

# Chemical Industry View on the KETJU programme

*Aarno Salminen  
VP, Environment & Safety  
Kemira Oyj*

- Sustainability as a Challenge to the Chemical Industry
- Some Existing Initiatives
- Some Company Level Examples
- Some Notes on the KETJU Project

# Chemical Industry View on the KETJU programme

- Sustainable Innovation is a Real Challenge to the Chemical Industry – Why?
- **It is a 'Big Must'**
  - Legal must: Climate Change, REACH, Environmental legislation boom...
  - It has become a strong customer need = Must
  - Competition from emerging economies –we must survive=innovate
- **It is a Huge, Global Business Opportunity**
  - World water management
  - Biofuels
  - Waste recycling and treatment
  - 'Green' Chemicals,...

# Chemical Industry View on the KETJU programme

As a consequence,

- The Chemical Industry is extremely interested in the so-called sustainable chemicals
- We want to contribute and create partnerships, clusters and joint programmes, both nationally and internationally
- We hope that Finland will be a 'selected leader' in this field

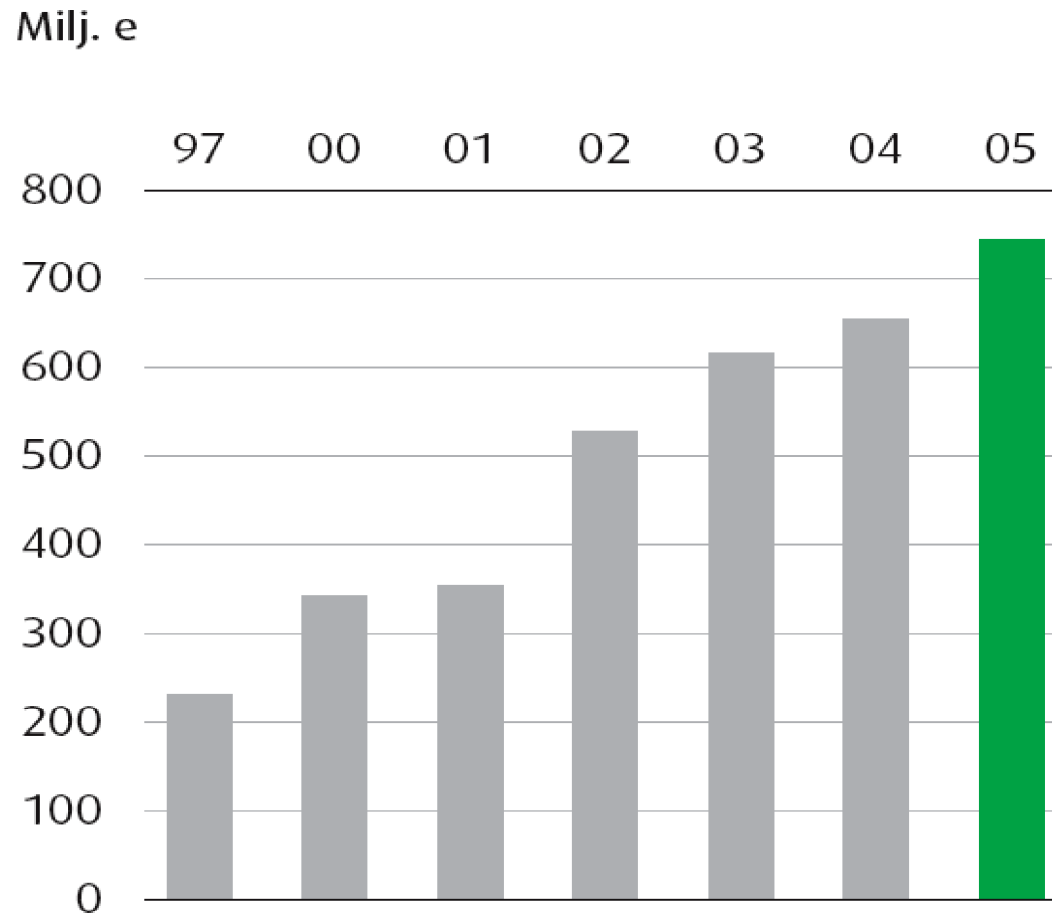
- - -

- But, due to simple resource issues and hard market facts
  - We must carefully select the segments where we can become global leaders and solution providers
  - These must rely on our existing key competencies
  - Our key competencies depend on partnerships with high-level scientific research and technology infrastructure

