



cefic

The European Chemical industry Facts and Figures 2023

A vital part of Europe's Future

23 February 2023



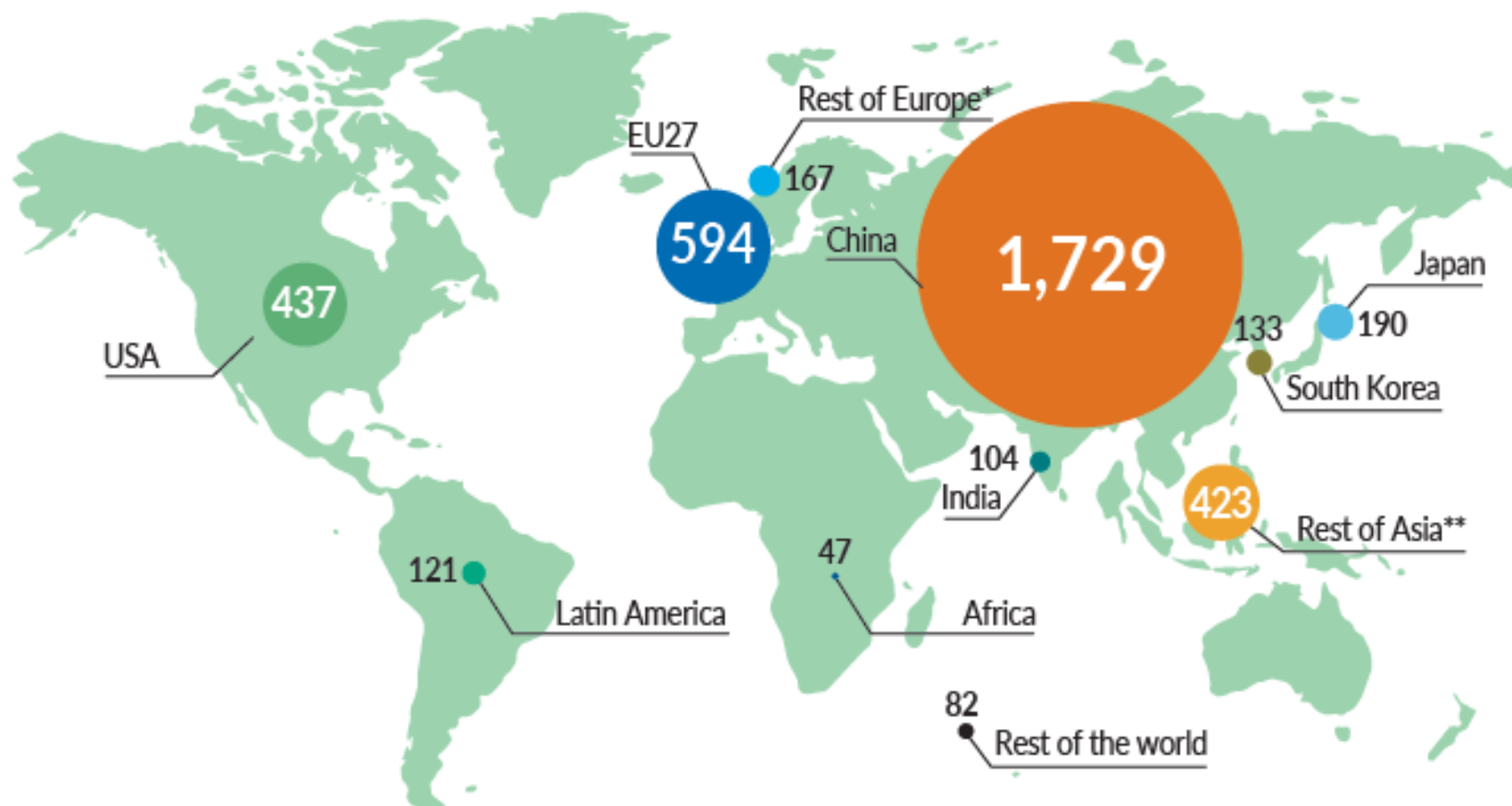


1. Profile - key figures



Europe is the second-largest chemicals producer in the world

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



Source: Cefic Chemdata International

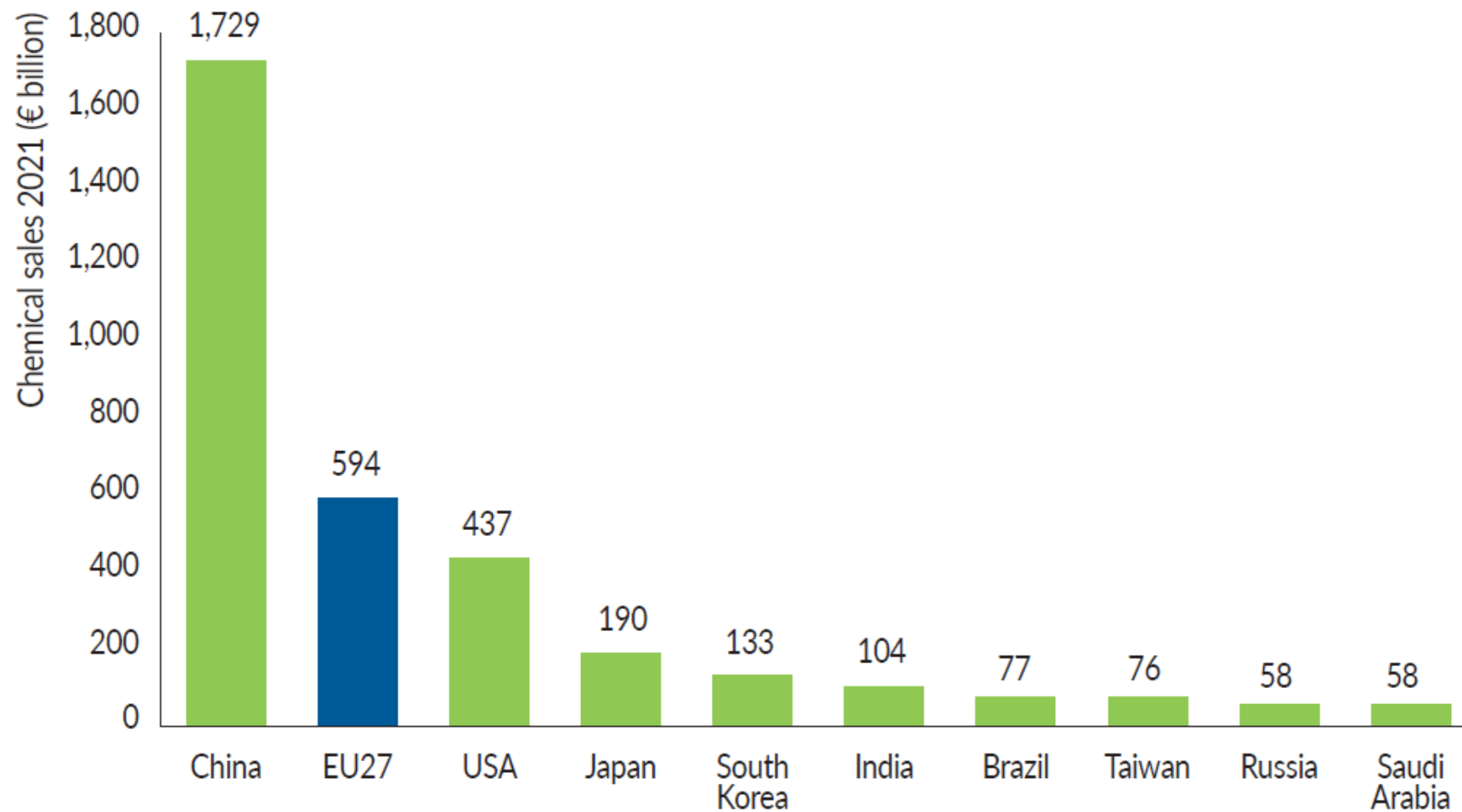
*Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine

**Asia excluding China, India, Japan and South Korea



China dominates chemical sales globally

Chemical sales by country: top 10

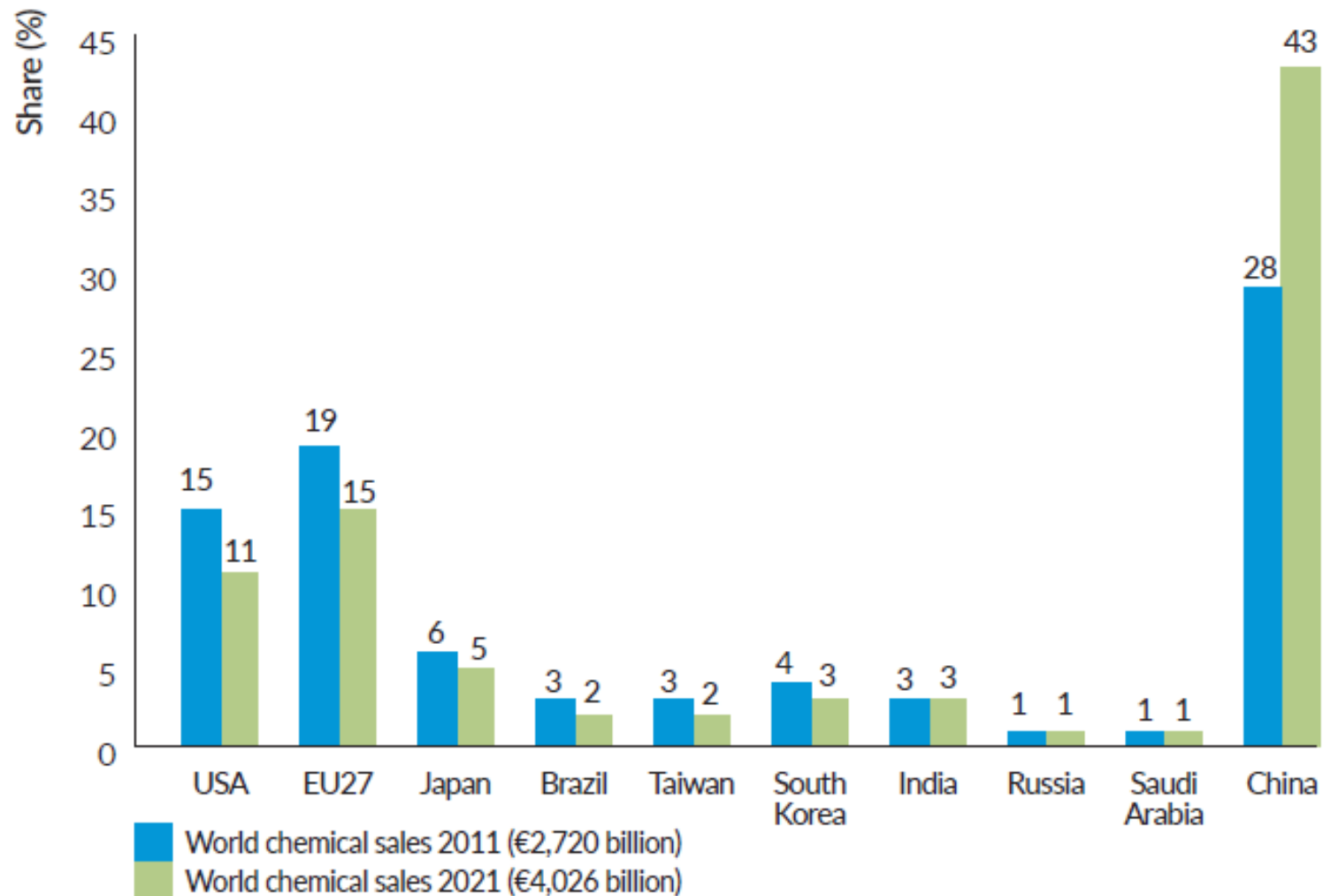


Source: Cefic Chemdata International



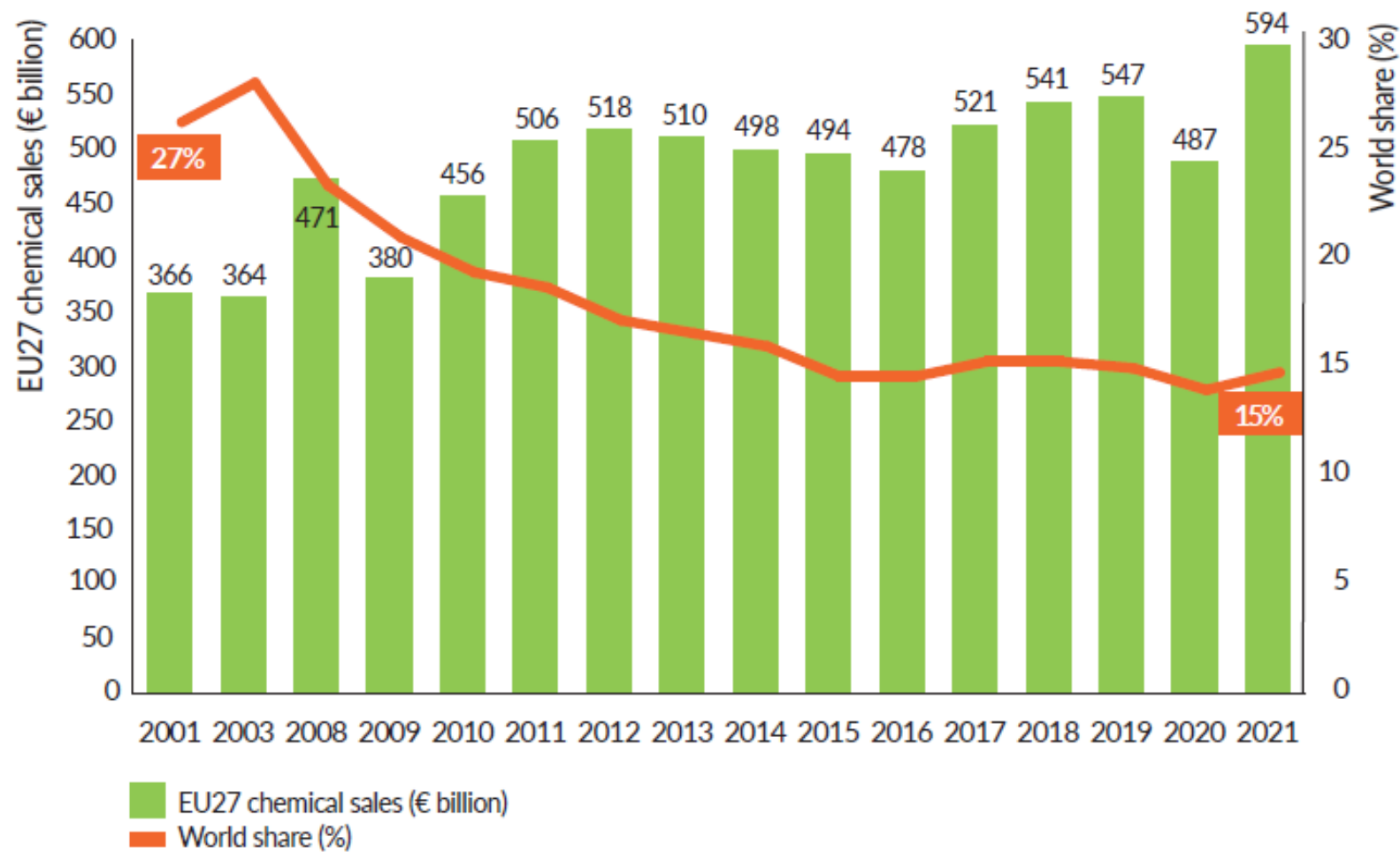
EU27 market share dropped significantly

World chemical sales by country: top 10



World market share of EU27 chemical sales drops substantially

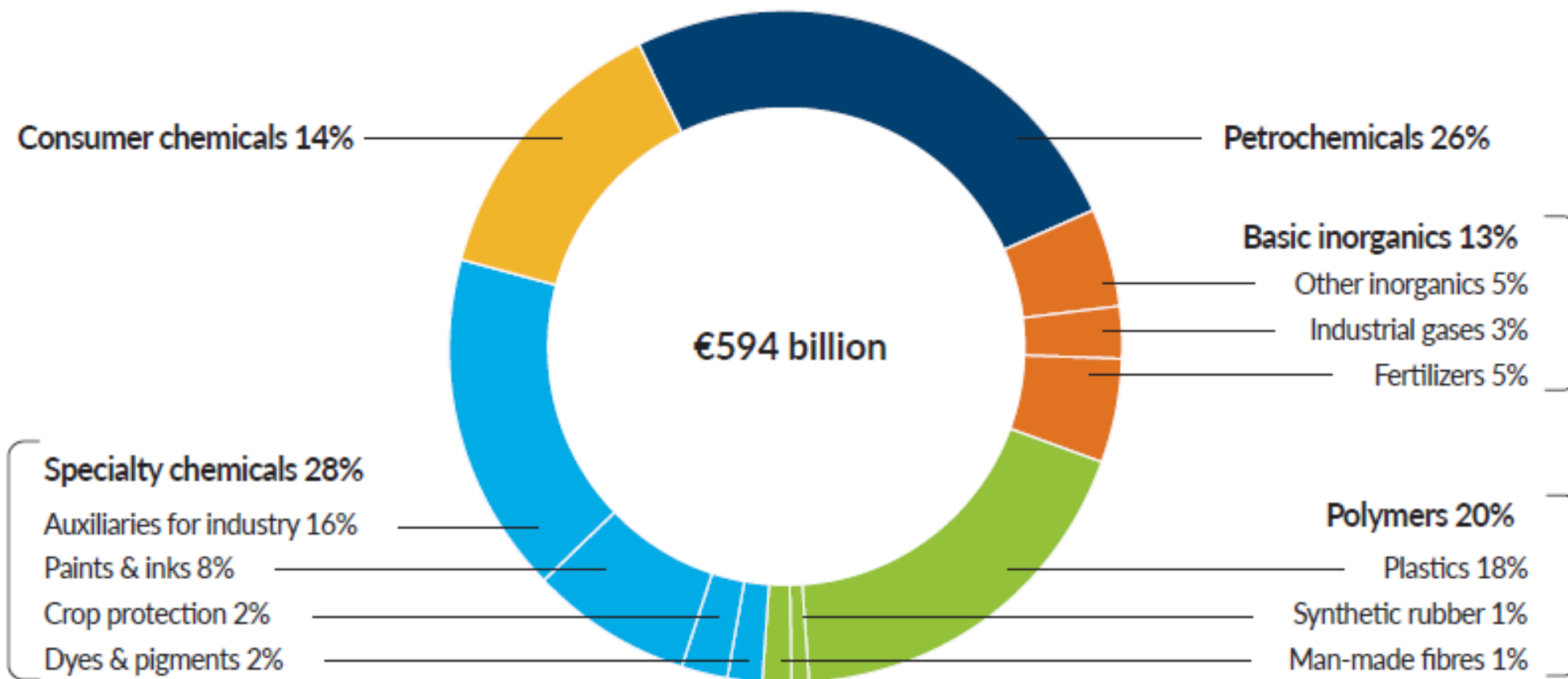
EU27 share of global chemicals market



Source: Cefic Chemdata International

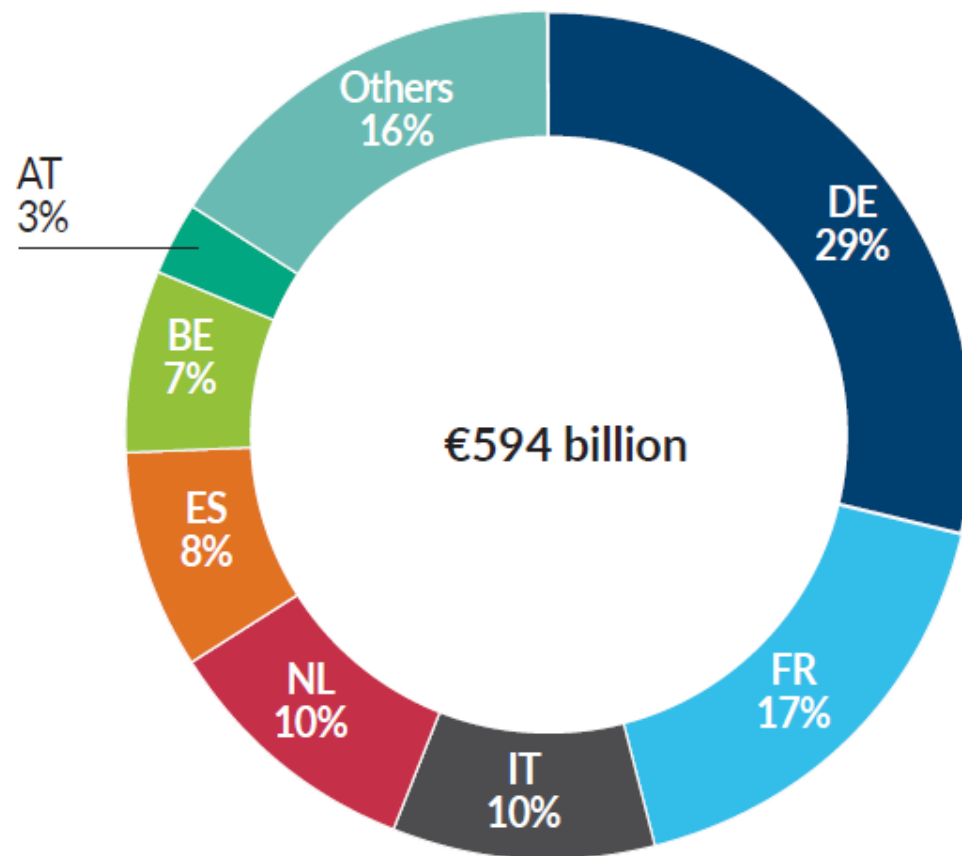
Petrochemicals account for more than ¼ of EU27 chemicals sales

EU27 chemical sales 2021 (€594 billion)



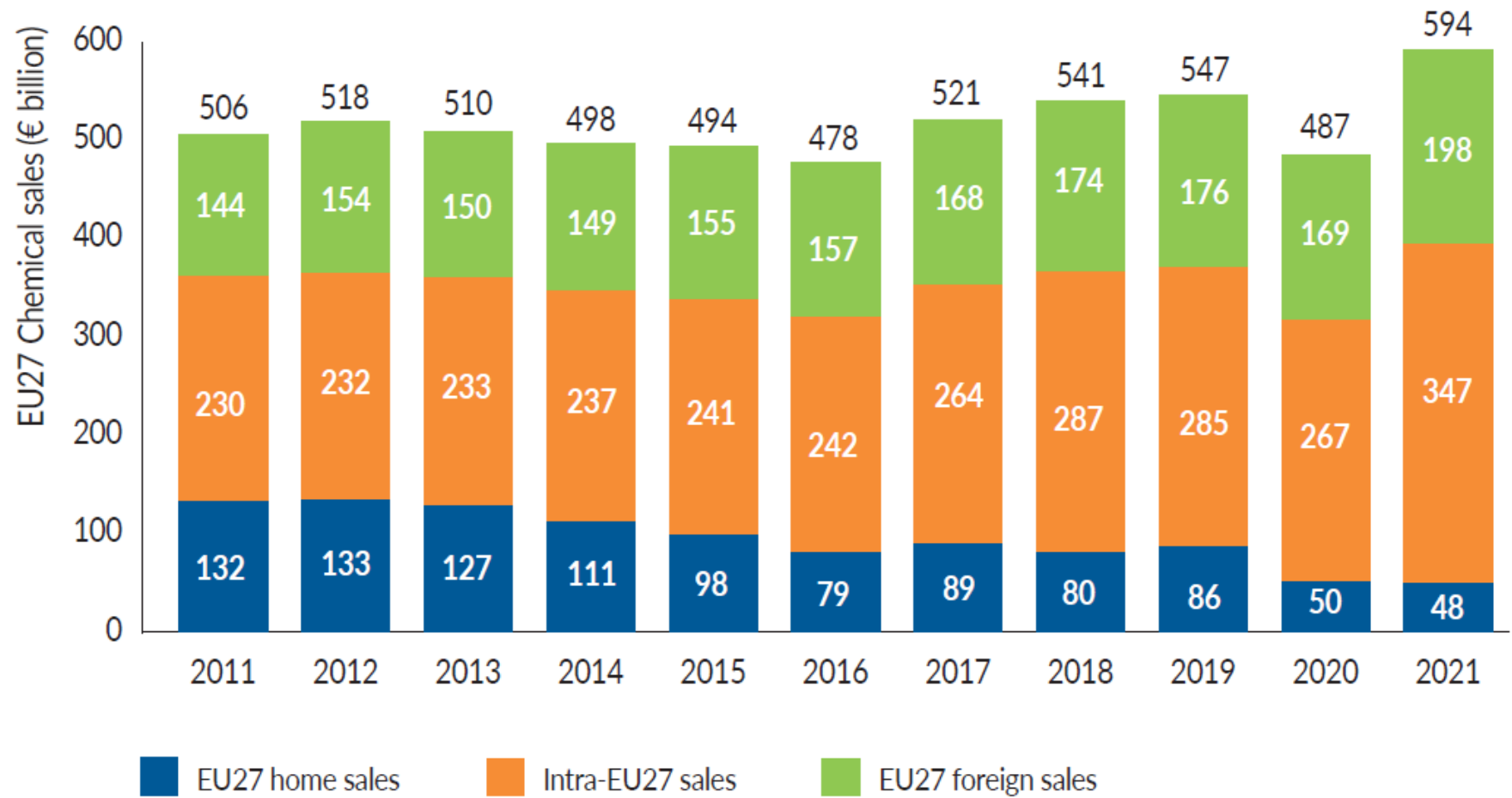
Two thirds of EU27 chemical sales generated in four Member States

