Over the past few years, Europe has faced unprecedented challenges, notably with the COVID pandemic and Russia’s invasion of Ukraine.

This year, 2023, directly follows this difficult period characterised by the economic downturn, high energy prices and increasing competition on the global stage. Even though the data included in this brochure focuses on 2021, it is difficult not to mention the impact of the crisis that marked 2022.

The energy crisis and supply chain issues have laid bare the need to strengthen Europe’s industrial resilience to undertake an ambitious transformation towards the 2050 EU Green Deal goals.

Our European chemicals industry supports the EU Green Deal and has the ambition to become climate neutral by 2050. This means, we need to change how we produce and what we produce in less than 30 years. And we need to do this while remaining globally competitive so that we could continue supplying to important EU value chains, including clean tech.

Indeed, we are facing the biggest transformation in the history of our sector, as we go climate neutral, circular, and digital at the same time as transitioning to safe and sustainable chemicals. All these actions require billions of additional investments between now and 2050. We need certainty that Europe is an attractive place for our industry to invest.

This is why the implementation of the dedicated Transition Pathway for our sector, published by the European Commission in January 2023, is vital to keep not only our industry in Europe, but also all other value chains depending on chemicals.

Chemicals are everywhere, and are present in more than 90% of manufactured goods. They are indispensable for disinfectants, medical devices and smart sensors to monitor health, for example. Solutions developed by the chemical industry extend the lifespan of wind turbines, turn waste into sustainable fibre for new clothes, and make electric vehicle batteries more powerful and efficient.

This is why having a strong and thriving EU chemical industry will remain key to achieving the objectives of the European Green Deal and our strategic autonomy.

Disclaimer:
For the sake of data integrity, figures within Cefic’s Facts & Figures publications are compiled and updated on a regular basis from public statistical sources (Eurostat, EU Commission, EEA, …). These sources regularly review their previous years’ data and at times retroactively amend it. As a result of these updates, the comparison of annual Cefic Facts & Figures editions is not necessarily consistent over time.
Europe is the second-largest chemicals producer

World chemicals sales (2021, €4,026 billion)

Source: Cefic Chemdata International

* Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine
** Asia excluding China, India, Japan and South Korea
China dominates the sales of chemicals globally

Sales of chemicals: top 10

Source: Cefic Chemdata International
EU27 shares of global chemicals market drops substantially

EU27 share of global chemicals market

Source: Cefic Chemdata International
Two thirds of EU27 sales of chemicals was generated in four member states

EU27 chemical sales broken down by country (2021)

- DE: 29%
- FR: 17%
- IT: 10%
- NL: 10%
- ES: 8%
- BE: 7%
- AT: 3%
- Others: 16%

€594 billion

Source: Cefic Chemdata International
The chemical sector is the fourth-largest manufacturing producer in the EU27

Top 10 sectors: turnover (€ billion, 2018)

Source: Eurostat
Over half of the chemicals produced in EU27 and UK are supplied to the industry

Customer sectors of the EU27+UK chemical industry (2017)

Source: ICCA report 2019, Catalyzing Growth and Addressing Our World’s Sustainability Challenges (Oxford Economics)
In 2021, chemicals still generated a high European trade surplus

EU27 trade surplus in the European Economy (2020-2021): top 10

Source: Eurostat

* Pharmaceuticals included
In 2021, EU27 held trade surplus with top competing regions

EU27 chemicals trade flows with major geographic blocs (2021)

Source: Cefic Chemdata International
* Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine
** North American Free Trade Agreement
*** Asia excluding China and Japan
Capital spending in the EU27 chemical industry

EU27 capital spending increased significantly in 2021

Source: Cefic Chemdata International
China leads the global chemical capital spending

Capital spending in the chemicals industry by region (2021 vs 2011)

Source: Cefic Chemdata International

* Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine
** North American Free Trade Agreement
*** Asia excluding China, India, Japan and South Korea
In 2021, EU27 R&I spending reached the highest level in value terms

R&I spending in the EU27 chemical industry

Source: Cefic Chemdata International
## EU27 is the second-largest R&I spender in the world

R&I spending in the chemicals industry by region (2011 vs 2021)

<table>
<thead>
<tr>
<th>Region</th>
<th>2011 R&amp;I Spending (€ billion)</th>
<th>2021 R&amp;I Spending (€ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU27</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>USA</td>
<td>7</td>
<td>8</td>
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<tr>
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<td>Switzerland</td>
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</tr>
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<td>China</td>
<td>6</td>
<td>15</td>
</tr>
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<td>Japan</td>
<td>7</td>
<td>8</td>
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<td>South Korea</td>
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</tr>
<tr>
<td>Brazil</td>
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<td>0.2</td>
</tr>
<tr>
<td>India</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Rest of the world</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Source: Cefic Chemdata International
In 2021, petrochemicals accounted for over 25% of EU27 sales of chemicals

EU27 chemical sales 2021 (€594 billion)

Source: Cefic Chemdata International
High feedstock prices challenged Europe’s global competitiveness in 2021

Ethylene cash cost of regional steam crackers

Source: ICIS
EU27 scope 1 GHG emissions* fall 55% since 1990

Total scope 1 GHG emissions* by the EU27 chemical industry

Source: European Environment Agency (EEA)

* Germany and Malta did not separately report GHG emissions from combustion of fuels in the chemical sector.
EU27 scope 1 GHG emissions* fall since 1990, but not for CO₂

Total scope 1 GHG emissions* per type of GHG by the EU27 chemical industry

Source: European Environment Agency (EEA)

* Germany and Malta did not separately report GHG emissions from combustion of fuels in the chemical sector.
EU27 scope 2 GHG emissions fall by 62% since 1990

GHG emissions scope 2 by the EU27 chemical industry

Source: European Environment Agency (EEA), Eurostat
EU27 acidifying emissions fall by more than 60% since 2007

Acidifying emissions by the EU27 chemical industry

Source: European Pollutant Release and Transfer Register (E-PRTR)
* Slovakia did not report data under the EU Registry.
Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.
Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.
EU27 emissions to air fall by 70% since 2007

Methane & NMVOC emissions by the EU27 chemical industry

Source: European Pollutant Release and Transfer Register (E-PRTR)

* Slovakia did not report data under the EU Registry.
Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.
Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.
**EU27 total nitrogen & phosphorous emissions dropped significantly since 2007**

Total Nitrogen & Phosphorous Emissions to water by the EU27 chemical industry

Source: European Pollutant Release and Transfer Register (E-PRTR)
* Slovakia did not report data under the EU Registry.
* Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.
* Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.
A full version of the 2023 Cefic Facts & Figures of the European chemical industry is available online on the Cefic website.

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Cefic, the European Chemical Industry Council, founded in 1972, is the voice of large, medium and small chemical companies across Europe, which provide 1.2 million jobs and account for about 14.4% of world chemicals production.

Cefic members form one of the most active networks of the business community, complemented by partnerships with industry associations representing various sectors in the value chain. A full list of our members is available on the Cefic website: www.cefic.org/about-us

Cefic is an active member of the International Council of Chemical Associations (ICCA), which represents chemical manufacturers and producers all over the world and seeks to strengthen existing cooperation with global organisations such as UNEP and the OECD to improve chemicals management worldwide.

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