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June 27 and 28
Grand Hyatt Hotel
São Paulo - SP - Brazil



PROESA®: Green Chemistry and Biobased Products



Guido Ghisolfi – June 27, 2013

Who we are and what we do



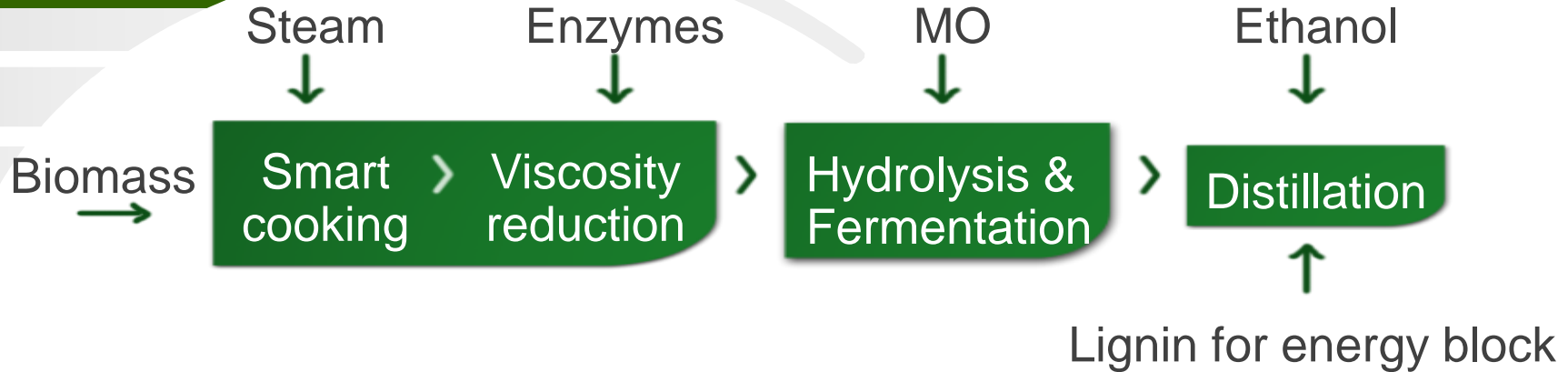
PROESA® = Produzione di **E**tanolo da Biomassa**sa**



licenses the technology in cooperation with



PROESA® Process Flow Diagram



PROESA® technology benefits



✓ Feedstock flexibility.



- ✓ Continuous process;
- ✓ No chemical addition;
- ✓ Optimal sugar extraction with low enzyme dosage.



✓ Fully integrated process design using continuous equipment to enable large scale plants.



✓ Best in class technology with lowest capex and opex backed with performance guarantees.

The development of a local biomass supply chain

Ligno-cellulosic feedstocks:

- ✓ Energy crops, e.g. giant reed (*Arundo Donax*);
 - ✓ Agricultural residues;
 - ✓ Sugar cane and wheat straw;
 - ✓ Rice straw.
 - ✓ Bagasse

View of rice fields in the Vercelli area where Crescentino plant is located



200 people fully dedicated
to Green R&D



Modugno, Puglia, Italy

- ✓ Modugno demonstration facilities for bio-hydrocarbons.

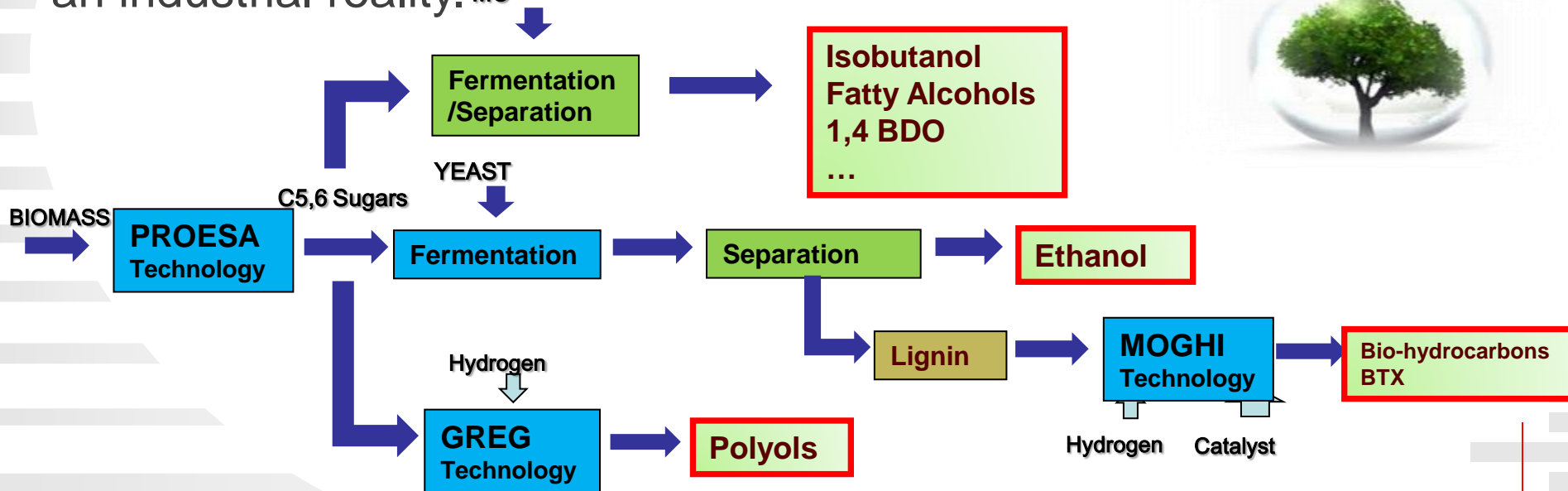


Rivalta Scrivia, Piedmont, Italy

- ✓ 4500 m² dedicated to renewable resources biochemistry and technology;
- ✓ Biomass sugars;
- ✓ Sugar to chemicals.

The biorefinery concept

- ✓ The use of PROESA® technology will enable the production of cheap and clean sugars;
- ✓ Thanks to a unique commitment, biorefinery will shortly become an industrial reality.





GranBio

First licensor in Brazil, the Alagoas Plant
and a long term partnership!



GranEnergia