



As frondosas autóctonas: A resiliencia do sector forestal?

28 y 29 de febreiro e 1 de marzo | UNED Lugo

**Biorefinery activities in Germany
UPM / Leuna Germany
Mercer Lignin center Rosenthal**

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Lignocellulose Biorefinery

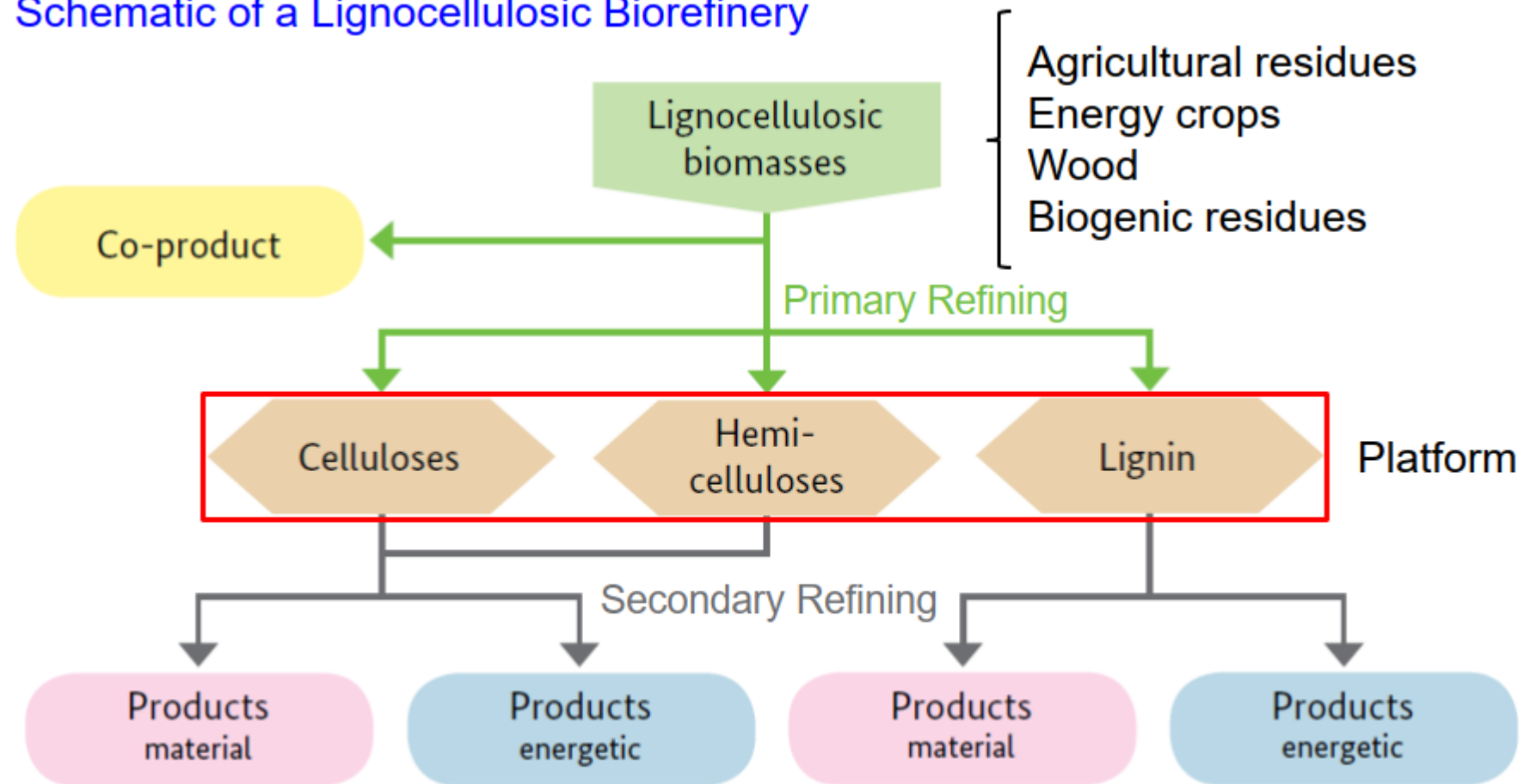
UPM Product portfolio

Site development Leuna

Mercer Lignin Center

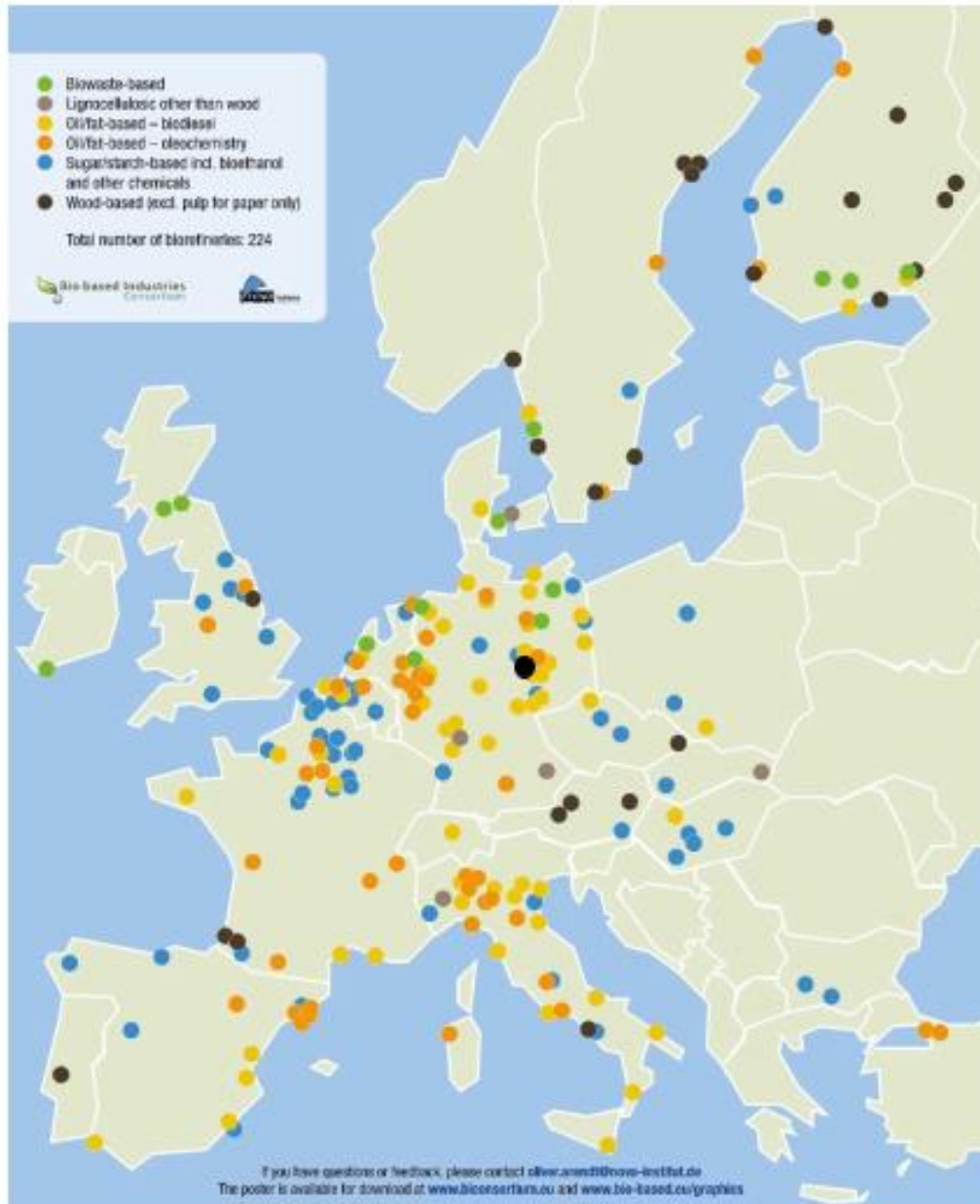


Schematic of a Lignocellulosic Biorefinery



Possible separate or joint further processing of cellulose and hemicellulose

Biorefineries in Europe



25 Wood-based Biorefineries with a range of products: pulp, bio-based chemicals, biofuels, electricity and heat (excluding pulp for paper)

- Finland 8
- Sweden 6
- Austria 3
- France 2
- Norway 1
- Czechia 1
- Portugal 1
- Italy 1
- UK 1
- Germany 1



