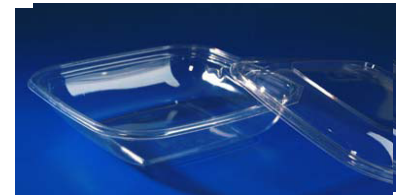


futerro



First PLA demonstration unit in Europe

1. Futerro

2. PLA and Process

3. Futerro Products and Applications

4. PLA Demonstration Unit

5. PLA and End of Life Management

Who is Futerro?



TOTAL PETROCHEMICALS



- Offering a new production technology for PLA.
- Supply lactic-acid based products (oligomers, lactide and PLA) for the polymer and commodity market.

Futerro's founders?



■ Is a world leader in Lactic Acid & Lactates production technologies

■ Strategic priorities

- To be a fully integrated group from the beet to lactic acid
- To be an expert in lactochemistry

■ After 15 years of research

- Micro-organism and technology for L-lactic acid and D-lactic acid production
- LOOPLA[®], a cradle-to-cradle option

Futerro's founders?

TOTAL PETROCHEMICALS



■ World 8th-largest petrochemicals company

■ 5 strategic priorities

- Safety and sustainable development
- Improve competitiveness in mature markets
- More advantaged feedstock
- Globalising the activity, expanding in the fast growing markets
- Preparing the future : R&D, innovation efforts
 - New routes to Olefins
 - Renewable Feedstock

Futerro's partners?



