bio-fertilizer



Bio-packaging
material



Bio-cosmetics



**RECOVER ENERGY &
VALUABLE RESOURCES
from urban waste streams
IN PHOTOBIOREFINERIES**
with the help of
**PURPLE PHOTOTROPHIC
BACTERIA**



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