

SusChem ETP – Industrial Biotech

KBBE Brokerage Event – Lisboa – 20 October 2009

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EuropaBio



EUROPA BIO
The European Association for Bioindustries



ESAB
B
Section on Applied
Biocatalysis

EuropaBio

The European Biotech Industry's Voice



Representing the entire biotechnology industry

- 75 global life science companies
- 24 national member associations
- More than 1500 small and medium sized biotech companies



→ Representation
of all Sectors

Mission

- Promote an innovative and dynamic European biotech-based industry
- Provide priority Issues to European authorities
- Increase global competitiveness of European life science industry

Industrial Biotechnology Penetration

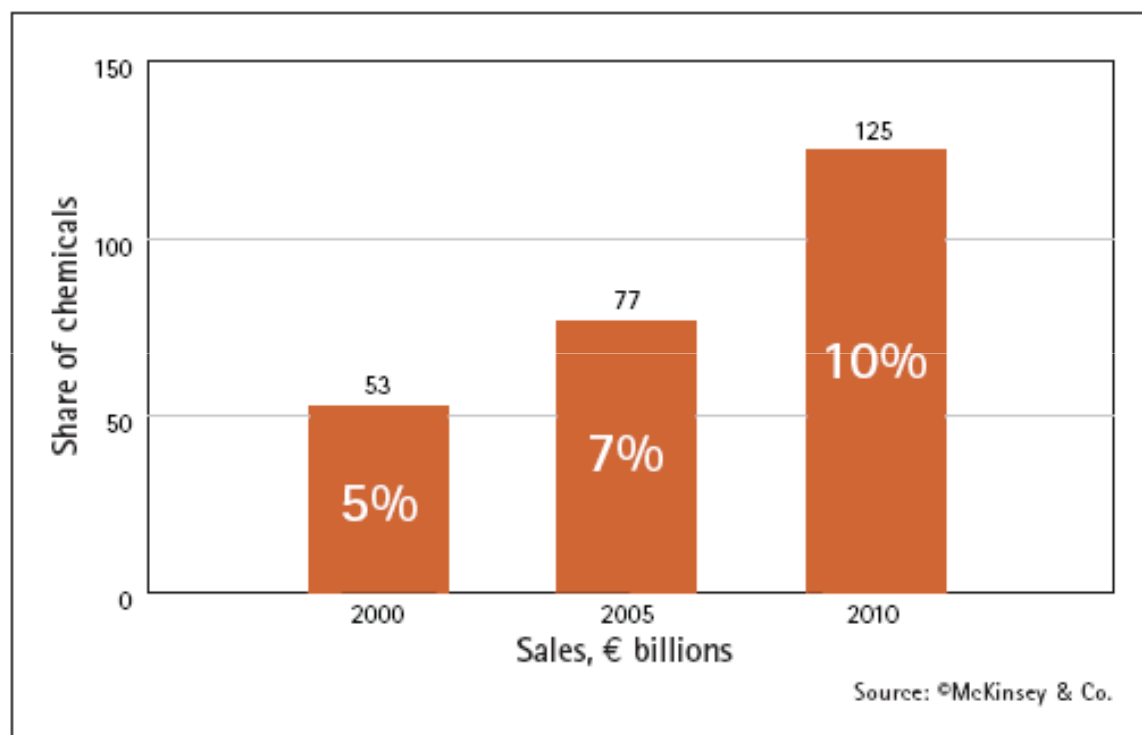


Figure 1. Industrial biotechnology is demonstrating strong growth and is of increasing importance for the chemical industry; 2010 figures are projections based on performance to date

