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BIOCHEMICALS STRATEGY

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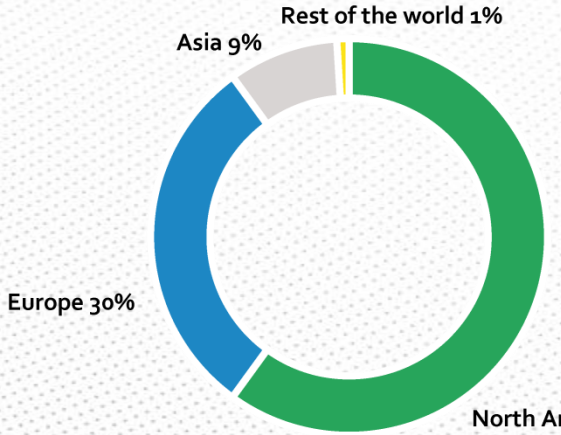
Biochemicals division today

- Fast growing, innovative supplier of fermentation based, sustainably sourced, biochemicals
- Total sales 2012 € 173 m, underlying EBITDA margin of 14.2% (reported 10.4%)
- Significant innovation investments behind PLA, new molecules, and biomass raw materials

Geographic breakdown



Source: Company data

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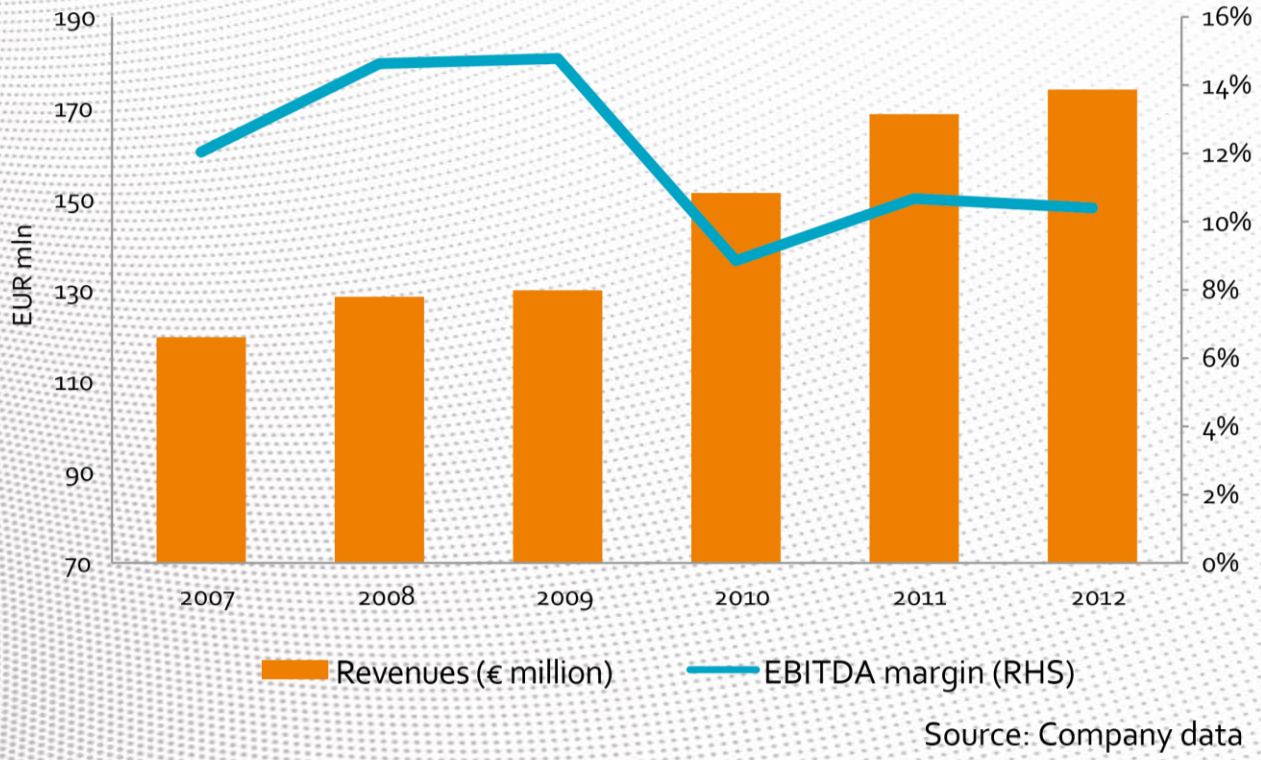
Historical performance