1. Futerro

2. PLA and Process

3. Futerro Products and application

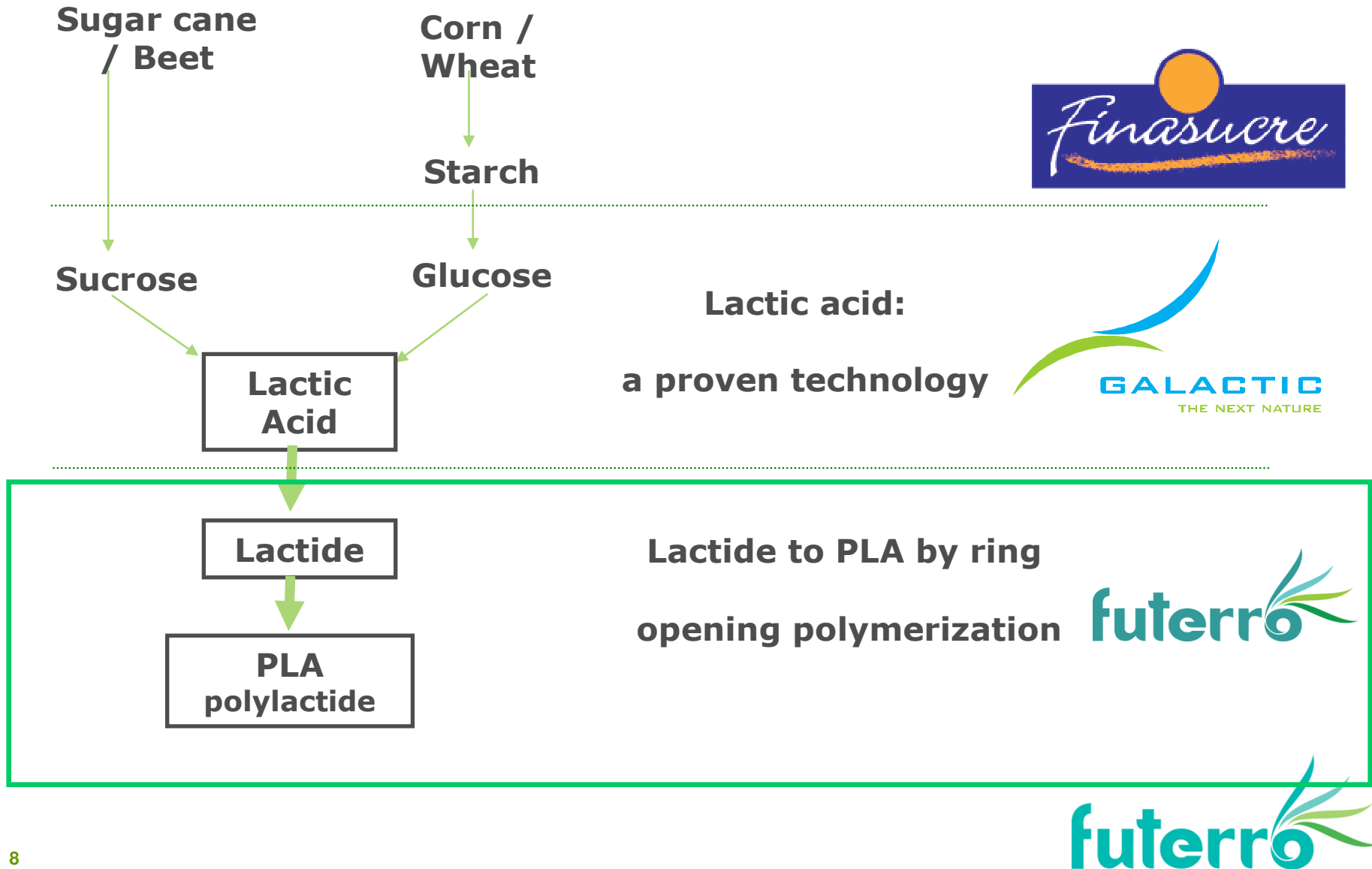
