Innovation, the lifeblood of the chemical and life sciences industry

A strong IP strategy: a key to competitiveness

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Chemical and life sciences industry in Belgium
Key figures 2017

- Direct employment: 90,780
- Indirect employment: 150,000
- Turnover: € 65.8 billion
- Trade surplus: € 23.7 billion
- Investments: € 2.2 billion
- R&D-expenditures: € 4.4 billion
An important and growing pillar of the Belgian economy

<table>
<thead>
<tr>
<th></th>
<th>Share in manufacturing industry</th>
<th>Growth since 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs</td>
<td>1/5</td>
<td>+2%</td>
</tr>
<tr>
<td>Value added</td>
<td>1/3</td>
<td>+9%</td>
</tr>
<tr>
<td>Export</td>
<td>1/3</td>
<td>+11%</td>
</tr>
<tr>
<td>Sales</td>
<td>1/4</td>
<td>+16%</td>
</tr>
<tr>
<td>Investments</td>
<td>1/3</td>
<td>+56%</td>
</tr>
<tr>
<td>Number of patents</td>
<td>1/3</td>
<td>+60%</td>
</tr>
<tr>
<td>R&amp;D-expenditures</td>
<td>2/3</td>
<td>+63%</td>
</tr>
</tbody>
</table>

Source: RSZ, AD Statistiek, NBB, EPO, essenscia analysis
Statistiek 2016, except value added (2015) and R&D (estimation)

Export champion of Belgium

<table>
<thead>
<tr>
<th>Sector</th>
<th>Sectoral share in the total of the Belgian export</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals, plastics and life sciences</td>
<td>32.2%</td>
</tr>
<tr>
<td>Transport equipment</td>
<td>11.7%</td>
</tr>
<tr>
<td>Machinery and appliances</td>
<td>10.8%</td>
</tr>
<tr>
<td>Mineral products (e.g. refining)</td>
<td>7.5%</td>
</tr>
<tr>
<td>Metals and steel</td>
<td>6.9%</td>
</tr>
<tr>
<td>Food, beverages and tobacco</td>
<td>5.6%</td>
</tr>
<tr>
<td>Pearls and precious metals</td>
<td>4.7%</td>
</tr>
<tr>
<td>Textile</td>
<td>3.6%</td>
</tr>
<tr>
<td>Other products</td>
<td>17.0%</td>
</tr>
</tbody>
</table>

Source: NBB/WVY
Provisional figures 2016
Making a world-class contribution to Belgium’s economy and prosperity

- The sector is a fundamental pillar of the Belgian trade balance

![Graph showing trade balance growth](image)

Source: National Bank of Belgium according to the communautarian concept (incl. transit and international distribution centres)

- Strong increase in R&D expenditures

- The sector, at the forefront of innovation, spends more than 4 billion euros on R&D, an amount that has almost doubled in 10 years

![Graph showing R&D expenditure growth](image)

Source: essenscia – members’ survey; provisional figure 2017
The sector innovates: more than one patent per day!

- Chemicals, pharmaceuticals and biotech account for 1/3 of all Belgian patents
- New record: 417 patents in 2017, an increase of 62% in 3 years

**Number of Belgian patents**

Source: European Patent Office (www.epo.org)
*toys, civil engineering, other consumer goods

**Share of chemistry in number of patents is the highest in Belgium**

Patents granted in chemistry by the European Patent Office (2017)

Source: EPO (www.epo.org)
Presence of leading R&D-centers in Belgium with focus on sustainable innovation

Lead plants: worldwide technical competence centers in the Belgian chemical cluster (BASF Antwerp, Evonik, Covestro, ...)

A quarter of Belgium’s private sector researcher population
The Belgian pharmaceutical industry is highly R&D-intensive

R&D intensity (=R&D/production)
Pharmaceutical industry

Source: EFPIA, 2015

The European leader in clinical trials

Belgium is 2nd in place in Europe
1,399 clinical trials in Belgium in 2016
507 new applications in 2016

20% of all clinical trials in the EU for cancer
25% of all clinical trials in the EU for the digestive system
23% of all clinical trials in the EU for virus diseases

Source: famhp (2014-2016)
Innovation at the core of our federation

essenscia Patent Cell

- Creation of the essenscia Patent Cell for chemistry and life sciences in 2011 with support of FPS Economy

- **Aim:** provide support to the chemical and life sciences companies especially SMEs to protect their innovation

- **Various actions:** workshops, tailor-made advice, technology watch, communication actions…
essenscia Innovation Award

• Most prestigious prize for industrial innovation in Belgium. First edition in 2012. Support of the Patent Cell for SMEs

• **Aim**: promoting and rewarding innovation in chemistry and life sciences in Belgium

• **Outcome**: more than 100 innovation projects, high level award ceremony, nationwide press coverage, broad recognition for winners and finalists

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Innovation Circle

• Founded in 2013 following the success of the first Innovation Award. Supported by essenscia, Deloitte and KU Leuven

• **Aim**: free assistance and strategic advice to start-ups and SMEs active in the fields of chemistry, materials and life sciences by former CEOs of the industry.

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# Projects: 48
# Closed files: 33
# Active projects: 15
Innovation Fund

- Established in 2015 as a next step in the permanent strive to boost innovation. With the financial support of major industrial companies.
- **Aim**: investing in innovative start-ups in chemistry, materials and life sciences with a strong focus on sustainability and digitalisation
- **Outcome**: capital of 28 million EUR and investments in 14 promising companies

Innovation Academy

- **Aim**: Deloitte professionals act temporarily as interim CxO to assist start-ups in their innovation process and commercial growth
Les Zinnovants

- Unique collaboration between essenscia and UCL university. Ten humorous videos to stimulate innovation
- **Aim**: Providing students and companies with alternative tools for creative brainstorming and innovation processes

Competitivity clusters for open innovation, catalysts for a sustainable chemistry

- Renewable Chemicals
- Process Intensification
- Sidestream Valorisation
- Advanced Sustainable Products
- Green Win
  - Production of sustainable products and materials
  - Sustainable integration of materials
  - Treatment and valorisation of waste
Unique incubator for sustainable chemistry

Incubator for sustainable chemistry

- **Start-ups** and SME’s in chemistry
- Collaborative research projects in cooperation with large enterprises
- Meeting point for technology scouting and open innovation
- Top location for investment prospecting
- Opens in 2020 in Antwerp

State-of-the-art infrastructure (3,375 m²):

- 3 ready-to-use & 12 customizable labs
- 24 private offices
- 4 large offices for partner companies
- 20 flexible workplaces
- 5 meeting rooms & large board room

Innovations that contribute to a successful approach of the climate challenge

- Hyper-efficient batteries for better energy storage
- Ultralight materials for a lower fuel consumption in transport
- High-performance insulation for sustainable construction
- Essential building blocks for renewable energy
- Insulation materials for energy efficient household appliances
- CO₂ as a raw material for the production of mattresses
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Federation for Chemistry and Life Sciences Industries asbl

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