RETHINKING CHEMISTRY – PROTECTING THE CLIMATE. UPM LEUNA BIOREFINERY



550 MILLION
INVESTMENT

PRODUCTION VOLUME:
220,000
TONS PER YEAR

> 100
EMPLOYEES
AT THE LEUNA SITE

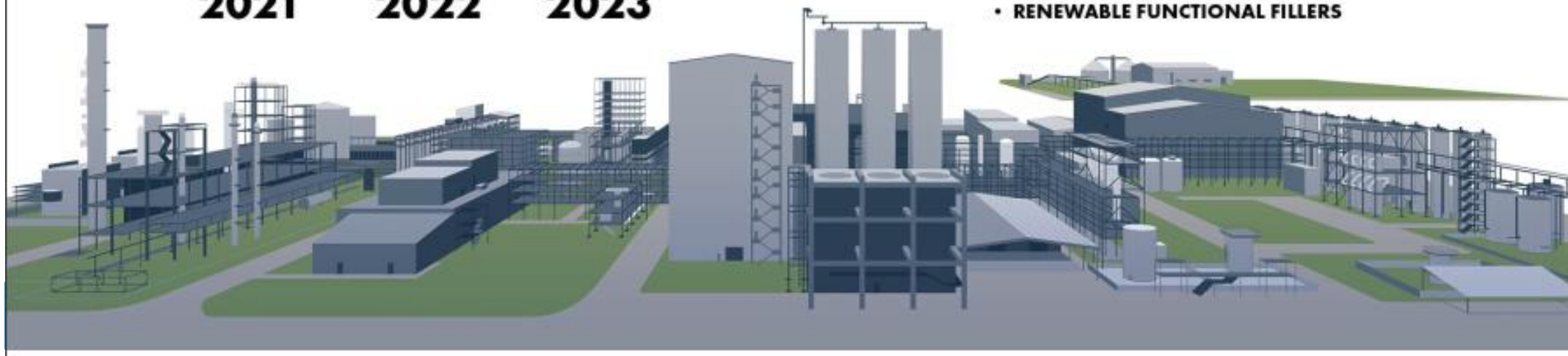
START OF CONSTRUCTION
JANUARY
2021

START
END
2022

PRODUCTION
RAMP-UP:
2023

BEECH WOOD-BASED PRODUCTS:

