

# 2nd Stakeholder Plenary Meeting of the European Biofuels Technology Platform

---

Implementing the Strategic Research Agenda for Sustainable  
biofuels – From pilots to demonstration plants

**FUTUROL**

**From pilot to demonstration: Ligno Cellulosic Ethanol**

**Pierre Porot, IFP**

- **R&D&D project to build the value chain of cellulosic ethanol from fields to tanks**

- ⇒ Versatile with regard to feedstocks
- ⇒ competitive and sustainable process
- ⇒ bring to the market a process, technologies and products (yeasts and enzymes)

- **Partnership of research labs and industrial companies dealing with every item of the value chain:**

Confédération Générale des Betteraviers (CGB), Unigrains, Crédit Agricole, Tereos, Total, Office national des forêts (ONF), Champagne Céréales, Institut National de la Recherche Agronomique, INRA, Lesaffre, IFP and Agro Industrie Recherches et Développement (ARD)

- **Budget: 74M€**
  - ⇒ **partially funded by OSEO**  
**and supported by the "pôle de compétitivité" IAR**
- **Dedicated company to follow up the project and industrialize the deliverables:**
  - ⇒ **Procethol 2G**
- **From lab (1kg/h) to pilot scale (1t/d) to prototype (100t/d)**  
**Lasting 8 years from 2008**

# FUTUROL process diagramme

## MATURITY LEVEL

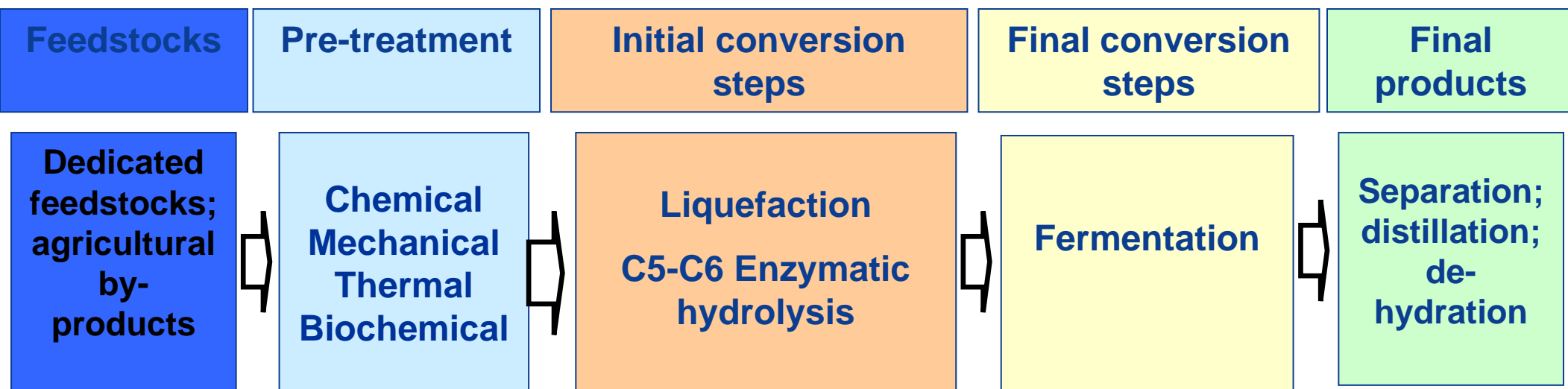
3

1-2

1-2

2-3

2-3



Maturity Levels: 1. lab 2. pilot 3. demo 4. industrial

	Feedstock supply	Pre-treatment	Liquefaction	Hydrolysis	Fermentation	Separation
Energy/ carbon efficiency	+++	++	+	+	+	++
Capex	+	++	+	++	+	++
Opex	+++	+	++	+++	+	+
Reliability	+++	+	++	++	+	+

Only the last step can be considered feedstock independent

- **The pilot will be built at Pomacle during 2009**
- **The demonstration will cover all steps, but it will be connected to the fermentation step of a 1st generation plant**
- **Sustainability is addressed through :**
  - ⇒ LCA including detailed analysis of feedstock supply (water, soil usage, N<sub>2</sub>O,...)
  - ⇒ Evaluation of the dedicated feedstocks on farm and territory scale

# FUTUROL planning stages

## Planning

