Versalis PROESA® technology

a solution for industrial production of cellulosic biofuels

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Versalis: overview

5,300 employees

14 plants
(9 Italy, 4 Europe, 1 JV in Asia)

390 products

4.1 M€ turnover

5 research centers
~300 patents

With an integrated industrial platform, Versalis (Eni) – the leading Italian chemical company – offers a large portfolio to the market, consisting of about 400 products and new chemical intermediates from renewable raw materials.
Renewable feedstocks and the Circular Bioeconomy in Versalis

MINIMIZATION OF EXTERNAL (COMMUNITY) COSTS

- **CO₂ emissions** – reduction thanks to renewable raw materials and low transformation energy in production (LCA)
- **Good and efficient use of biomasses and agro food residues as feedstock** (non intensive agronomic protocol, not genetic modified)
- **Improve Product / Goods Technical properties to minimize littering issues** (eco design – end of life management – recycle/reuse – bio degradation)
- **New Integrated Technologies**, maximum exploitation of biomasses and cascade use of byproducts also for advanced bio-fuel

Prioritize sustainable value chains in areas where environmental impact is high and fossil products can/must be replaced with same or better performances

- **New products from renewables**
- **Biodegradable products**
- **Products / Goods easy to be recycled**

Lubricants | Herbicides
---|---
Rubber | Bio Plastics
Packaging | Bio Fibers
Fibers |
The target to keep the global warming below 1.5°C can be achieved only by a drastic reduction of CO2 emissions.

The Transport Sector is currently the second most important source of CO2 emissions.
According to a study by IEA, the fossil fuels that today represent more than 90% of the energy source in transportation sector, will progressively decrease to 14% by 2070, replaced by a combination of **advanced biofuels**, hydrogen and electricity.
Crescentino Highlights

2G sugars and Bioethanol production plants from biomasses employing Proesa® technology

Construction: 2011
Plant start-up: 2013
Capacity: ~ 25 kta of bioethanol
Bio gas – production plant
Crescentino: all-around sustainability

**WATER RESOURCES**
After industrial use, the water is cleaned, recycled and reused in a closed loop, minimizing consumption.
The water doesn’t come into contact with chemicals but only with biomasses.

**EMISSIONS**
The environmental impact of the Crescentino plant is particularly low and, on the contrary, saves atmospheric emissions equivalent to those of 40,000 cars. Emission abatement systems are installed, certified and controlled.

**SAFETY**
Working with ethanol and straw, highly flammable materials, done in cooperation with Vercelli Fire Brigade. Crescentino bio-refinery is equipped with all the safety devices and in compliance with the strictest HSE standards.

**INTEGRATION**
Crescentino is a fully integrated biorefinery. Lignin is co-produced by the bio-ethanol plant.
Bio-gas is co-produced from waste water treatment.
EE is co-produced by lignin and biomass to feed the plant with renewable EE.
Versalis licensing approach in the market of Proesa® technology

OPERATING REFERENCE PLANT
To support project development and ensure continuous improvements

GLOBAL LICENSING STRATEGY
To support licensees worldwide directly or through our partnerships

FULL SERVICE LICENSING OFFERED TO OUR GLOBAL COSTUMERS
- Technology package and basic engineering
- Proprietary equipment
- Unique biochemical solution provided in cooperation with our partners
- On site training and technical support
THANK YOU FOR YOUR ATTENTION