EU27 chemical sales broken down by country (2021)



EU27 chemicals sales increased significantly in 2021

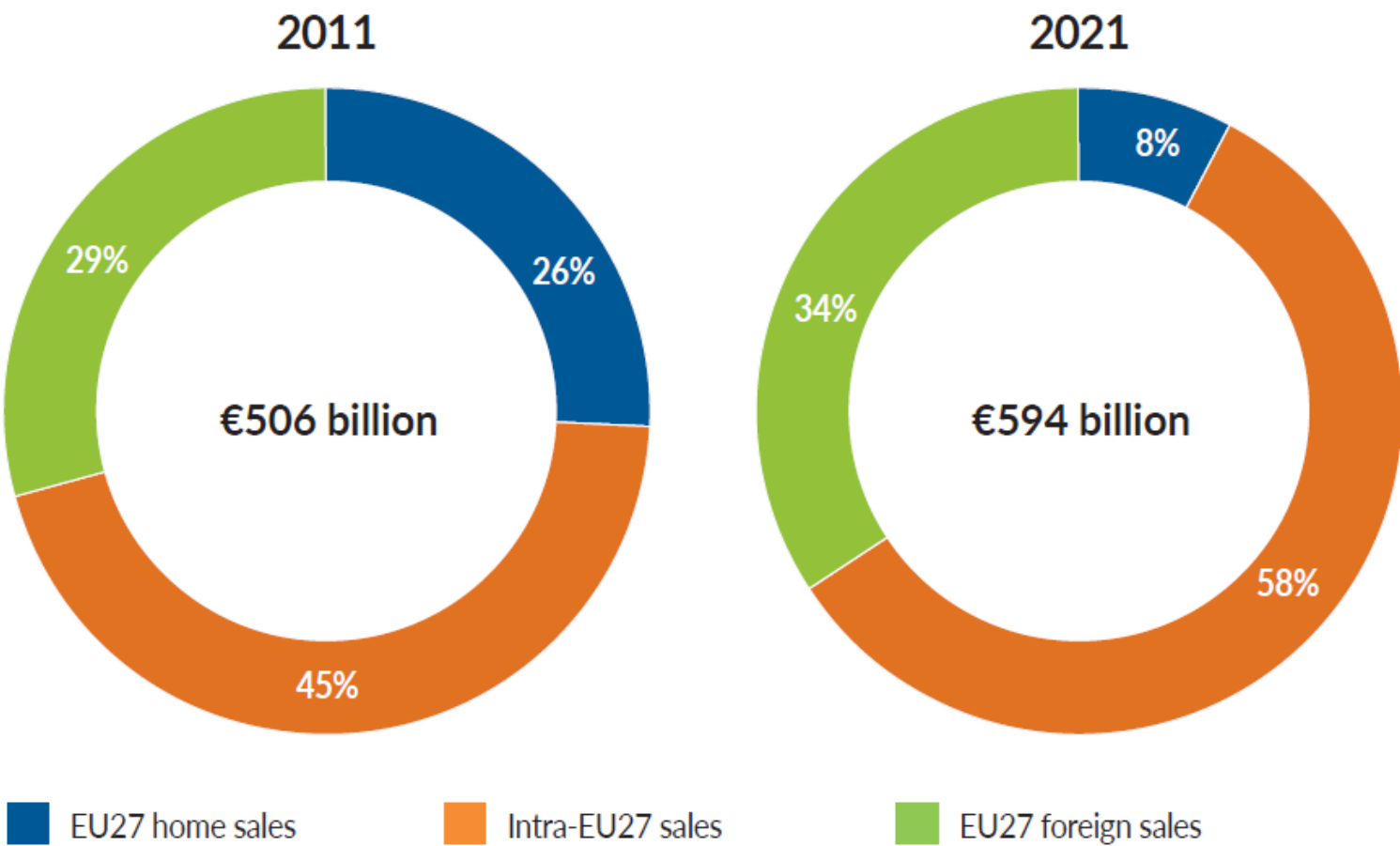
EU27 chemical sales structure (€ billion)



Source: Cefic Chemdata International

One third of EU27 chemicals sales is generated from exports

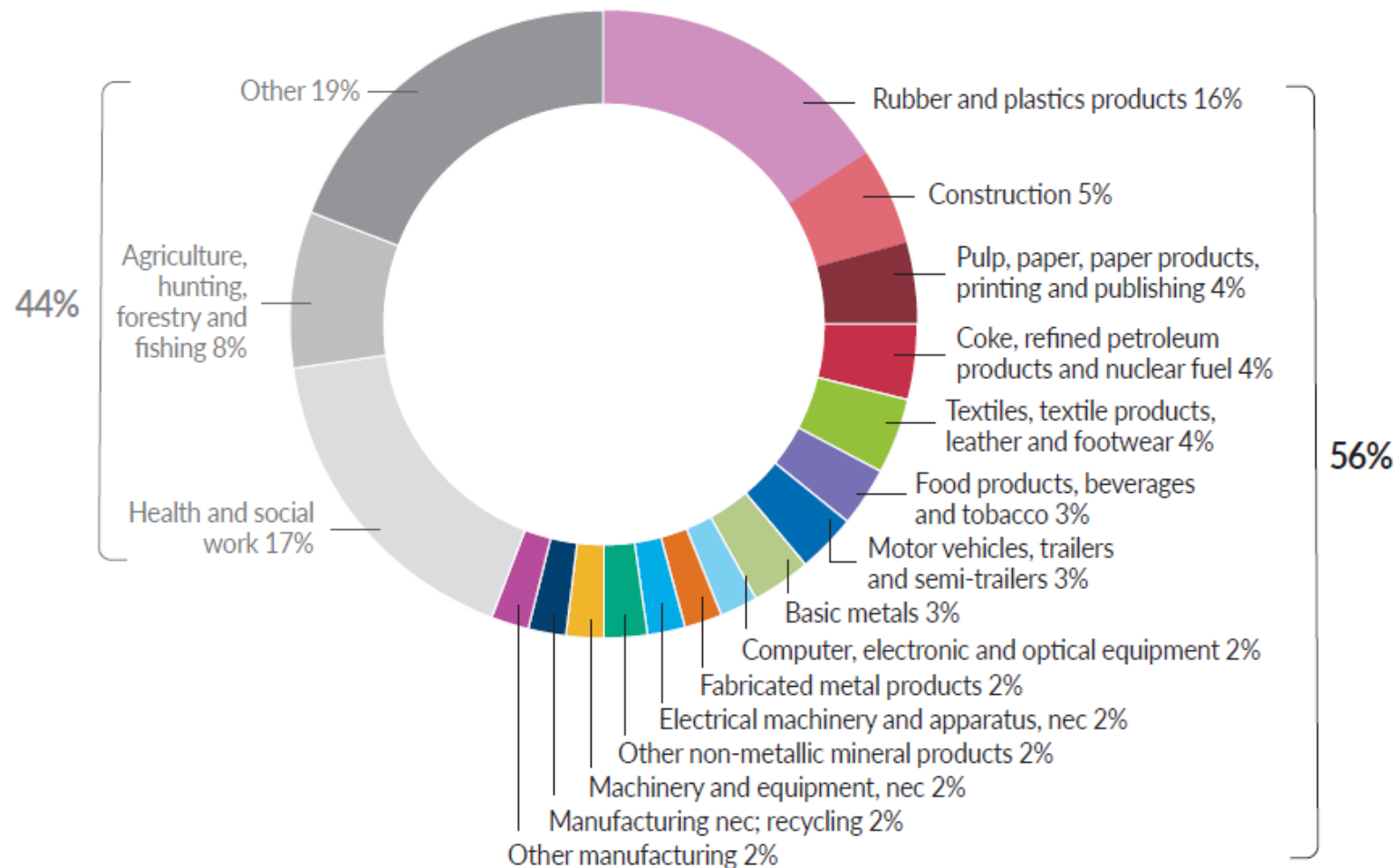
EU27 chemical sales structure (%)