# Chemical Industry View on the KETJU programme

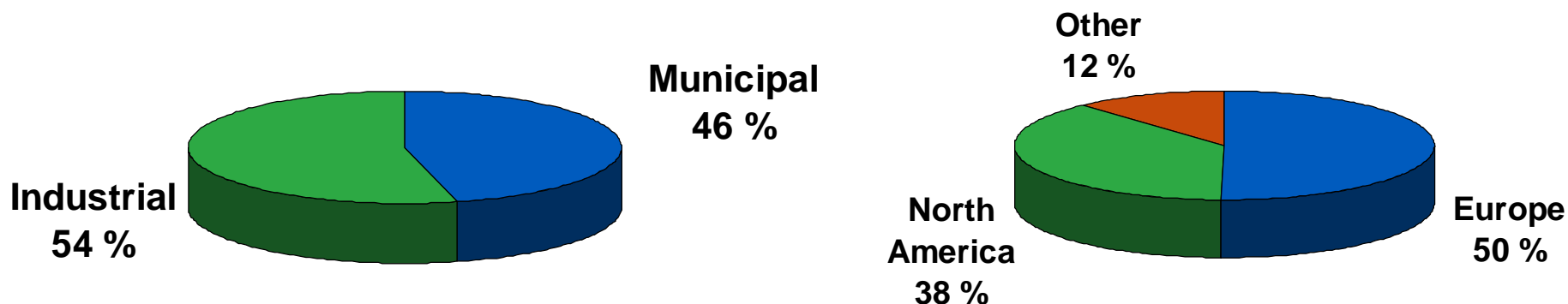
- Some Sustainability Strengths in the Finnish (Chemical) Industry
  - Water chemistry
  - Clean fuels and bioenergy
  - Sustainable paper chain
  - Some renewable chemicals
  - Certain other green chemicals
  - Some recycling and waste treatment concepts
  - Overall energy and material efficiency

# Environmental Business in Kemira



# Green Chemicals in Finland: Kemwater

- **The leading global supplier of coagulation chemicals** to municipal waterworks, industrial waste water treatment and sludge management
- Revenue 2005, pro forma ~ 650 MEUR (incl. Cytec water chemicals)
- Leading market position in coagulants, No 3 in flocculants

