



INN-PRESSME novel biomaterials - New investments and developments

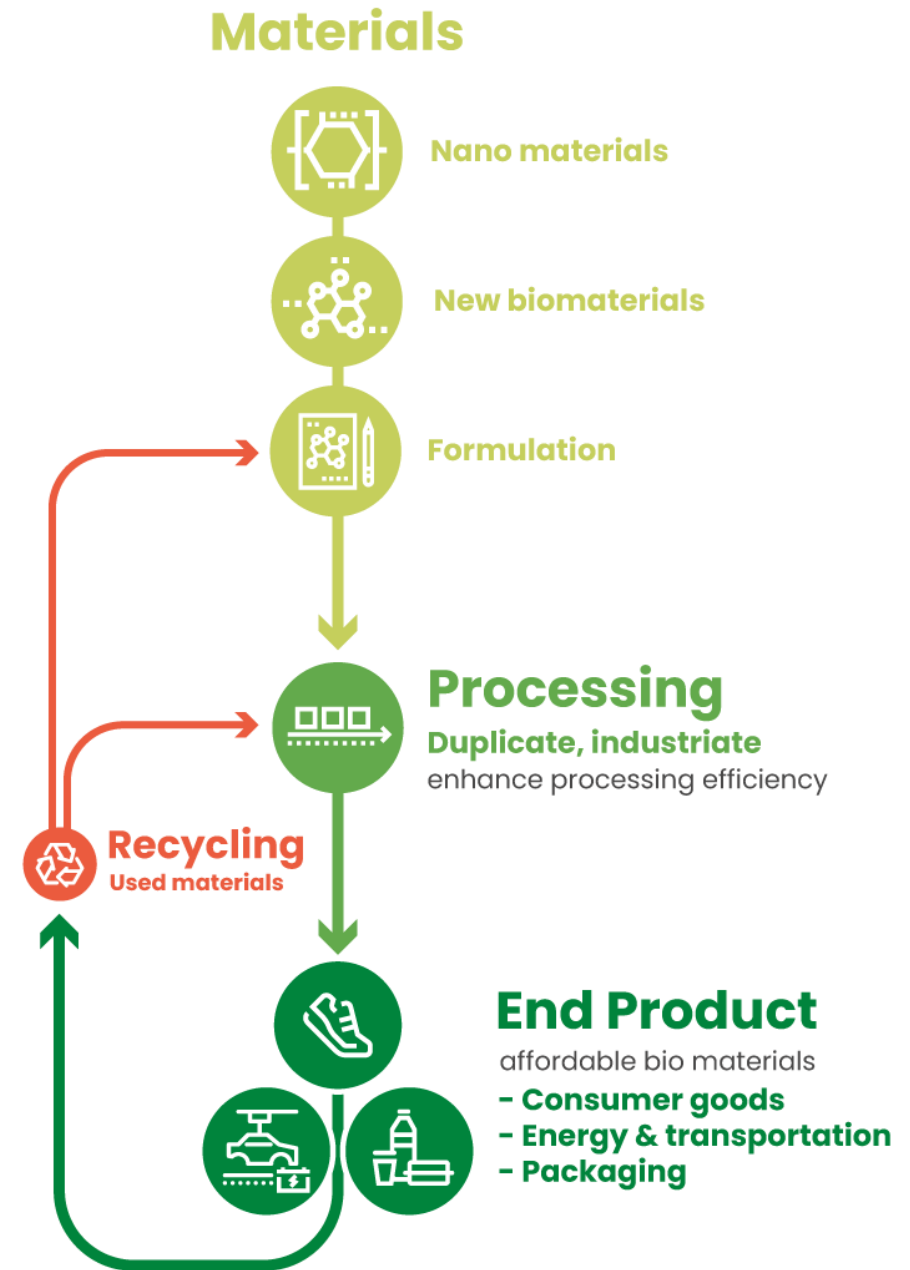
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The Project

INN-PRESSME aims at
**developing & implementing a
sustainable Open Innovation
Test Bed (OITB)** to support
European companies to **scale
up their nano-enabled
biomaterials & processes** from
TRL 4-5 to 7