Source: Company data

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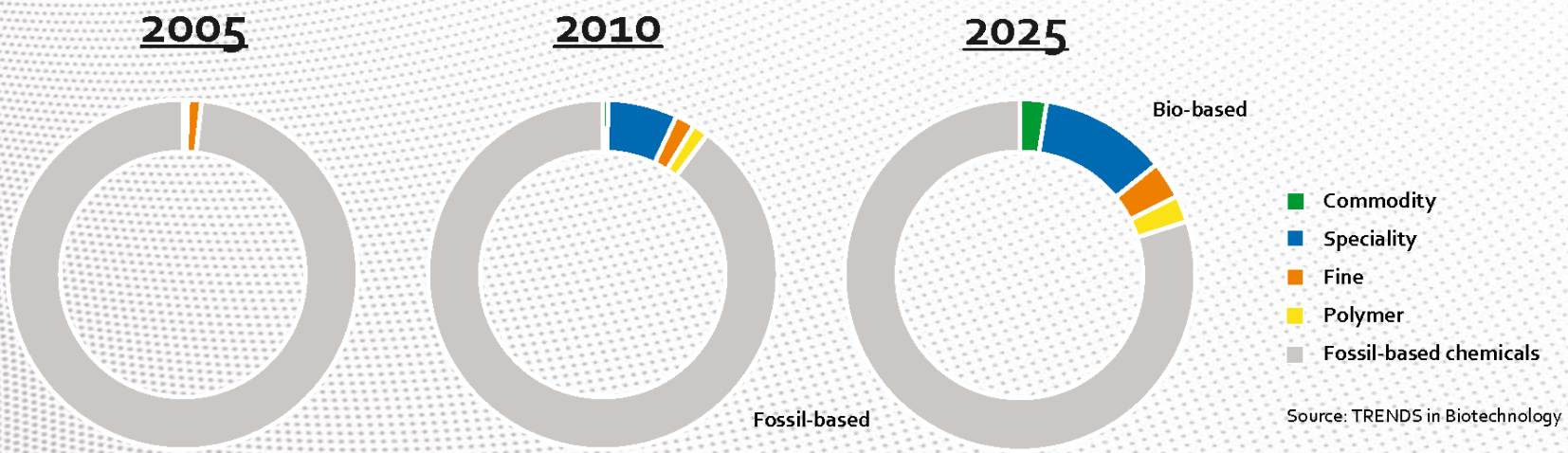
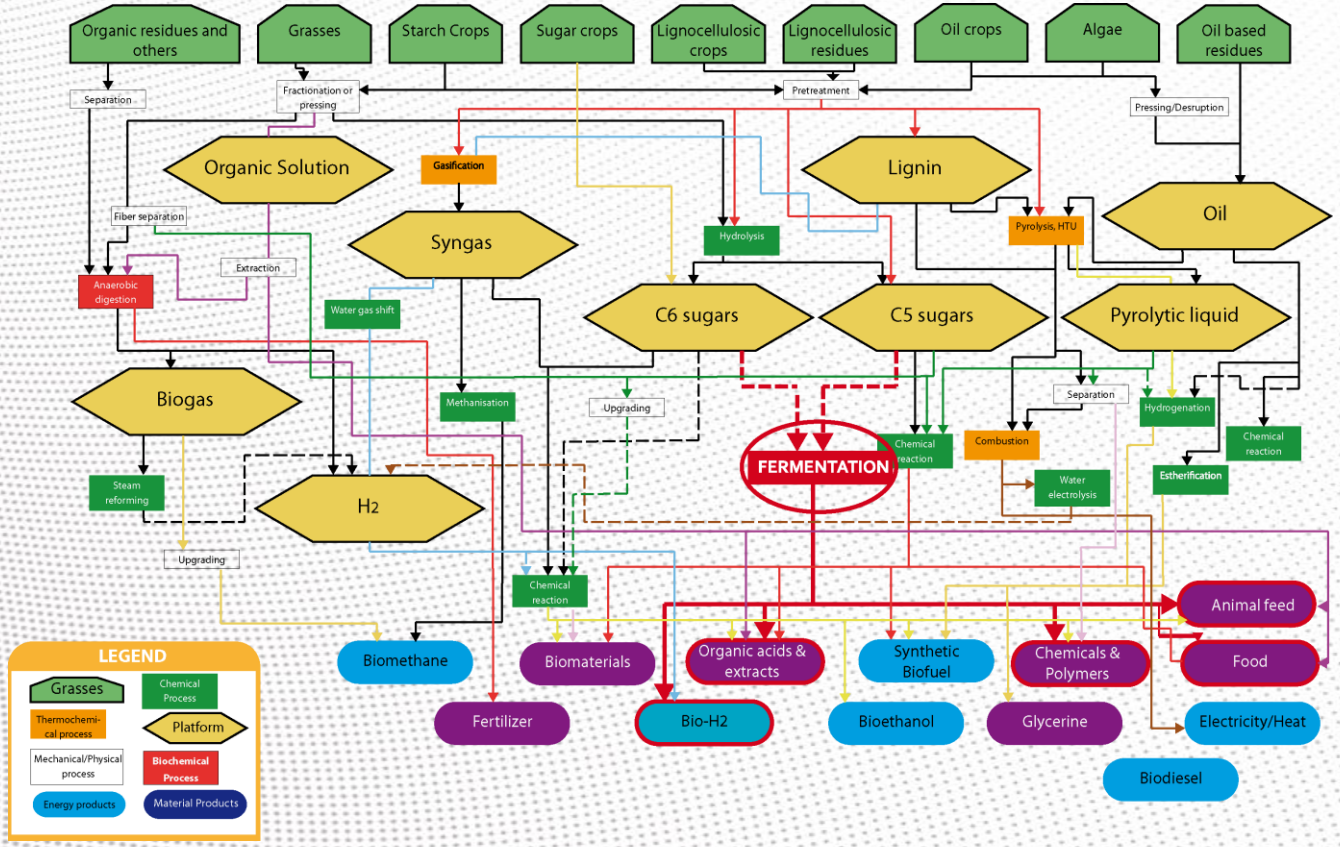
Biochemicals market opportunity

