Biobased Chemicals: BASF’s Perspective

Markus Pompejus
BASF Corporation
Our chemicals are used in almost all industries

We combine economic success, social responsibility and environmental protection

Sales 2012: €72,129 million

EBIT 2012: €6,742 million

Employees (as of December 31, 2012): 110,782

6 Verbund sites and around 380 production sites
BASF in North America

Sales 2012: €14,441 million*
Employees: 16,665 **

Few Highlights:

- Acquisition of Becker Underwood
- BASF Plant Science headquarters moved to Raleigh, North Carolina
- Opening of the first facility for large-scale production of battery materials in Elyria, Ohio

* by location of company
** as of December 31, 2012
### Chemistry-based Innovations Growth and Technology Fields

**Key Customer Sectors**
- Transportation
- Construction
- Consumer Goods
- Health & Nutrition
- Electronics
- Agriculture
- Energy & Resources

**Growth Fields**
- Batteries for Mobility
- Heat Management
- Enzymes
- Medical Solutions
- Organic Electronics
- Plant Biotechnology
- Functional Crop Care
- Water Solutions

**Technology Fields**
- Materials, Systems & Nanotechnology
- Raw Material Change

**Chemistry as enabler**

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<th>Resources, Environment &amp; Climate</th>
<th>Food &amp; Nutrition</th>
<th>Quality of life</th>
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* including growth fields still under evaluation
Technology Field
White Biotechnology

- New products and processes for a wide range of industries
- Sustainable production and increased use of renewable resources
- Identification and optimization of production organisms
- Development of novel enzymes and proteins
Approx. 10,500 employees in research and development worldwide

Partnering with about 600 universities, research institutions and companies

BASF New Business

Universities

Research institutions

BASF Research Verbund

Process Research & Chem. Engineering

Biological & Effect Systems Research

Advanced Materials & Systems Research

High-tech joint ventures

Partners in industry

BASF New Business
Partnering: Why?

Technology
Know How

Expertize
Experts

Add value

Not for short term financial interests
The BASF difference: Verbund structures
Renewable Raw Materials Challenges in Chemical Industry

Fossil Raw Materials
- Grown “Verbund” structures
- Mature Technologies
- Established feedstock logistics
- Often fully depreciated plants

Renewable Raw Materials
- New “Verbund” structures
- New Technologies
- Availability / prices volatile
- No premium on “green” products
Partnering: How?

Venture Capital  Licensing
Joint Ventures
Investment  Alliances
Research & Development  Acquisition
Collaboration with Industry Partners Example: Bio-based Acrylic Acid

- Renewables
  - 3-hydroxypropionic acid
    - Chemical Conversion
      - Acrylic Acid
Renewables + CO₂ → Succinate → Acid/Esters/Salts → End products

- High-performing proprietary microorganism
- Innovative downstream purification process
- Better eco-efficiency compared to fossil production processes
Partnerships, Investments, Activities ...