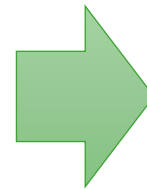
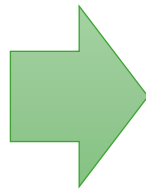
VTT: Process Chemistry pilots

PLAX and other bioplastics for packaging applications (polymers, dispersion)

- Polymerization reactors for production of bio-based polymers
 - Reactors for preparation of polymer dispersions and formulations
 - Characterization of synthesized polymers and dispersions
 - Online measurements and data collection to support production, process control and processing results
- Scale-up possibilities for polymers and dispersions
 - Vacuum shovel reactors available from 10 L to 600 L
 - Temperature up to 200 °C
 - Vacuum up to 10-20 mbar
 - Ability to mix high viscous products



Lödige DVT 10



Lödige VTA 600

Polymaris Biotechnology: PHA for packaging and other consumer products



Fermentation volume 1000 L

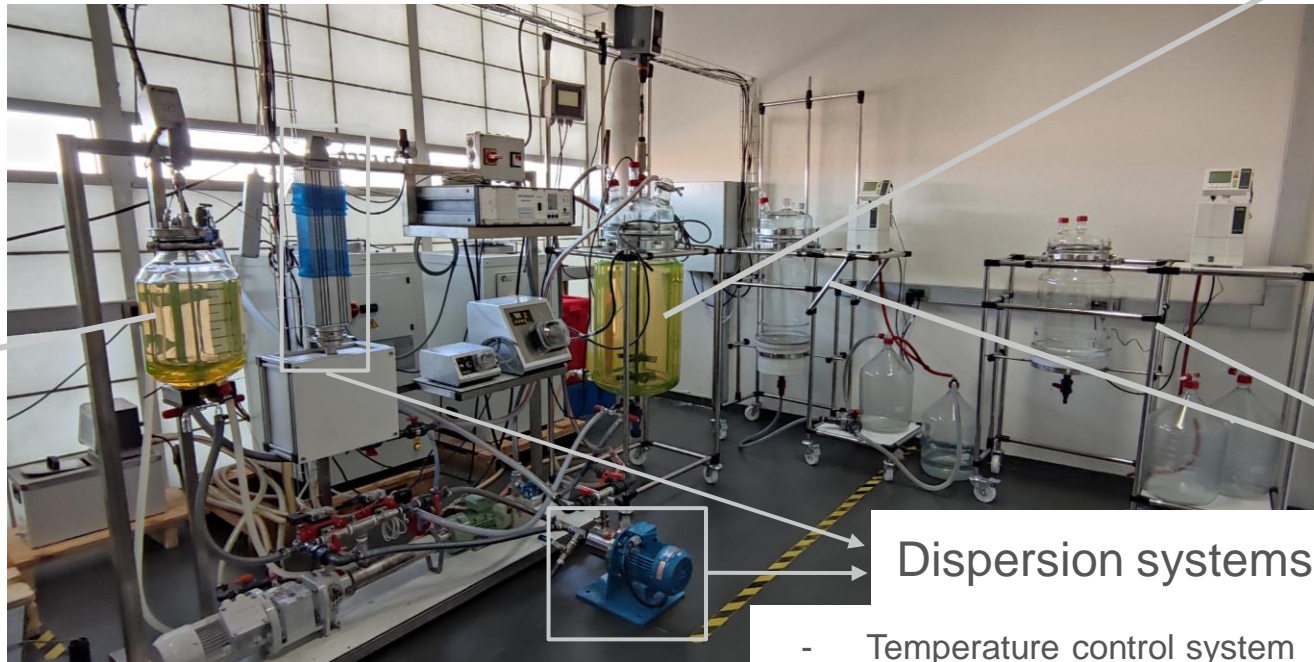
- The fermentation pilot for production of PHA powder by the fermentation of marine bacteria.
- Two ultrafiltration units for dia-filtering biomass to increase consistency before drying.
- Spray drying biomass before extraction of PHA
- Dried PHA powder can be used for foam extrusion and multi-nano extrusion coatings.