Source: Ceasar, Industrial Biotechnology, March 2008

Industrial Biotechnology Segments

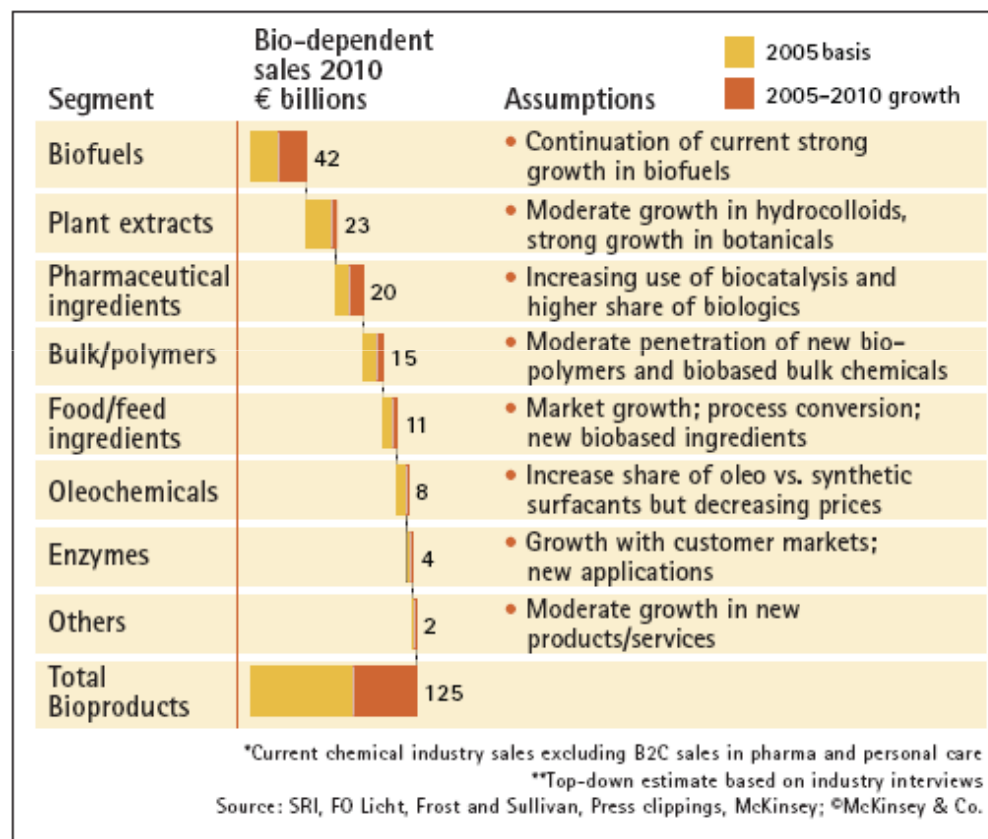
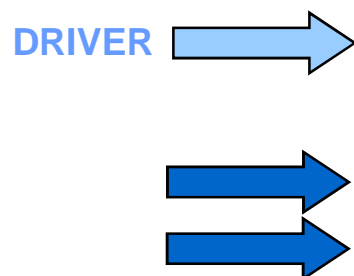


Figure 3. Industrial biotechnology comprises much more than ethanol.

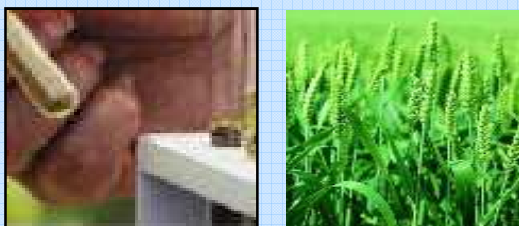
Source: Ceasar, Industrial Biotechnology, March 2008

Technology Sections in SusChem

Industrial Biotechnology

Marcel Wubbolts

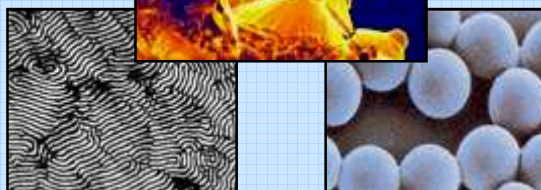
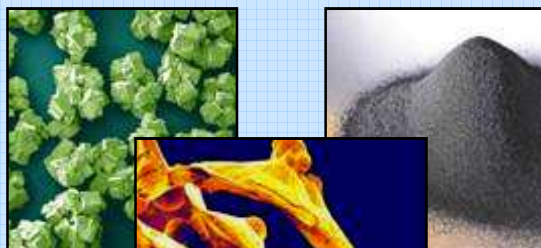
DSM



Materials Technology

Rüdiger Iden

BASF Aktiengesellschaft



Reaction & Process Design

Klaus Sommer

Bayer Technology Services



Horizontal Issues Group.



SusChem Objectives

Task I
Ensure & improve input into EU + MS Research agenda

Strengthen competitive chemical industry in Europe based on technology leadership

Address EU economic regulatory conditions to inspire chemical/biotech innovation

Task II
Management of complex SusChem network

Focus on societal needs, contribute to sustainable development

Engage the best researchers

Task III
Add business through innovation element to SusChem

Sustainable chemistry research in Europe

SusChem beyond Brussels

- Visualizing the importance of chemistry and industrial biotechnology in Europe
- Positive impact on individual European countries: various national (partner) platforms already exist

Czech Republic



France



Germany



Italy



Poland



Romania



Slo



Spa



Belgium – in progress



UK

Netherlands – in progress



Technological Development Strategic Research Agenda ...