- BIO-MONOETHYLENE GLYCOL
- BIO-MONOPROPYLENE GLYCOL
- RENEWABLE FUNCTIONAL FILLERS



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BUILDING A STATE-OF-THE-ART BIOREFINERY IN LEUNA

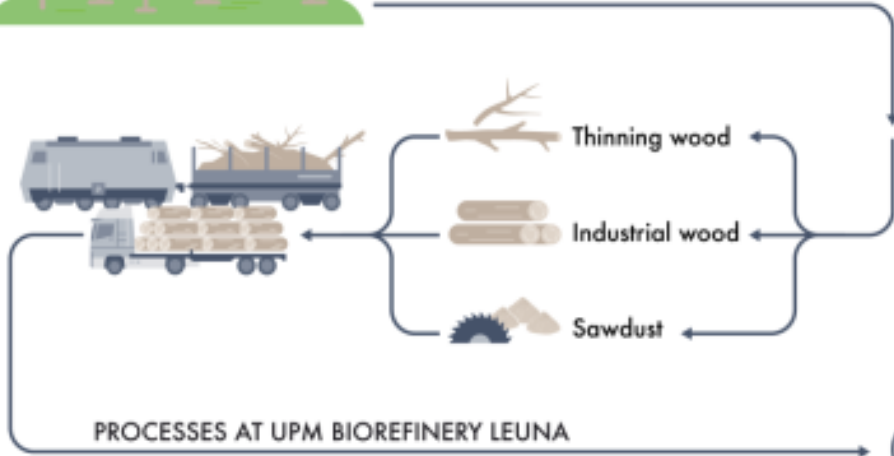
UPM BIOREFINERY LEUNA VALUE CHAINS



Sustainable biomass



REGIONAL LOGISTICS CHAIN



PROCESSES AT UPM BIOREFINERY LEUNA



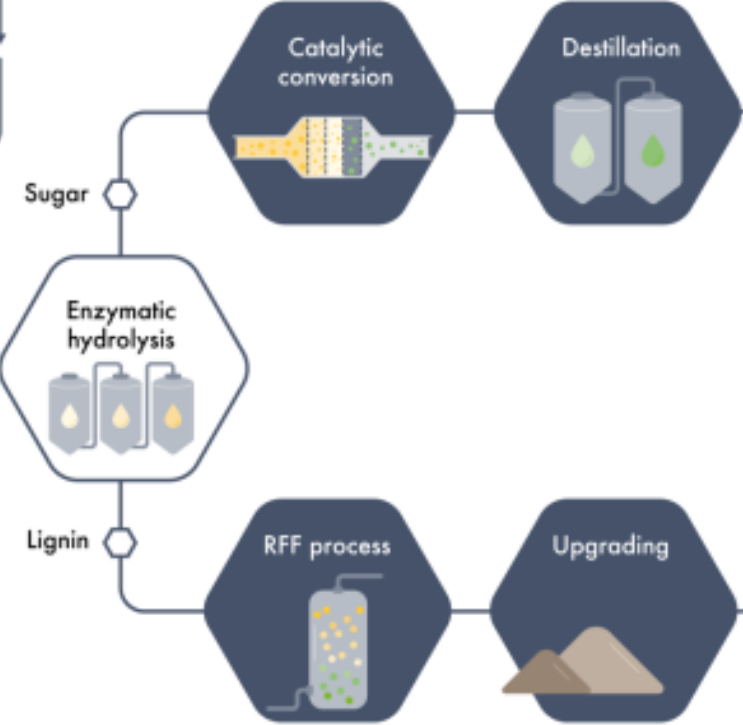
Debarking and chipping



Preparation



Industrial sugar



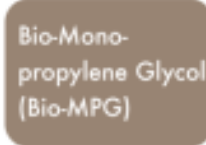
End uses



Bio-Mono-ethylene Glycol (Bio-MEG)



PET, packaging materials, polyester, engine/battery coolants



Bio-Mono-propylene Glycol (Bio-MPG)



Liquid agents and deicing fluids



Renewable Functional Fillers (RFF)



Various rubber applications



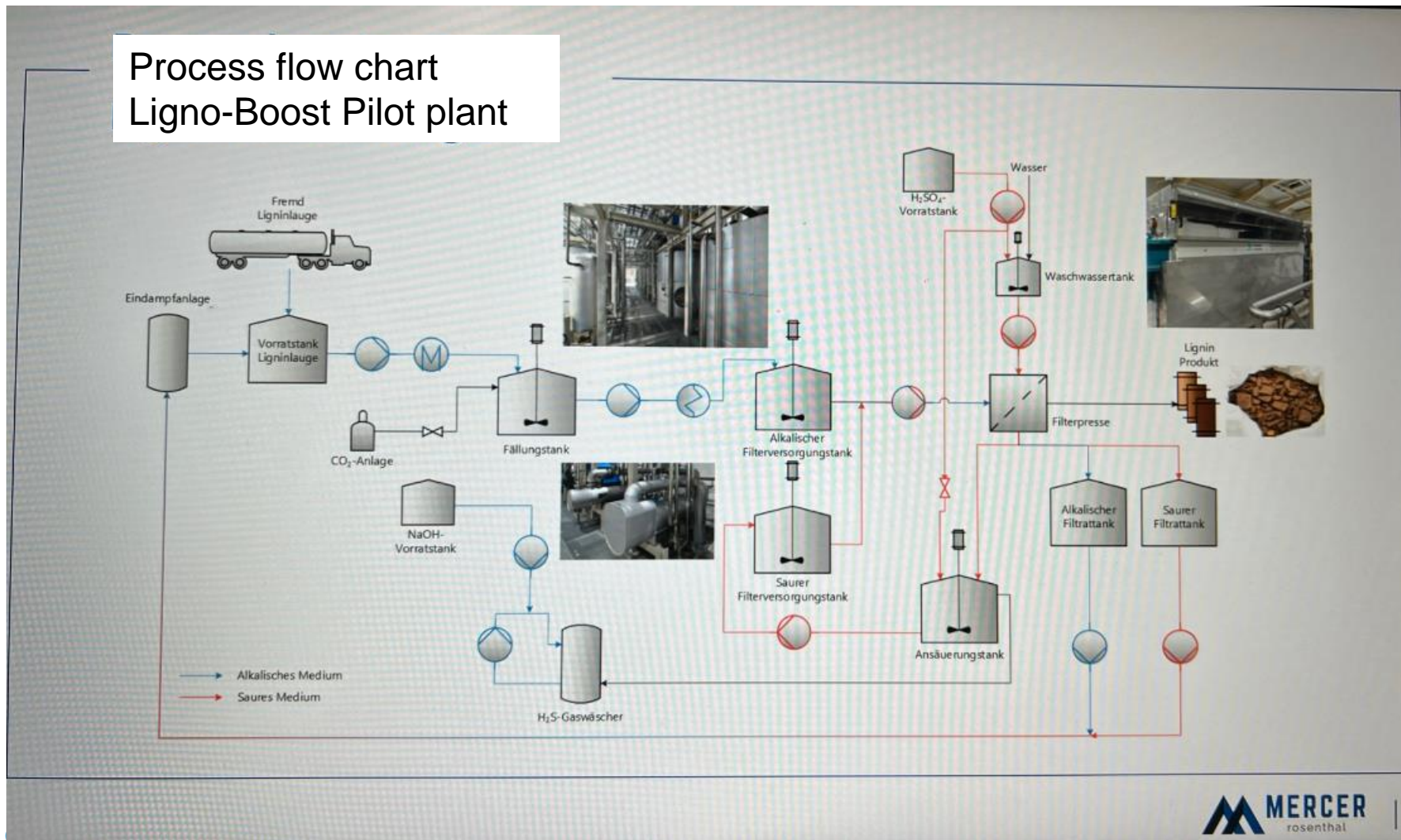
Mercer Lignin Center located on Mercer Rosenthal's site in Rosenthal am Rennsteig, Germany