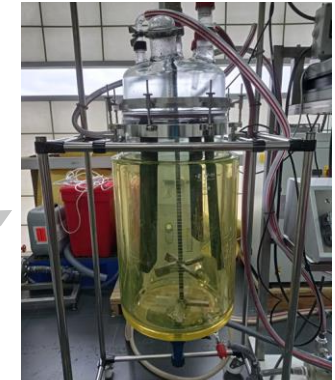
Gnanomat: Carbon-based nanomaterials for energy applications

- **Formulation** and optimization of carbon-based nanomaterials functionalized with metal oxide nanoparticles.
- Synthesis parameters adjusted as function of the **material characteristics of active electrode material**.

Reactor 5L



Reactor 50L



Filtration systems



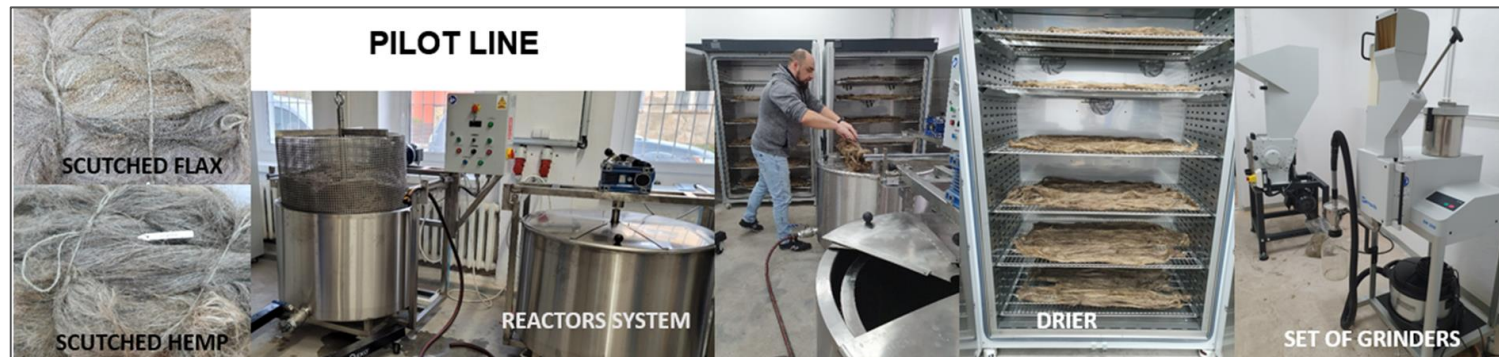
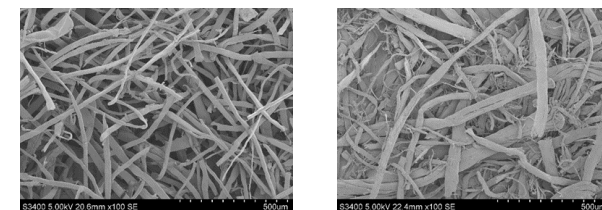
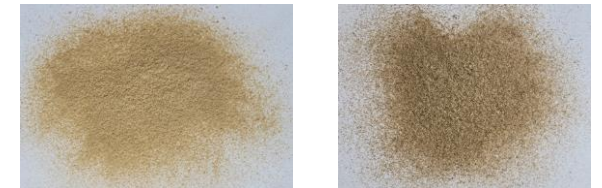
Dispersion systems

- Temperature control system
- pH control system

IWNIRZ: Flax/hemp microfibres for composites for transport and other consumer products

Pilot line combines following processes in semi-pilotscale:

- Degumming of long flax and hemp fibres aiming to their separation, e.g. dividing technical fibres on elementary fibres with diameter 20-30 μm ,
- Silanization and crosslinking in order to improve adhesion between hydrophilic bast fibres and bioplastics
- Drying after wet processes
- Cutting and grinding to obtain micro-size flax and hemp fibres as dry material



Open calls

- Supporting companies in developing & testing novel nano-enabled biomaterials
- Up to **12-15 companies** may receive subsidised access to OITB piloting services
- **1.6 M € overall budget for the validation with new test cases**
- For SMEs and industrial companies targeting to **produce packaging, energy/transport and other consumer products**
- Eligible countries: EU Member States & associated countries
- Will open 1.12. 2022 and applications are made digitally
- Submitted proposals are evaluated, first deadline: end of January 2023, second mid June 2023



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