Source: Cefic Chemdata International

More than half of EU chemicals are supplied to the industry

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

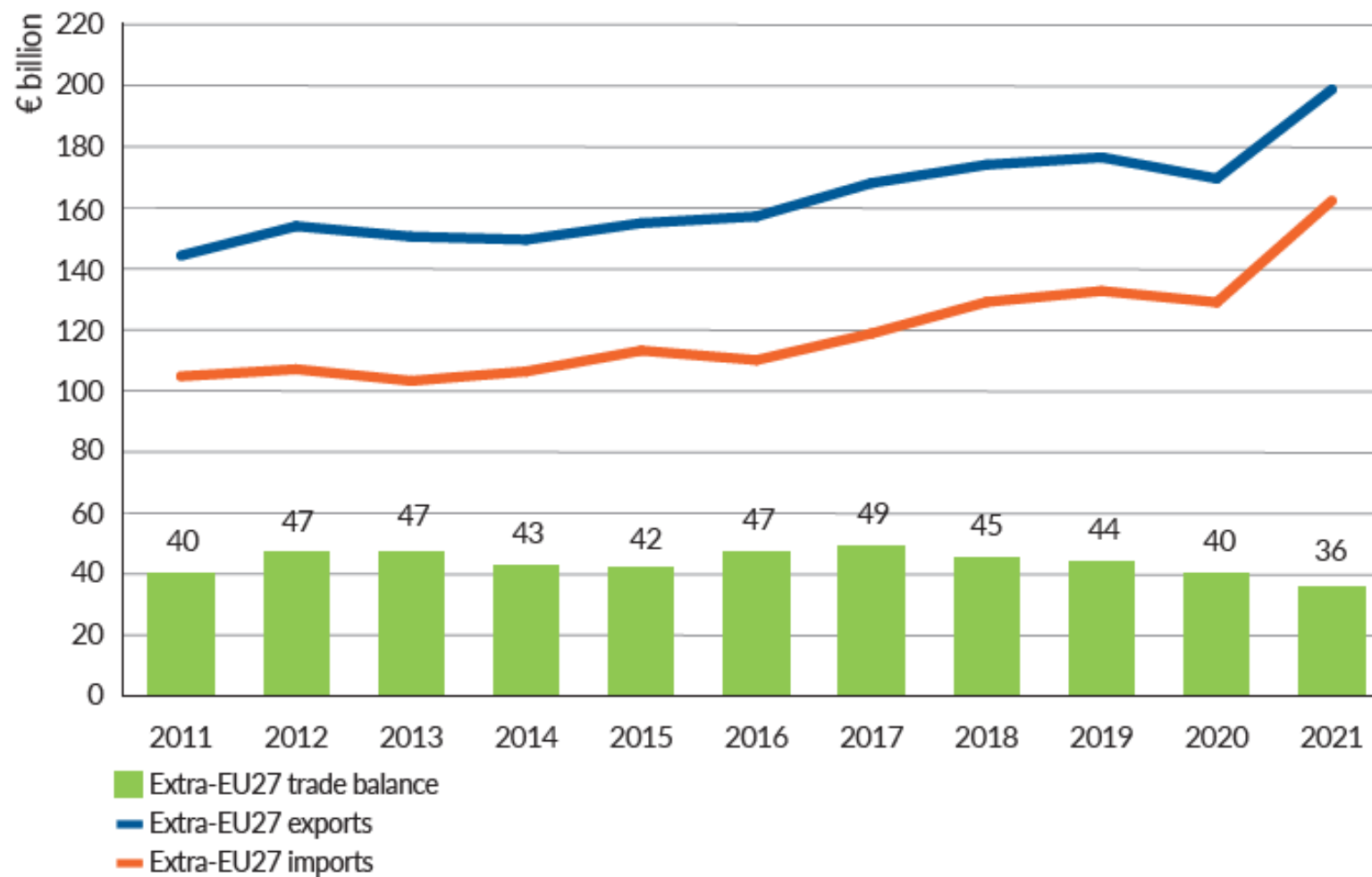




2. Trade Development

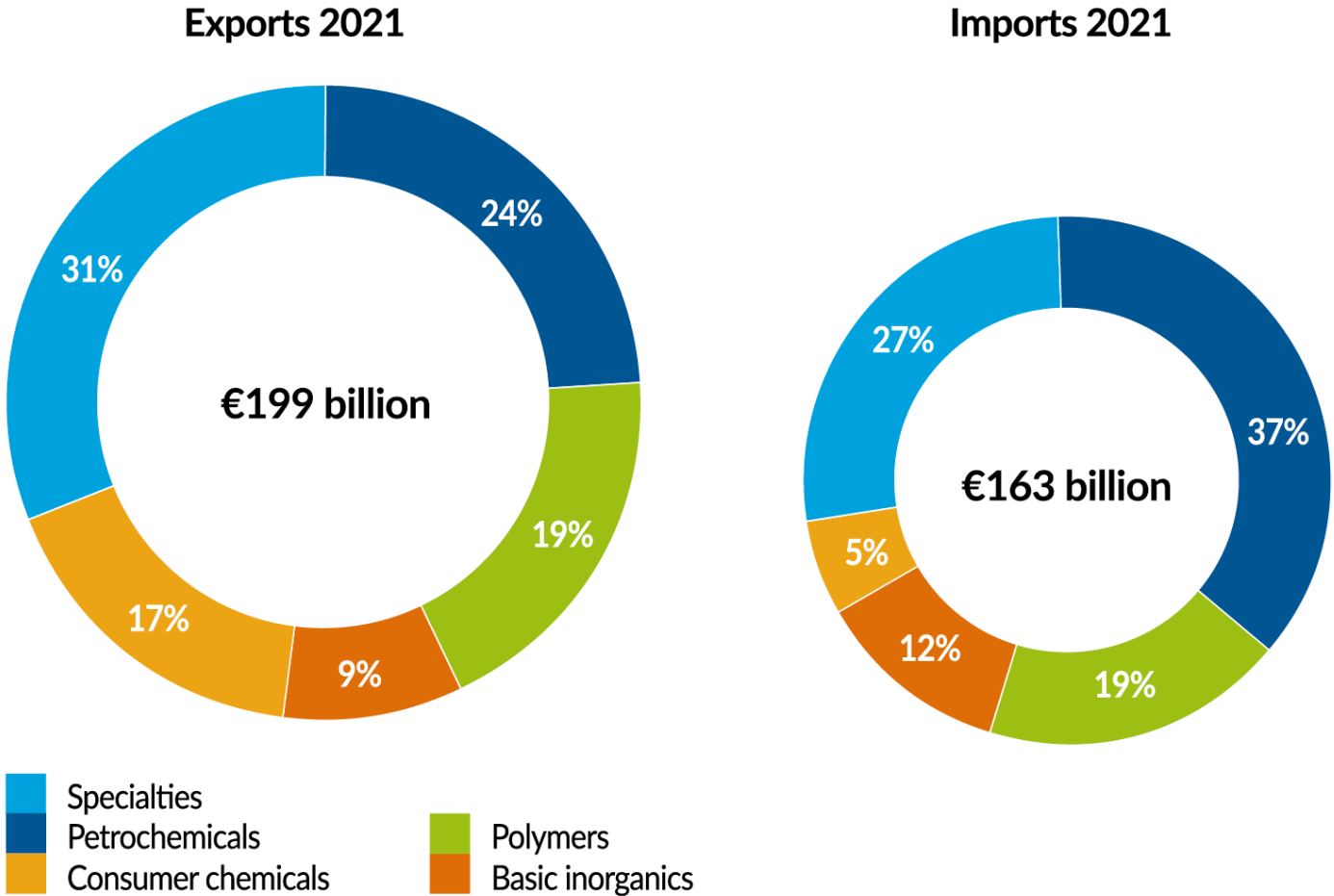
EU27 chemicals trade surplus reaches a lower level in 2021

Extra-EU27 chemicals trade balance



Specialty chemicals contributes most to EU27 chemicals trade

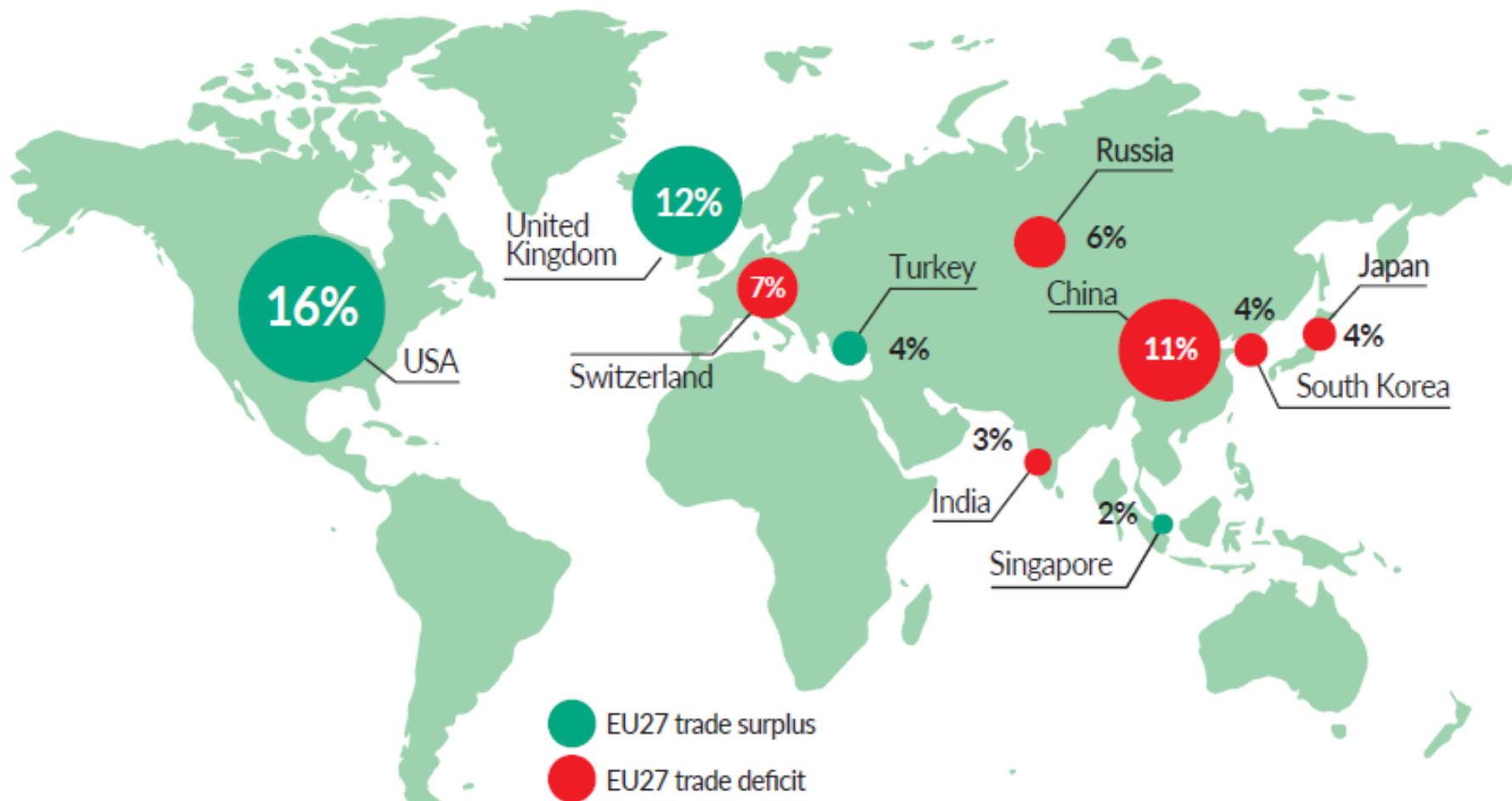
Extra-EU27 chemicals trade flows by sector (2021)



Source: Cefic Chemdata International

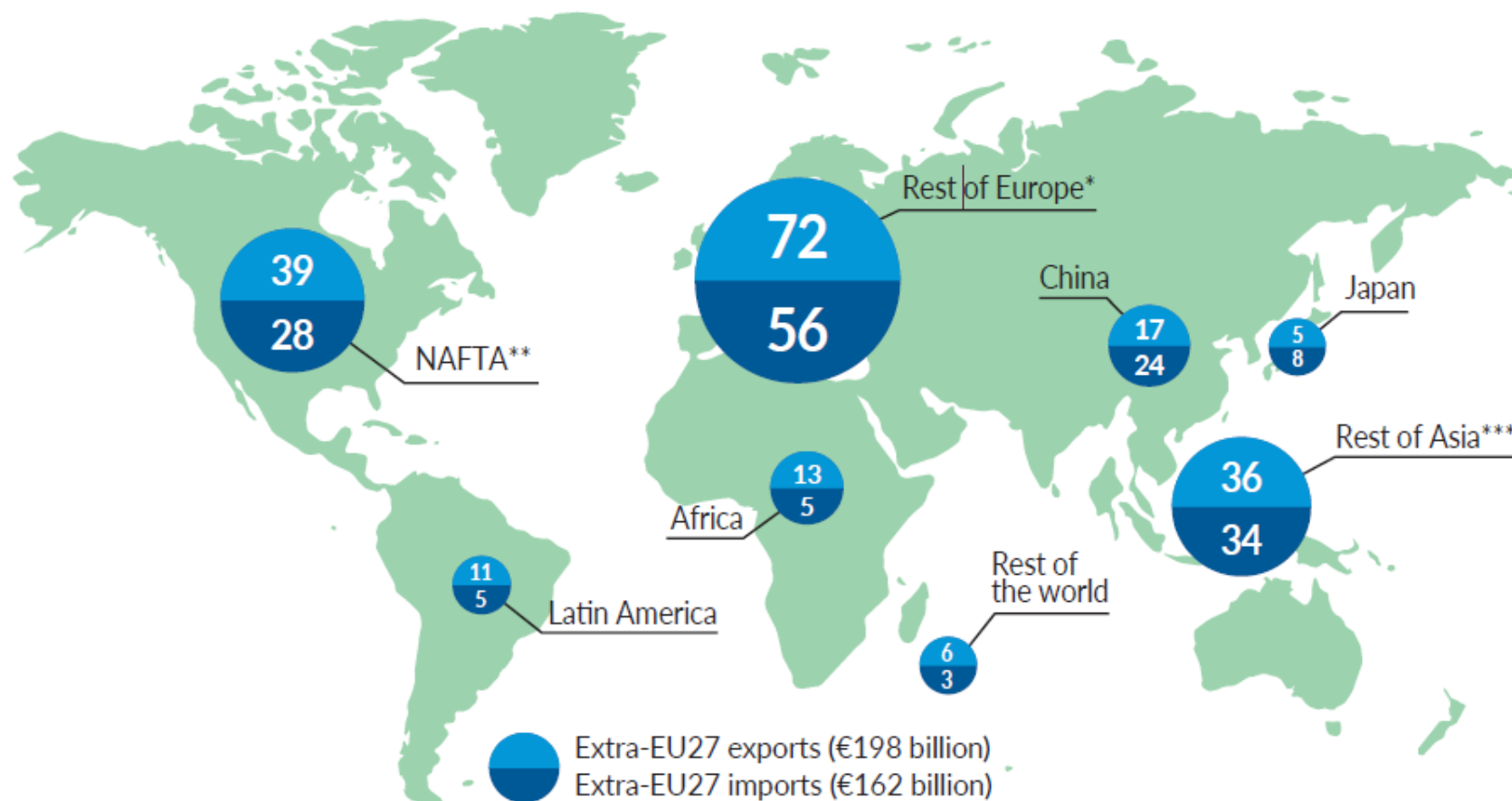
Top 10 EU27 partners account for 2/3 of EU27 chemicals trade*

EU27 chemicals trade* flows with top 10 partners (2021)