SusChem status and plans



Some data :

Kicked off by Cefic / EuropaBio / Commission – end 2004

Vision



March 2005

Strategic Research Agenda



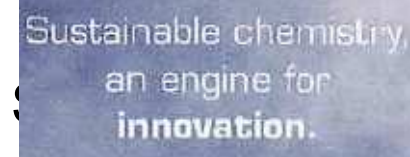
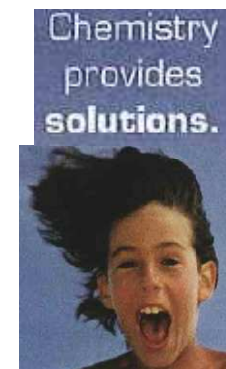
Nov 2005

Implementation Action Plan



Dec 2006

Drive towards Innovation



Update RSA / IAP 2009

SusChem impact on calls / thematic overlap – driven by S
Significant European funding realized

Monitoring of calls

THEME	1 st call KBBE/Energy	2 nd call KBBE	3 rd call KBBE/Bioref	Total Mi€
Industrial Biotech	Funded 6 / 20 Mi€	6 / 23 Mi€	4 / 12 Mi€	53
Biorefinery (KBBE)		3 / 13 Mi€	2 / 2 Mi€	15
Biorefinery (joint call)			2 / 57Mi€	57
Biofuels (KBBE)	Funded 1 / 3 Mi€	1 / 6 Mi€		10
Biofuels (energy)	4 / 20 Mi€	1 / 5 Mi€	3 / 15 Mi€	41
TOTAL	43 Mi€	47 Mi€	86 Mi€	176

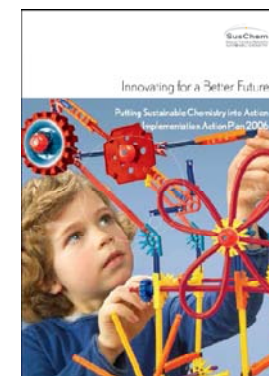
NB topics / approximative funding in million €

White Biotechnology *Implementation Action Plan*



The following three topics have been identified as the top priorities to facilitate the harmonious development of industrial biotechnology in Europe:

- Biocatalysis – novel and improved enzymes and processes.
- Development of the next generation of high efficiency fermentation processes.
- Process eco-efficiency and integration: the biorefinery concept.



Update of SRA priorities - General



- The priorities defined in the SRA in 2006 and in the IAP in 2007 are still valid and important in the current context
- Some specific issues and topics may have risen since the SRA was written but they nevertheless correspond to the priorities expressed in 2006.
- REACH and GHS impact.
- Various national activities have started (CLIB²⁰²¹, BIOHUB, B-BASIC,...)
- Interaction with CHN, BRA and US programmes

SRA/IAP Status Update

New Topics (telcon/follow up)



- RECOMMENDATIONS FOR IAP UPDATE & FUTURE FP7 CALLS
 - Development of biocatalytic glycosylation technologies for small molecules
 - Sustainable synthesis of stereo-isomers
 - Downstream processing
 - Metabolite production (synthetic biology)
 - Metabolic engineering for the tailor made biosurfactants
- BEYOND IB TECHNOLOGICAL DEVELOPMENT
 - Evaluating the potential and feasibility to replace hazardous chemicals by biotech processes or products (REACH)
 - Study to support the development of policies encouraging conversion towards biobased economy
 - Demonstration projects via public-private partnerships

IAP update: Feedstock related



- Research into **farming technologies and management practices** to increase **productivity** while lowering the impact on the environment and while decreasing the **GHG emission** impact. Research into farm management "models" to identify how a transition from (abundant) **food** crops to energy and other **non-food** crops (on appropriate lands) could be achieved economically.
- Research into market mechanisms to decrease the **volatility of feedstock cost**: this is needed to create certainty to have a continuous and consistent availability of feedstock at competitive cost in the EU.
- Research in feedstock **harvesting, collection and pre-treatment** technologies.

IAP update: Conversion, processing and end-products related



- Setting up joint supplier-customer **application development** projects (risk and cost sharing).
- Support to the further development of key processing and conversion technologies via **research and pilot projects**, and for conversion processes that allow for **broader flexibility on feedstock** without lowering yields.
- Research in **innovative downstream technologies** and activities (integration of biotechnology and other technologies).

IAP update: Additional aspects (social acceptance, sustainability, ...)



- Research on how to facilitate the conversion towards a biobased economy: assessment of **infrastructure/equipment** and expertise (skills, disciplines, etc.) needed in a future EU biobased economy, and assessment of **policies and regulations** that are bottlenecks for a transition towards a biobased economy.
- Research into **consumer (public) acceptance of IB products and processes**, and accelerated research into primary and co-products applications and markets (including GMO and/or GMM content acceptance).
- Research and further development of **LCA methodologies**, and research into any areas along the value chain that can contribute to improving the LCA performance.

Implementation in FP7



- Funding going in Activity KBBE 2.3 (non-food) is still very **limited** compared to 'food and agriculture' activities
- Important to underline that the **priorities proposed are rather broad issues**, which cannot be solved with the funding of one FP7 project but rather a multiplicity of efforts and research funding going in this direction (e.g. the call on lipid enzymes addresses only 1 class of enzymes)
 - ⇒ **Alignment** of national research programmes
- Participation of industry, though increased, remains scattered
 - ⇒ **Flexibility** and reactivity of funding
 - ⇒ **Consistency**

Thank you for your attention

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