

# European Sustainable BIO-based nanoMAterials Community

**BIOMAC** is a Horizon2020 project that will establish an Open Innovation Test Bed (OITB), a true collaborative ecosystem where technologies and solutions utilizing nano-enabled bio-based materials (NBMs) will be upscaled and prepared for market applications.

## THE Pilot Plant Supreme Hub OF BIOMAC

**BIOMAC** provides open access to 17 Pilot Lines that cover the whole value chain, starting from biomass pre-treatment, followed by the production of nanomaterials and intermediate platform chemicals, towards the development of bio-based products.



### Biomass Fractionation & Pre-treatment

**PL1:** Semi-continuous organosolv-steam explosion pre-treatment (LTU)

**PL5:** Hydrothermal pre-treatment (BBEPP)



### Final Products & Formulation

**PL9:** Continuous Reactive Extrusion for thermoplastic polyurethanes (LIST)

**PL11:** Reactive extrusion (REX) for PLA and PLA copolymer-based nanocomposites (AIMPLAS)

**PL12:** Resins PL (FH-WKI)

**PL14:** Coatings formulation (ITENE)

**PL15:** Additive manufacturing (AIMEN)

**PL16:** Printed Electronics (DTI)

**PL17:** Roll-to-Roll Nanopatterning & thermoforming (NANOTYPOS)



### Intermediate Materials & Nanomaterials

**PL2:** Hydrolysis of fibre sludge and bacterial nanocellulose production (RISE)

**PL3:** Sugar derived polyols and diols by catalytic hydrogenation/hydrogenolysis (AUTH)

**PL4:** Ultrasonic assisted nanolignin production (CNANO)

**PL6:** Purification of liquid fractions (BBEPP)

**PL7:** Enzymatic Hydrolysis & Microbial Fermentation for succinic acid and lactic acid (ATB)

**PL8:** Pyrolysis and carbonisation of biomass (UEDIN)

**PL10:** Mechanical milling and Production of different grades of NFC (LIST)

**PL13:** Mechanical treatment to produce NFC of NCC (ITENE)

#### Services

Circular Economy  
Regulation  
Sustainability Assessment  
Innovation Management  
Standardization  
Quality Control, Characterization  
Process Validation: Modelling  
Health and safety  
Data Management  
Value Chain Assessment  
Quality Control, Characterization

#### Materials

Nanolignin  
Sugar alcohols  
Biochar  
Lignin  
Poly(lactic acid)  
Glycols/diols  
Nanocellulose  
Cellulose  
Lignocellulose  
Succinic acid  
Lactic acid  
UV-curable Resins  
Cellulose

#### Technologies

Screen printing  
Coating formulation  
Reactive extrusion  
Pyrolysis and carbonisation of biomass  
Biomass fraction purification  
Hydrothermal pre-treatment of biomass  
Organosolv-steam explosion of biomass  
Fiber sludge hydrolysis  
Catalytic hydrogenation/hydrogenolysis  
Enzymatic Hydrolysis & Microbial Fermentation  
Mechanical milling  
Resin synthesis  
Additive manufacturing  
R2R Nanoprint lithography



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