EU27 holds 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

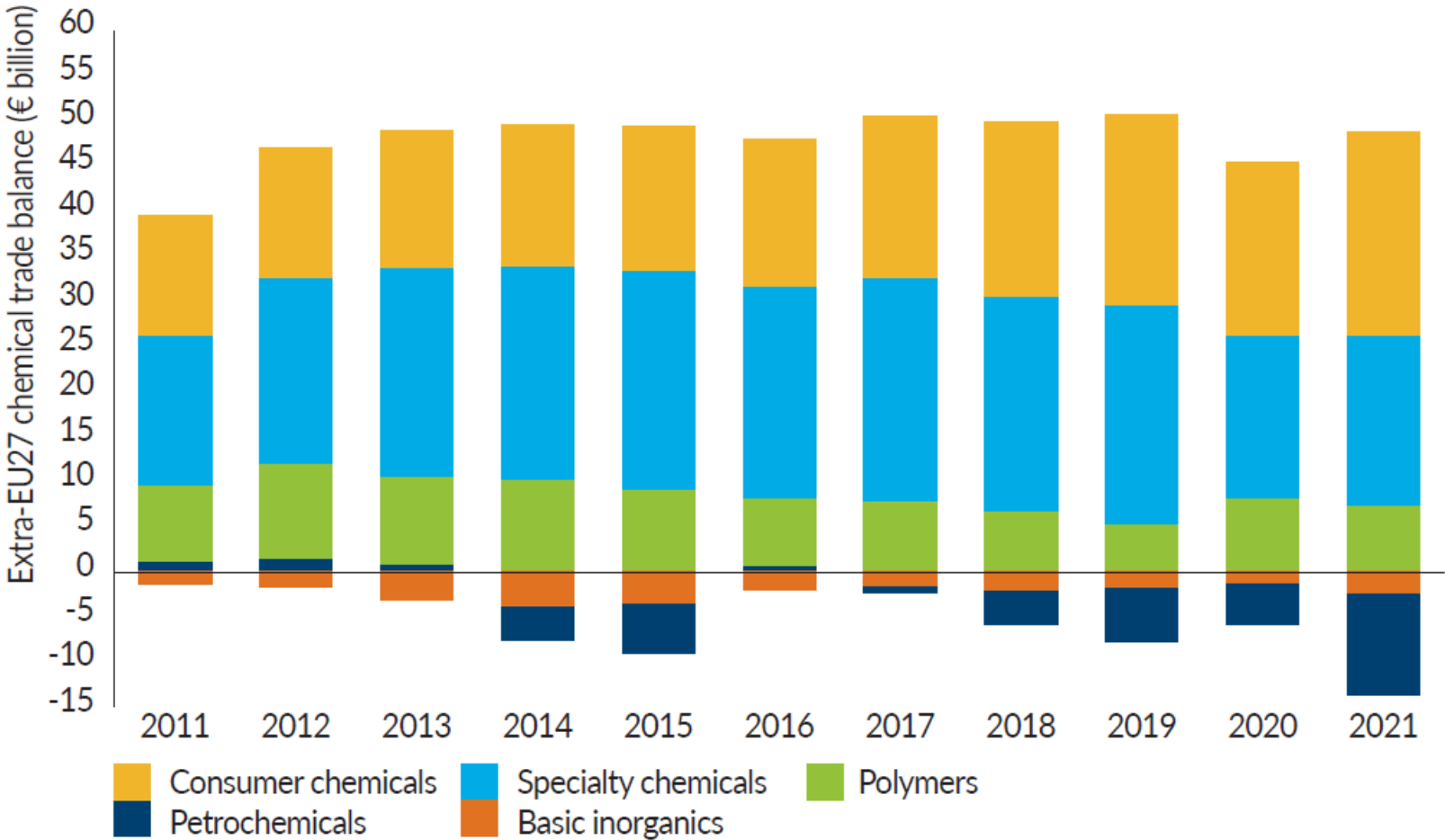
**North American Free Trade Agreement

***Asia excluding China and Japan



Consumer chemicals contribute most to EU27 trade surplus

Extra-EU27 chemicals trade balance by sector



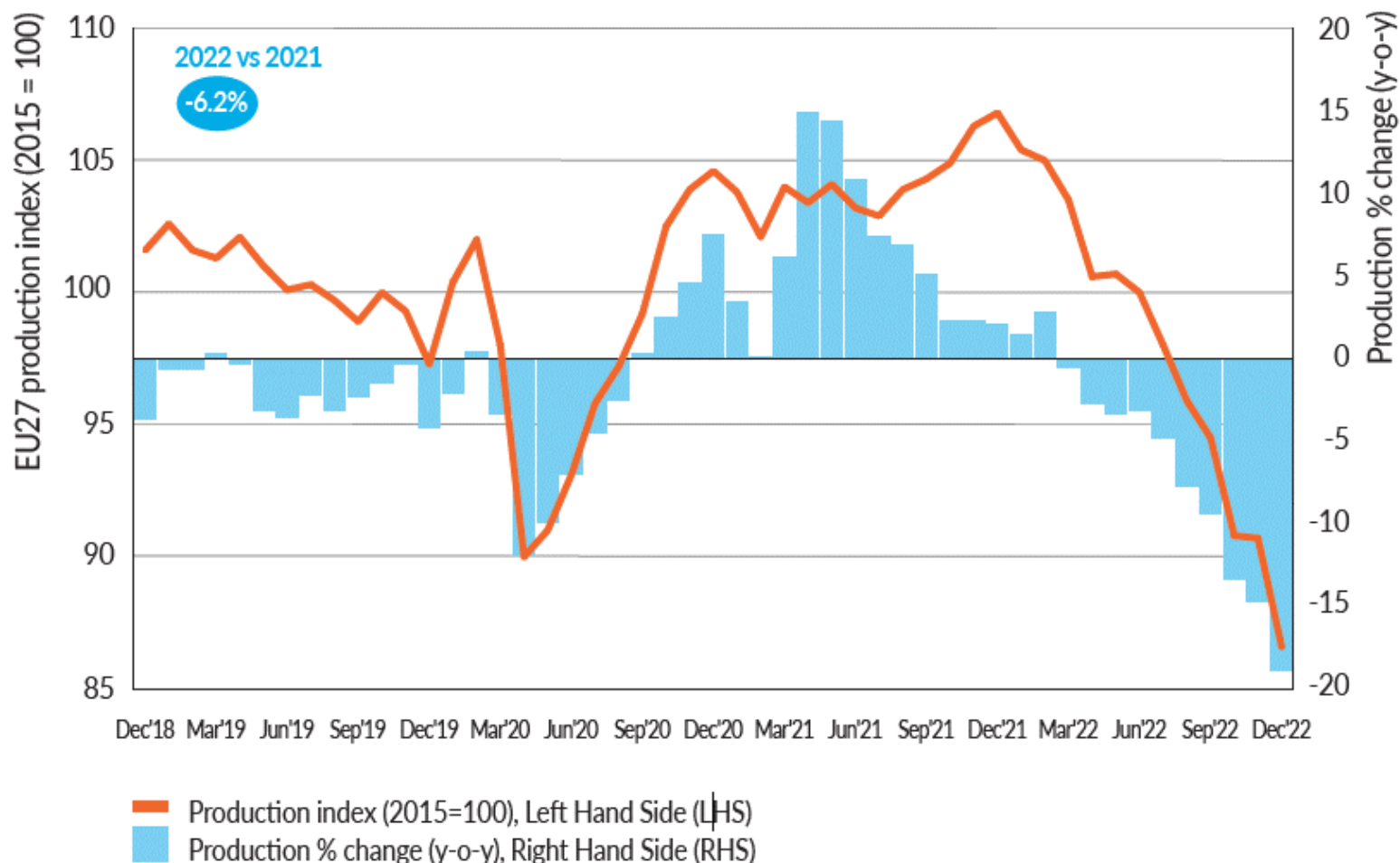


3. Growth and Competitiveness



EU27 chemicals output, far below the previous year's level

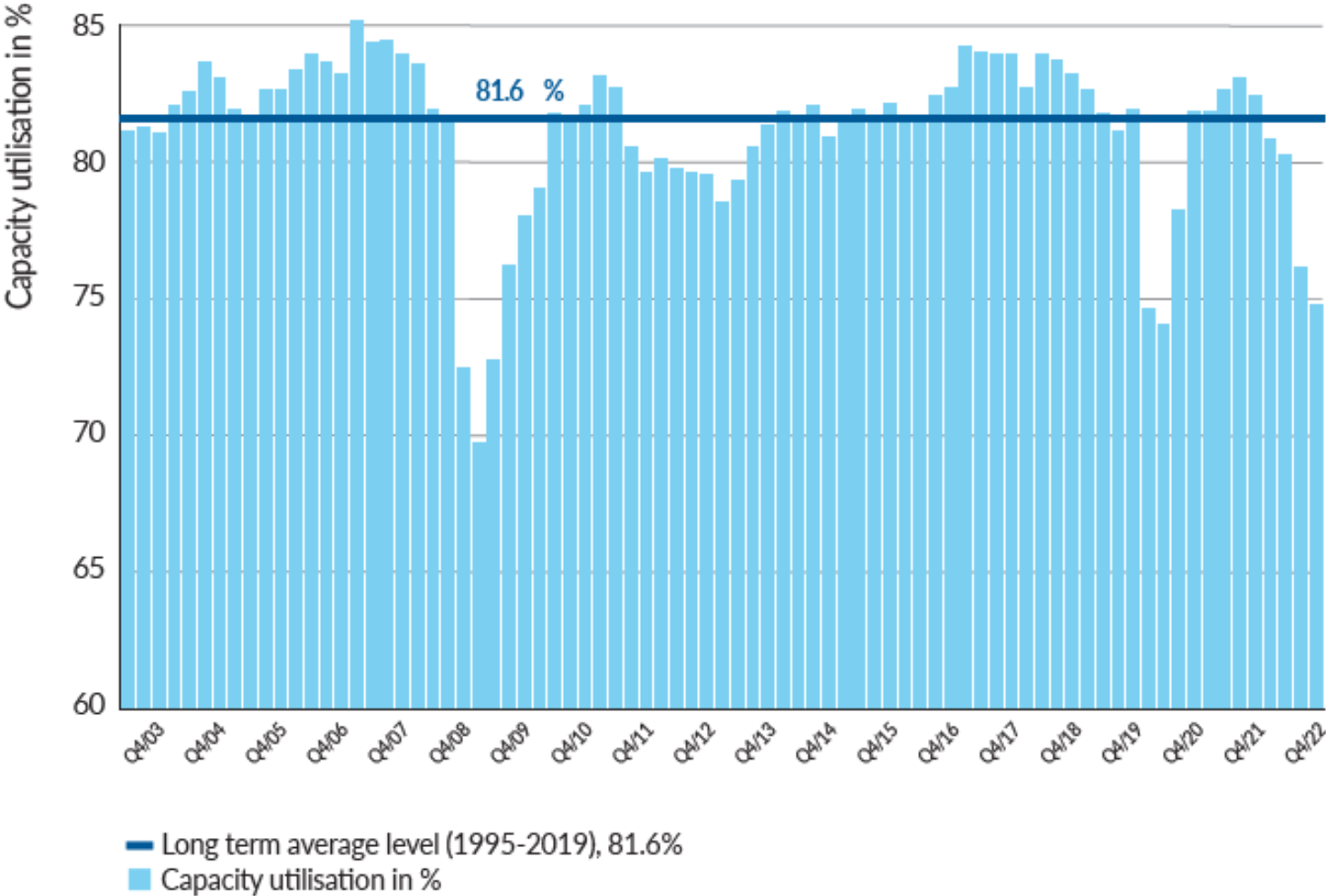
EU27 chemical industry production



Source: Cefic Chemdata International

EU27 capacity utilisation below its long-term average

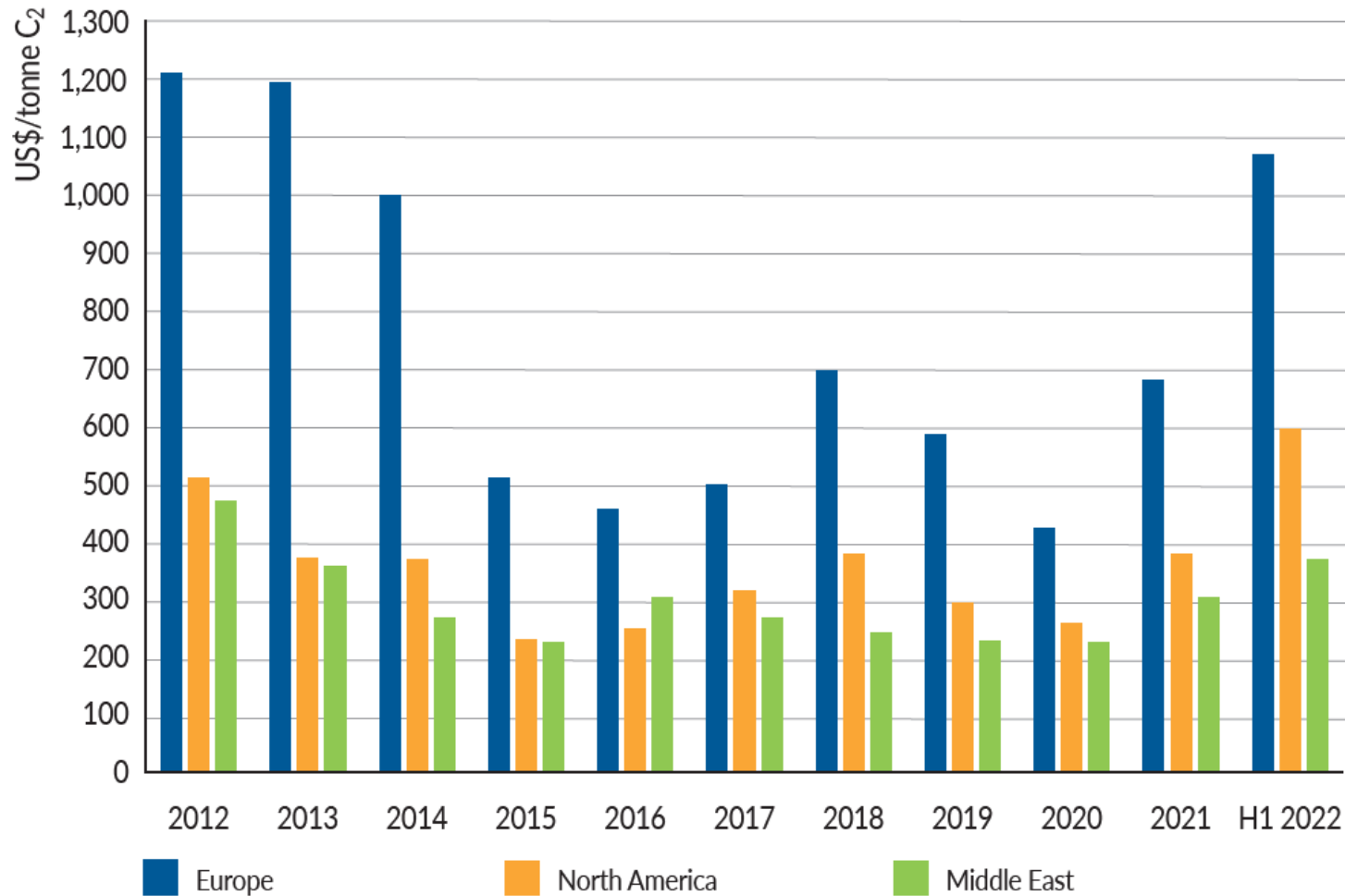
EU27 chemical capacity utilisation rate



Source: European Commission Business and Consumer Survey; companies answering the question "At what capacity is your company currently operating (as a percentage of full capacity)?"