4. PLA Demonstration Unit

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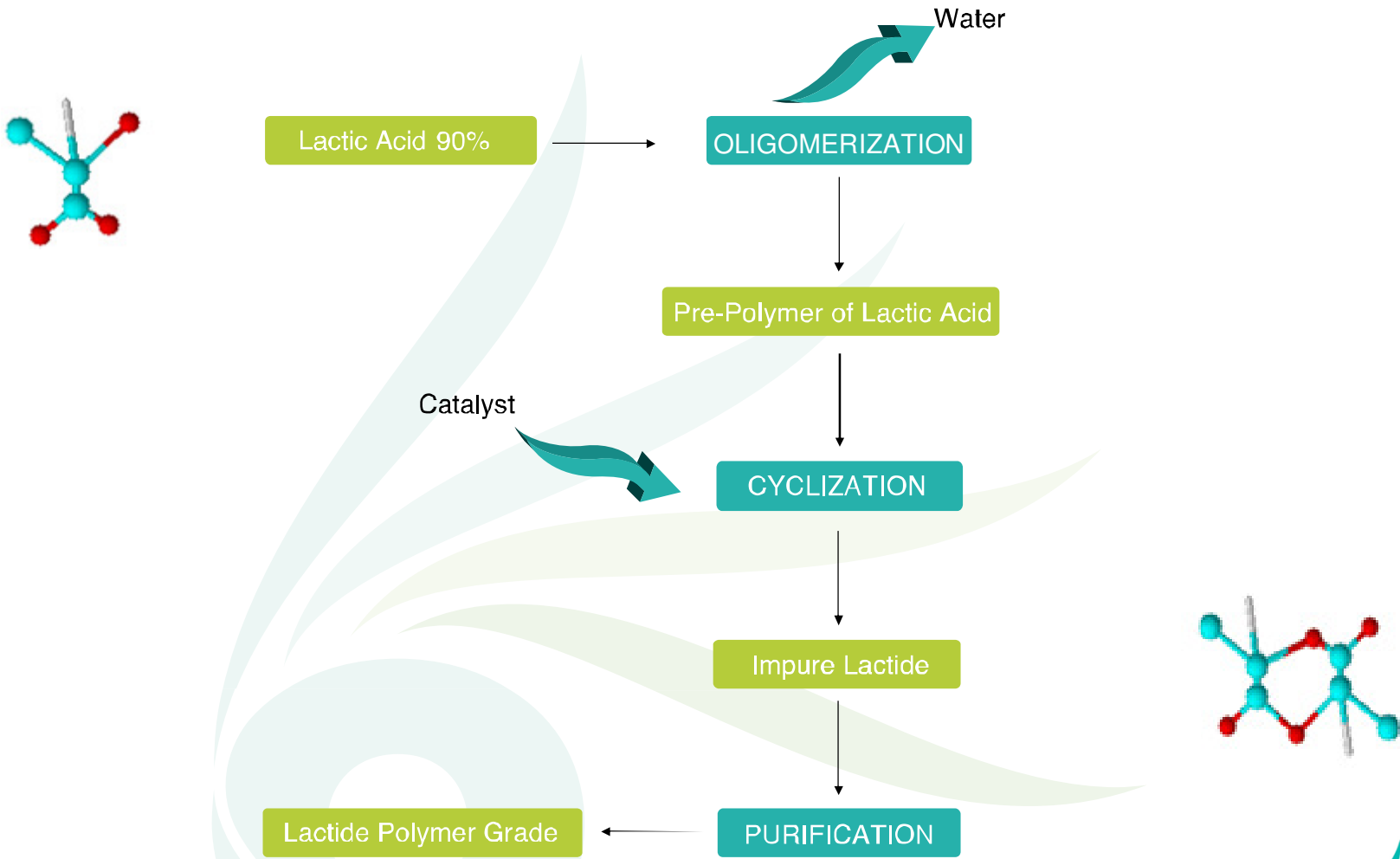
What is PLA ?