- Growing by CAGR 9% from $ 130-180 billion in 2010
- Global market value for biochemicals reaching $ 500-600 billion by 2025 or 20% of global chemicals industry



Source: TRENDS in Biotechnology

Fermentation is core to biochemical Industry



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Biochemicals strategy

Create value through high growth using own protected and acquired capabilities, allowing development of significant positions in selected biochemicals markets

- Partnerships are necessary for market access and technology
- Continuously lowering cost levels provided by core process facilities
- Delivering innovative products using our core technology platforms and acquired or licensed adjacent technologies or IP

Our bio-based solutions give our customers:

- Similar or improved functionality
- Lower cost in use
- Enhanced environmental credentials

Our talented team works with passion and in partnership, ensuring performance

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Partnerships

Partners will be essential for our Biochemicals division

They bring:

- Market access and product expertise
- Key technology platforms that we don't own
- Captive markets

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Biochemicals core strengths

Enabling factors

- Strong financial profile
- Well developed core technology platforms to exploit growth prospects
- Extensive world wide network of universities, technology providers and research centers
- Strong innovation pipeline
- Existing partners

Competitive advantages in the market place

- Leading edge fermentation technologies (many IP protected)
- Deep product understanding and application support expertise
- Unique global supply chain

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Biochemicals main business markets

Existing markets

- Home and Personal Care
- Pharma
- Electronics
- Agrochemical intermediates
- Medical biomaterials