Europe at a competitive disadvantage compared to North America and Middle East

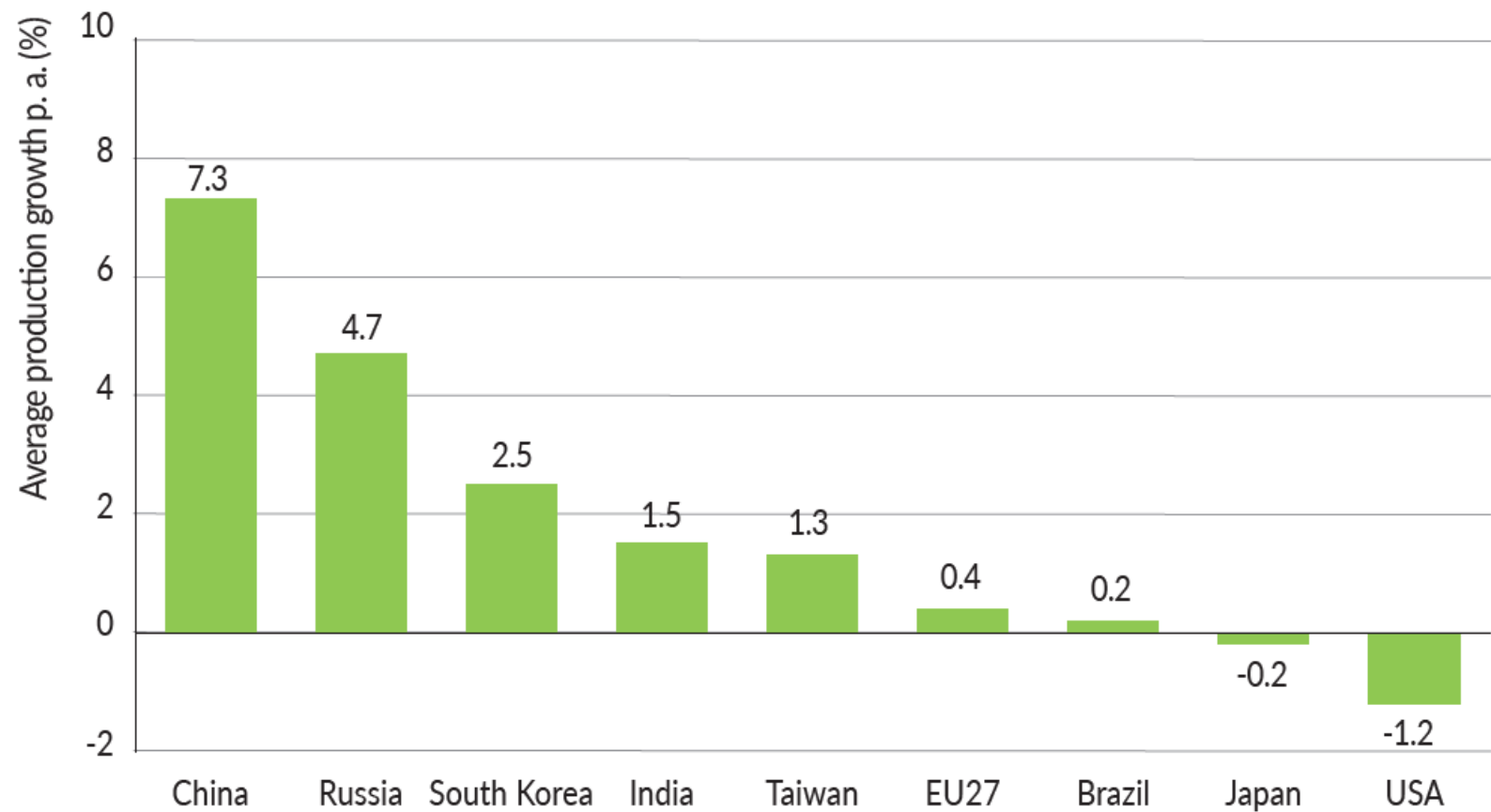
Ethylene cash cost of regional steam crackers



Source: ICIS

Key emerging economies grow faster than the EU27 and the USA

Average chemicals production growth per annum (2011-2021)



Source: Cefic Chemdata International



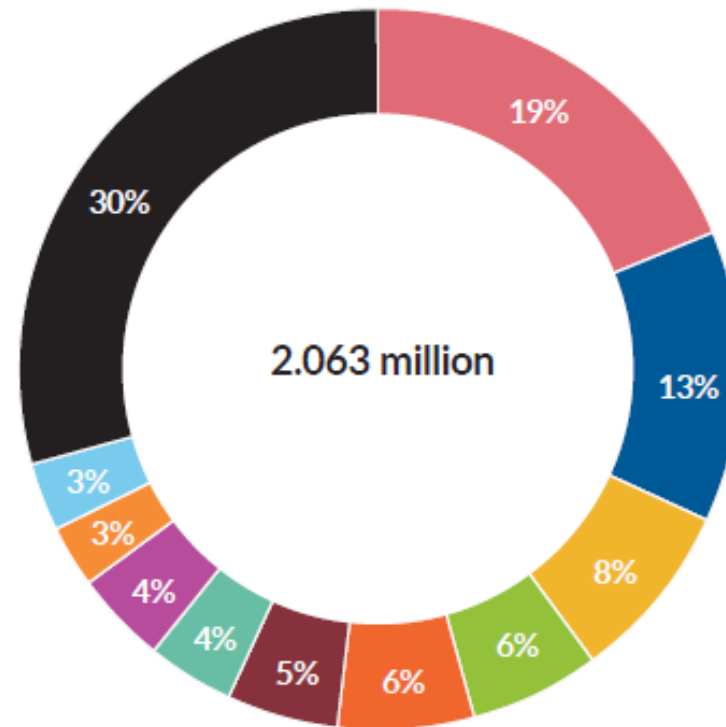


4. Our contribution to EU industry



Top 10 sectors account for 70% of total EU27 manufacturing enterprises

Number of enterprises in the EU27 manufacturing industry (2020): top 10



Fabricated metal
Food products
Wood
Wearing

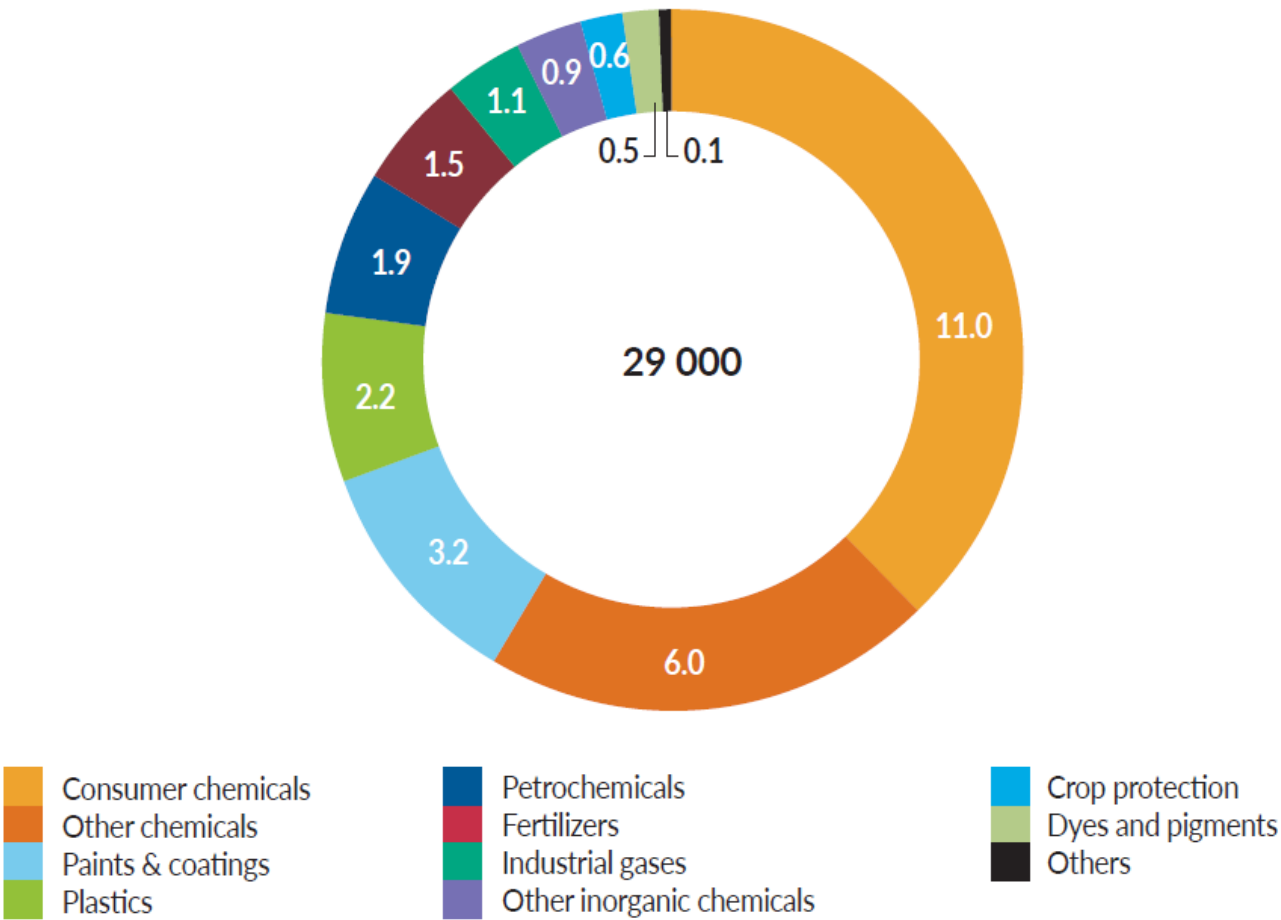
Furniture
Printing
Other non-metallic mineral products
Machinery & equipment n.e.c.