A polymer from renewable resources

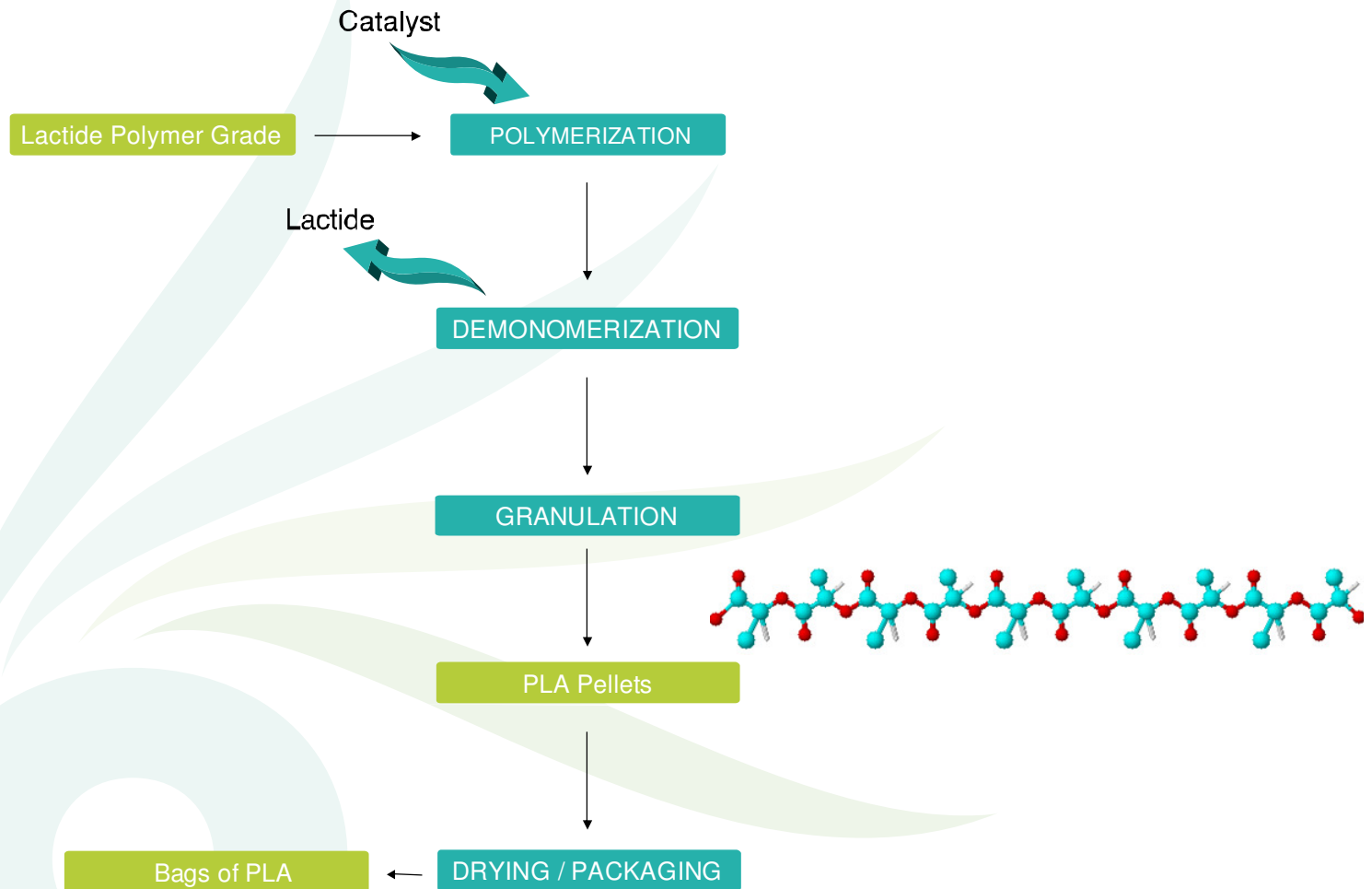




LACTIDE FABRICATION



PLA FABRICATION



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Futerra products

■ Lactide

- L-Lactide or D-Lactide
- Very high purity



■ Oligomers

- Molecular weight between 1000 and 5000 daltons (PS Eq.)
- Functionalisation option

■ PLA

- High purity PLA
- PLLA
- PDLA in near future

PLA: Today applications



Film packaging



ISBM



Fibers application



Extrusion thermoforming



Injection



Sustainable application

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PLA Demonstration Unit : 1500 T/y



■ Capacity

- Annual capacity : 1500 T/y
- Production capacity : around 200 kg/h

■ Building

- Construction starting : November 2008
- Construction reception : April 2009

■ Monomer section

- Start up phase : October 2009
- First Lactide production : December 2009

■ Polymer section

- Start up phase : February 2010
- First PLA pellets : March 2010

PLA Demonstration Unit :

■ FUTERRO Inauguration 16 April 2010



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PLA Demonstration Unit : PLA Section



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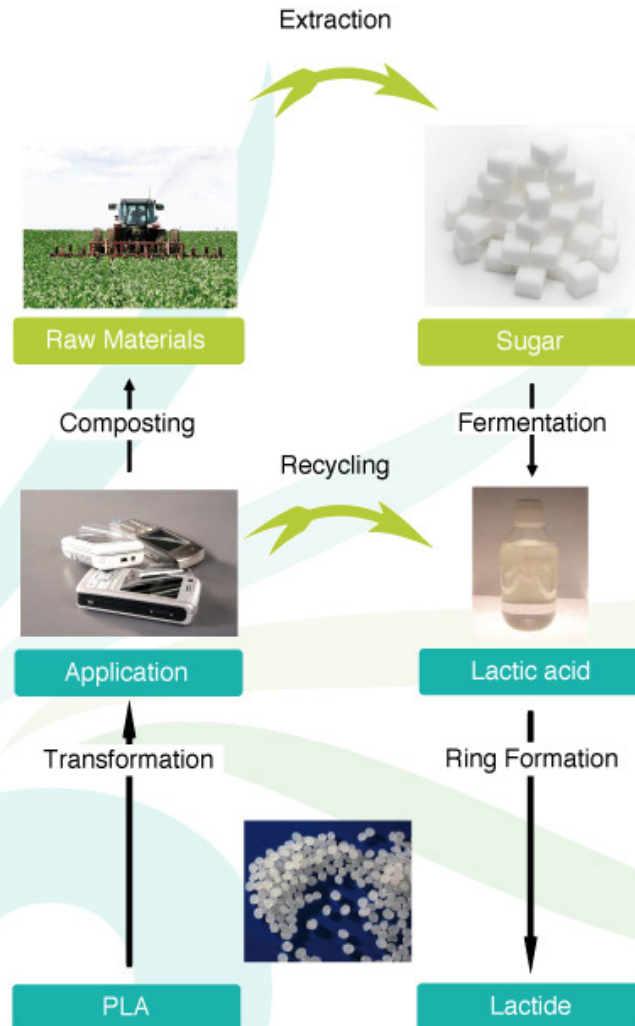
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WHAT IS PLA?





Your partner

in Biorenewable polymer

www.futerro.com