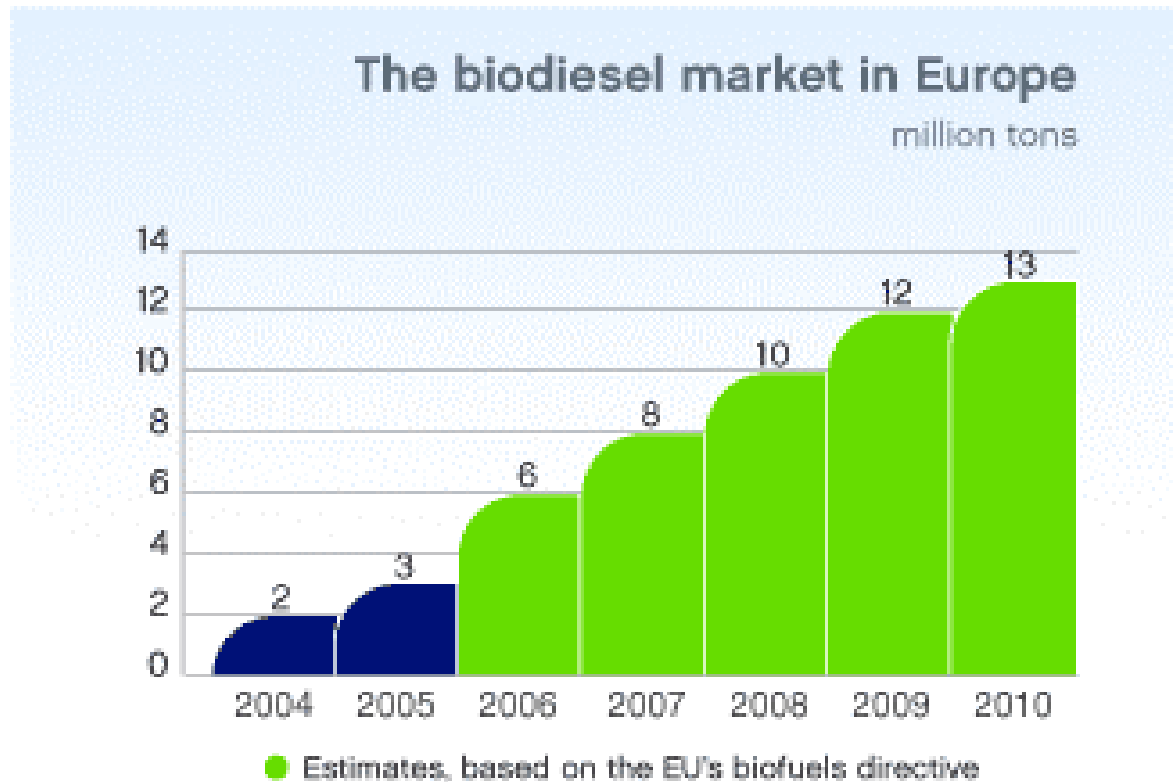


# Environmental Businesses in Kemira

- Water treatment products and services globally
- Sludge treatment and waste recycling: concepts and solutions
- Waste-derived products
- Oxygen based bleaching
- Water management in pulp and paper mills
- Formic acid derivatives in de-icing, CFC-replacement, ...

# Green Chemicals in Finland

## Case 2: Neste Oil and Biodiesel



Neste Oil has decided to build a second plant to produce premium-quality biodiesel in Finland. The capital costs of the plant is estimated to be around EUR 100 million. The plant will have the same capacity, 170,000 t/a, as the first one at Porvoo due to start up in summer 2007.

*'We are aiming to become the world's leading biodiesel producer, and the technology leader as well. We are investing heavily in R&D on biofuels to develop technologies that will enable us to further extend the range of raw materials.'*

Information obtained from the website of Neste Oil

# 'Green' Chemistry – A wide range of innovations

## ■ 'Handbook of Green Chemicals' Features Over 7000 Products :

- biodegradable,
- environmentally safe/friendly,
- recyclable,
- HAP's-free,
- low ozone-depleting/no ozone-depleting,
- VOC-compliant/low-VOC/VOC-free,
- low global warming,
- low vapor pressure chemicals,
- non-CFC/non-HCFC,
- SNAP,
- nonhazardous,
- SARA-no reportable,
- halogen-free,
- noncarcinogenic, and
- nontoxic.

## ■ Chemical products that are included in the Handbook cover the following industries:

- Adhesives
- Refrigerants
- Water Treatment
- Plastics
- Rubber
- Surfactants
- Paints & Coatings
- Food
- Pharmaceuticals
- Cosmetics
- Petroleum Processing
- Metal Treatment
- Textiles

# Chemical Industry View on the KETJU programme

- **Some Other Initiatives:**

- **TEKES, Ongoing Projects (selected)**

- [ClimBus - Business Opportunities in the Mitigation of Climate Change Technology Programme 2004-2008](#)
- [COMBIO - Commercialisation of Biomaterials Technology Programme 2003-2007](#)
- [FinNano - Nanotechnology Programme 2005-2010](#)

# Chemical Industry View on the KETJU programme

## ■ SITRA Environmental Programme 2004–2007

- *Develops environmental technology and know-how into a significant growth area in internationalisation and strengthens Finland's position as a leading country in the environmental field.*
- Expedite the development, internationalisation and integration of the environmental sector
- Promote investments in the field
- Create business networks and promote their internationalisation
- Devise a national action programme to support the growth of environmental technology exports.

## Contents

<b>Overview</b>	<b>3</b>
<b>SusChem future</b>	<b>5</b>
<b>The eight themes of major importance for sustainable chemistry</b>	<b>6</b>
1. Bio-based economy	6
2. Energy	7
3. Healthcare	8
4. Information and communication technologies	9
5. Nanotechnology	10
6. Sustainable quality of life	11
7. Sustainable product and process design	12
8. Transport	13
<b>Visionary projects</b>	<b>14</b>
1. The Smart Energy Home	14
2. The Integrated Biorefinery	15
3. The F <sup>3</sup> Factory	15

# Chemical Industry View on the KETJU programme

- Good and justified scientific basis, fully supported
  - We need also new solutions
  - We are based on critical mass in natural sciences
- Challenges:
  - Networking with the other 'sustainable' technology programmes
  - Where possible, prioritize the existing Finnish sustainability strengths and strong industry clusters