Textiles
Rubber and plastic products
Others



Consumer chemicals has the highest number of chemicals enterprises

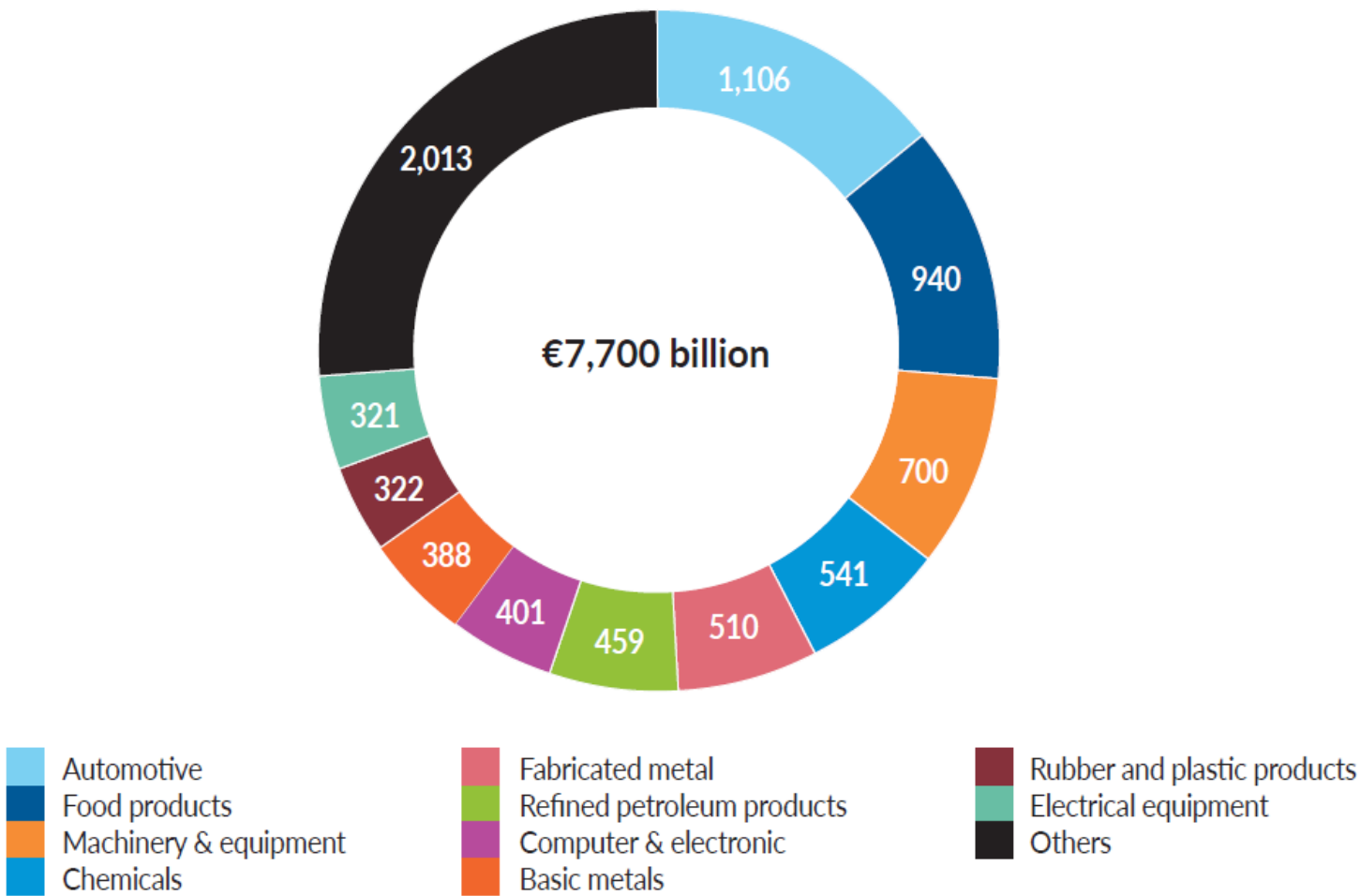
Number of enterprises in the EU27 chemicals industry (2020): top 10



Source: Eurostat

Chemicals is the fourth-largest producer in EU27 manufacturing sector

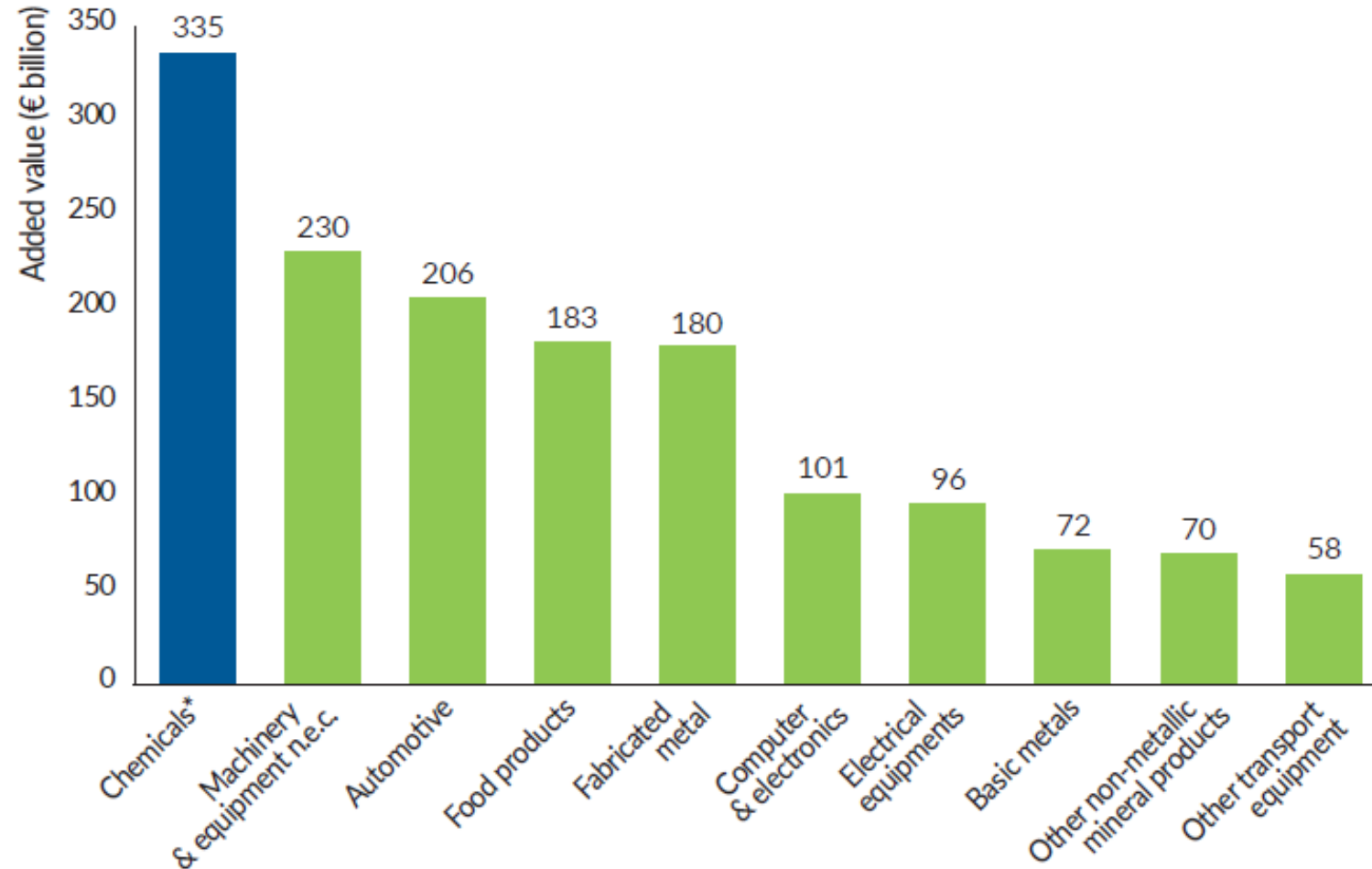
Top 10 sectors: turnover (€ billion, 2018)



Source: Eurostat

Chemicals* is the leading sector in terms of added value

Top 10 sectors: EU27 added value (€ billion, 2018)