- State-of-the-art Lignin Center with a capacity of 1,000 kilograms of high-quality lignin per day
- Close lignin development cooperation with universities, research institutes and other industrial companies
- Integration into the Rosenthal kraft pulp mill ensures smooth operation and enables the production of different lignin grades
- The phenylpropanoids, aromatic building blocks of lignin, are isolated and shall be used to manufacture a wide variety of materials and products such as plastics, medicines or paints. Other promising applications include the production of batteries and composite materials

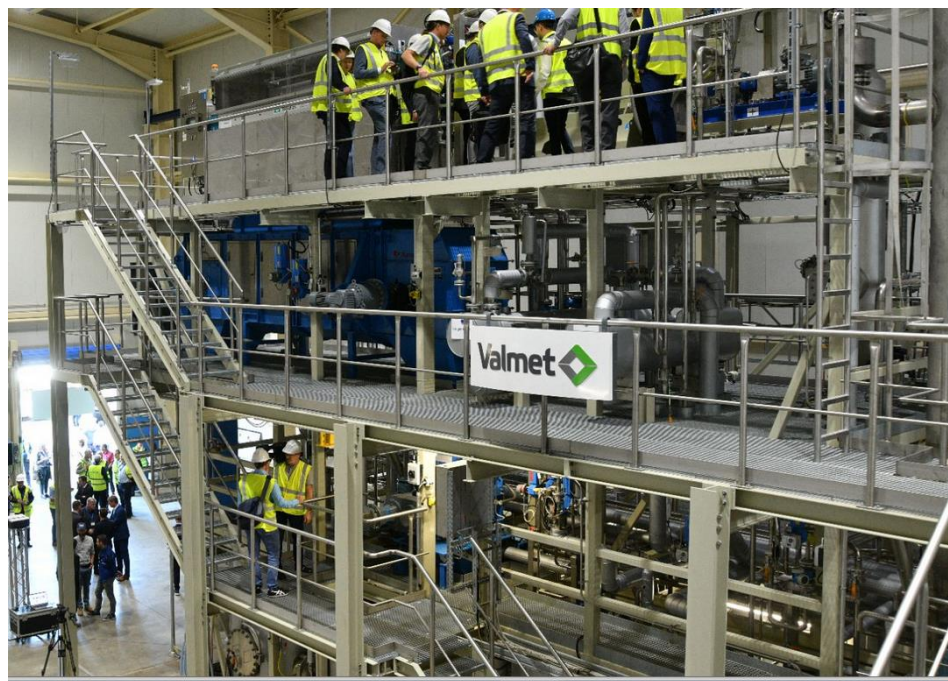
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Process flow chart
Ligno-Boost Pilot plant



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