Developing new markets

- Coatings, adhesives, solvents and elastomers (CASE)
- Bioplastics PLA
- Succinic Acid
- Animal Health

New building blocks and molecules

Such as FDCA, calcium propionate requiring development investments, only generating significant revenue growth beyond 2016

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PLA replacing fossil-based plastics

- Producer of lactides, monomer for PLA, 75kT capacity in Thailand
- Applications can be found in :
  - Packaging, including utensils such as cups
  - Fibres, woven and non woven
  - Durable plastics, high heat components as in automotive
- Transfer to full scale later than expected: economic downturn and new material
- Progress in discussions with multiple parties for major step ups
- Low cost supply chain enables entry in lower cost applications
  - Lower quality demands
  - Limited heat stability required

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Succinity - Succinic Acid Joint Venture

- 50/50 Joint Venture established with BASF
- Pilot factory Spain 10 ktons operational end of 2013
- Success from pilot factory determines follow-up investment in large 50-100 kton Factory to be built 2015-2017
- Succinic acid made from renewable feedstock is a commercially attractive biochemical
- Market potential significant

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New Ventures developing new molecules

- Purpose: Develop new organic acids to replace fossil-based chemical acids
- Benefits: Acids based upon renewable sources and cost competitive with fossil-based alternative
- Selection process focuses on:
  - Feedstock-efficiencies
  - Energy use
  - Competitive costing
  - Market potential
  - Fit with fermentation and downstream processing capabilities
- FDCA, Calcium Propionates, others

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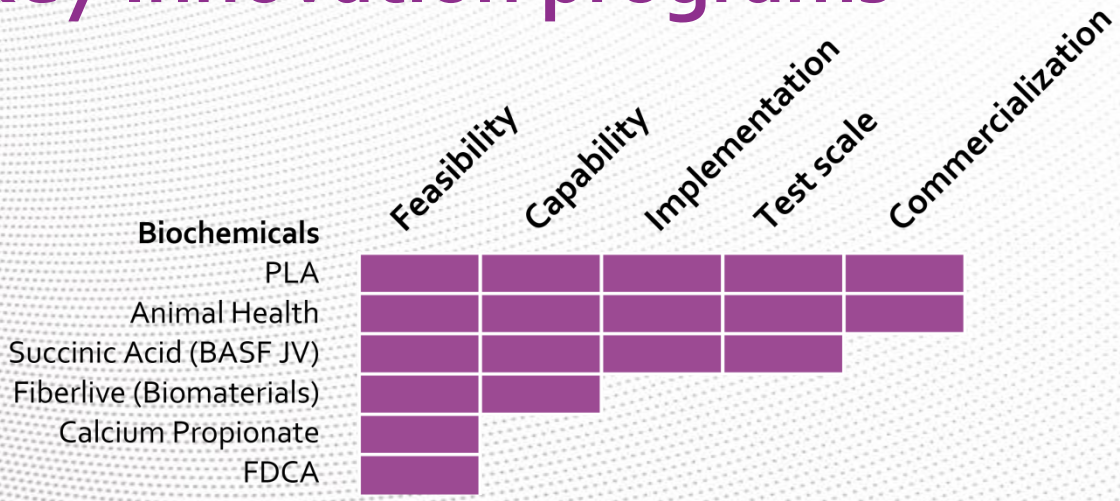
Key Innovation programs



- PLA: develop specific PLA applications
- Animal Health: Replace anti-biotics
- FiberLive: Resorbable orthopedic polymers as strong as steel
- Succinic acid: Biobased drop-in replacement of fossil-based SA
- Calcium Propionate: Biobased drop-in replacement of fossil-based CalPro
- FDCA: Replace Terephthalate in PET plastics

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Key takeaways

- Sales growth 2013-2016; 15-20%:
  - PLA growth, expect current Lactide capacity Thailand to be filled within planning period
  - Succinic acid contributing through factory Spain: 10 ktons max capacity
  - Strong growth in current chemical building blocks

- Capital expenditure and innovation investments required to realize growth

- EBITDA margin excl. long term innovation costs expected to improve

- New molecules, currently under development, will start supporting growth after plan period

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