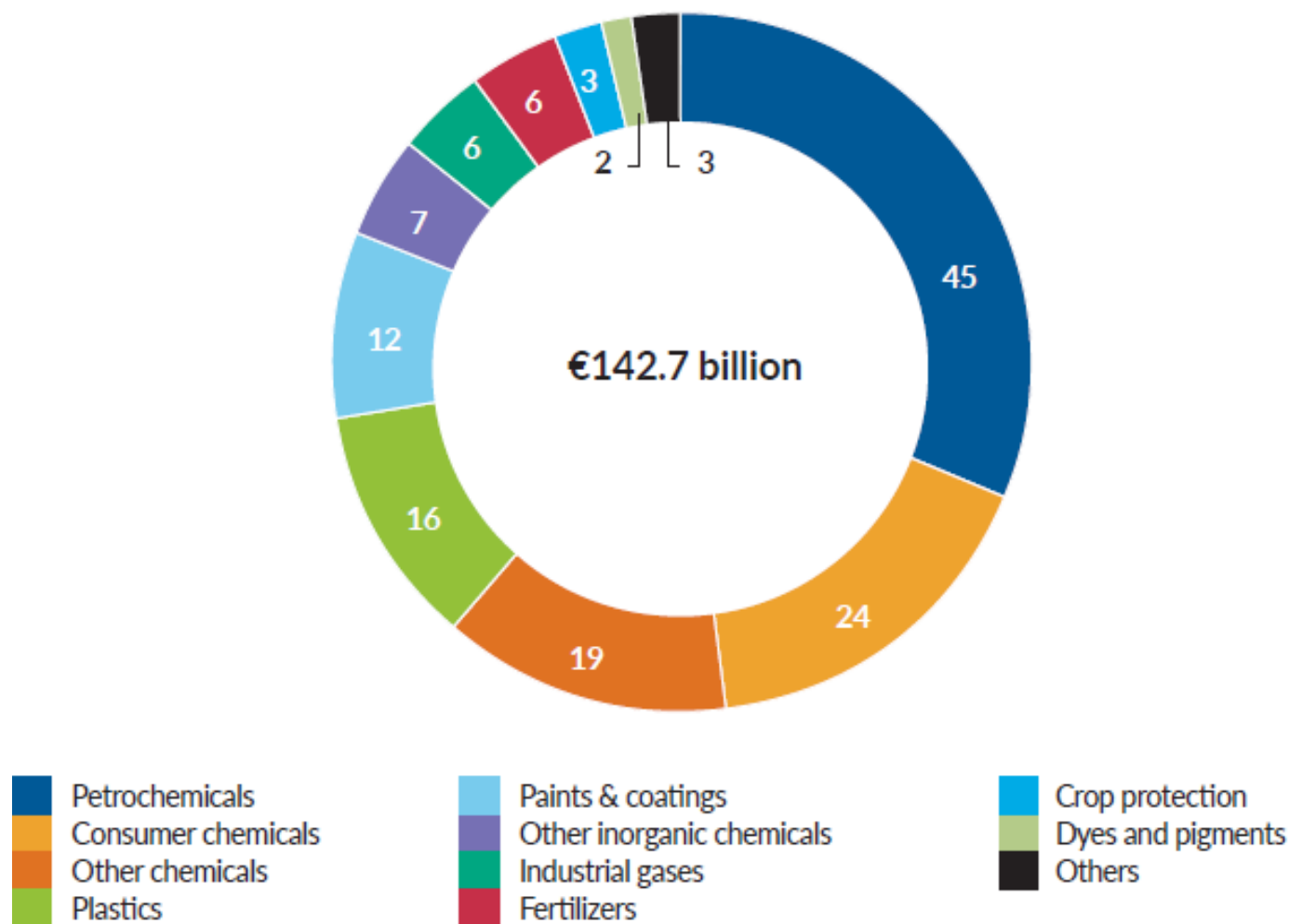
Source: Eurostat

*Pharmaceuticals and rubber & plastics included



Petrochemicals has the highest added value in EU27 chemicals sector

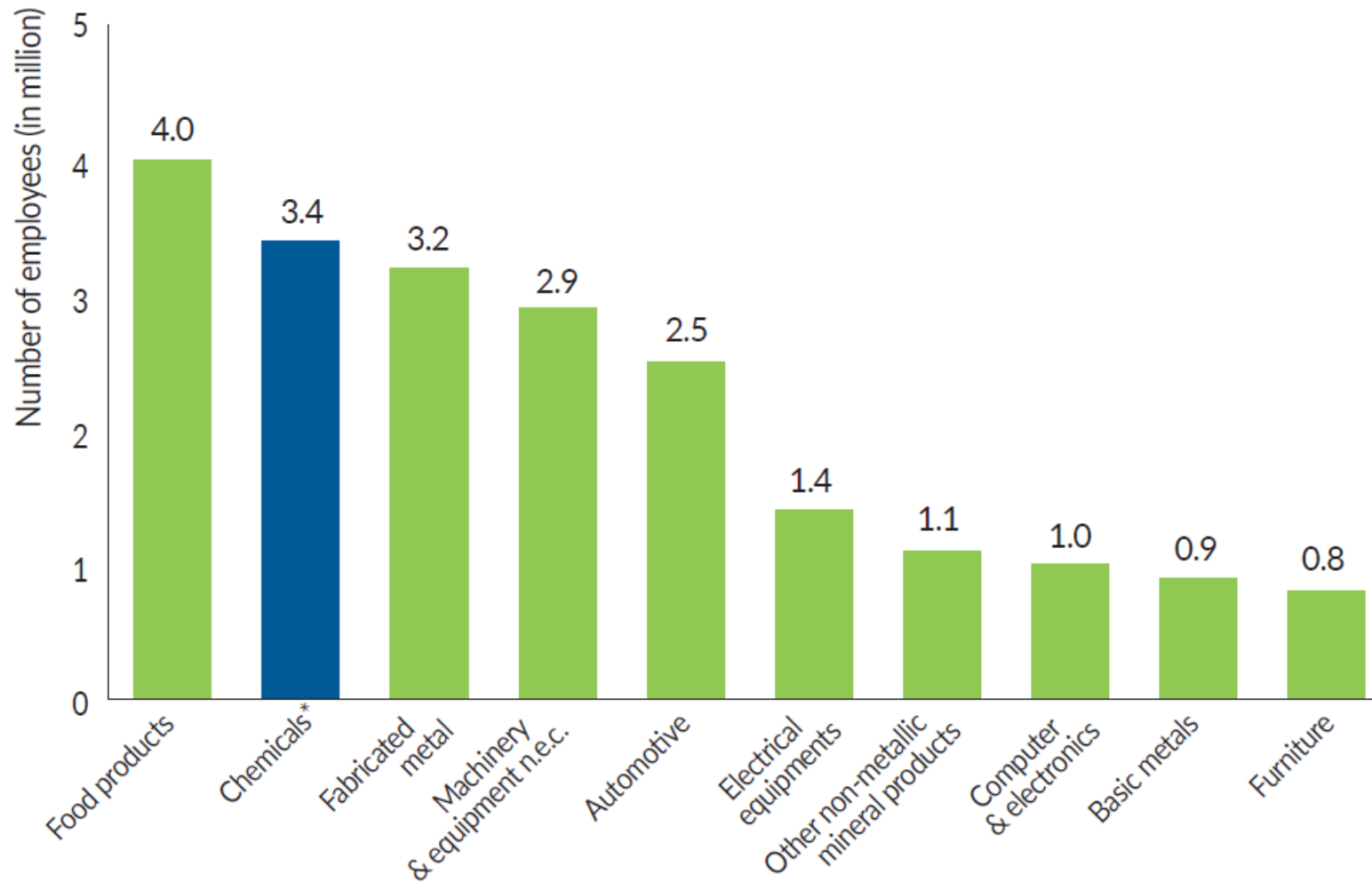
Added value in the EU27 chemicals industry (2020): top 10



Source: Eurostat

Chemicals* contributes 12% of EU27 manufacturing employment

Top 10 sectors: EU27 number of employees (millions of employees, 2020)



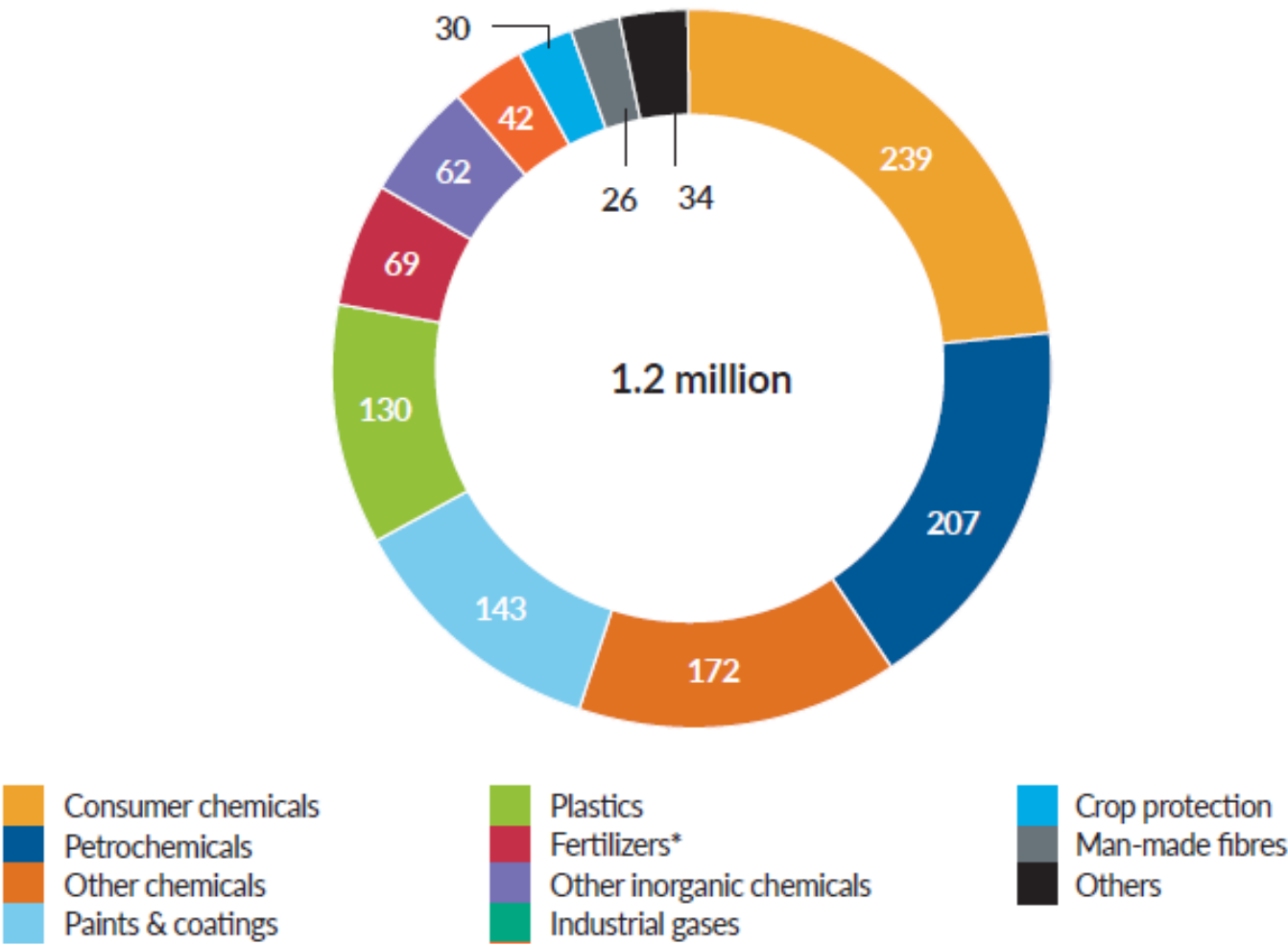
Source: Eurostat

*Pharmaceuticals and rubber & plastics included



Consumer chemicals is the largest employer in the EU27 chemicals sector

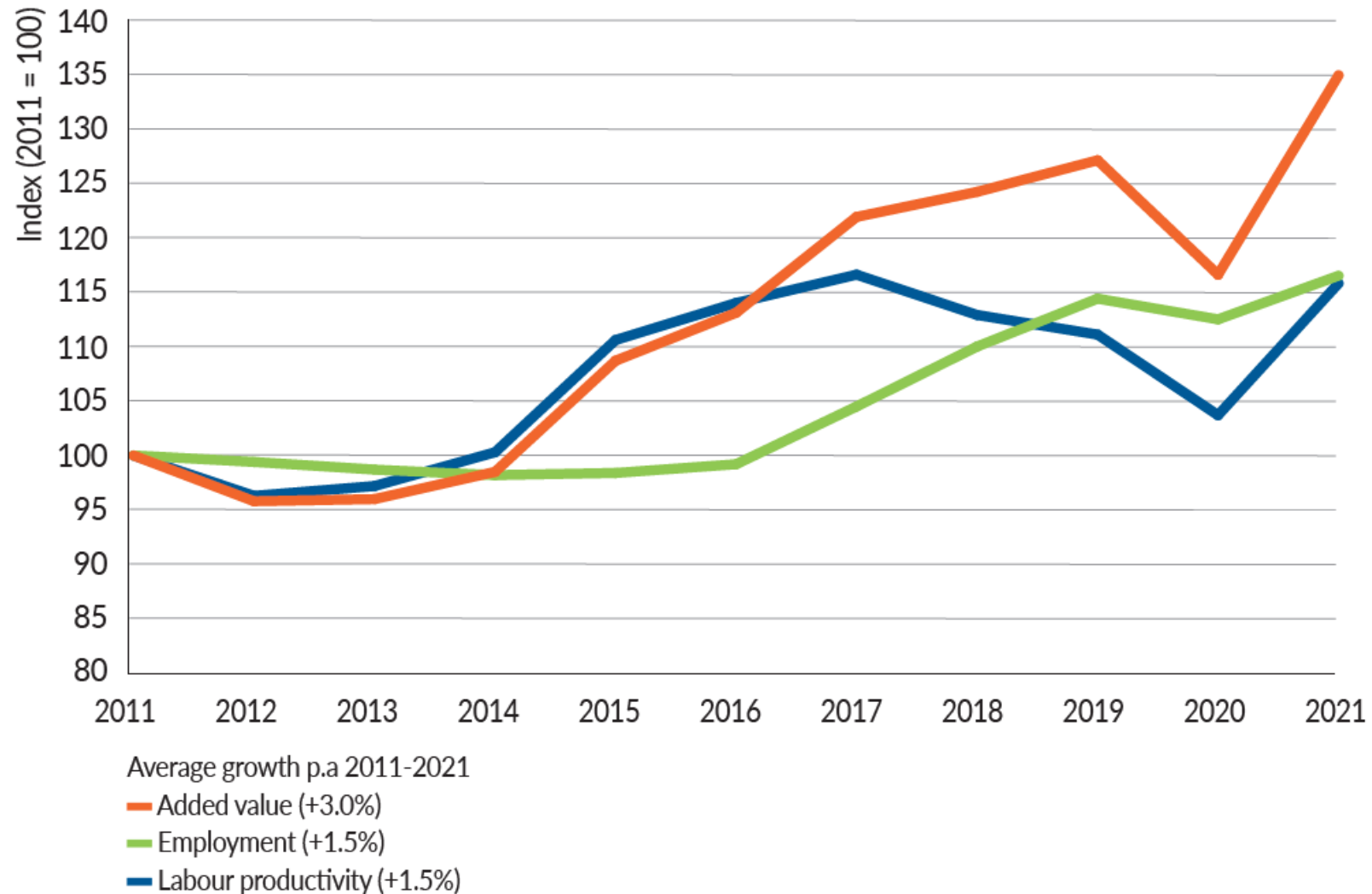
Number of employees in the EU27 chemicals industry (2020): top 10



Source: Eurostat
*Estimated

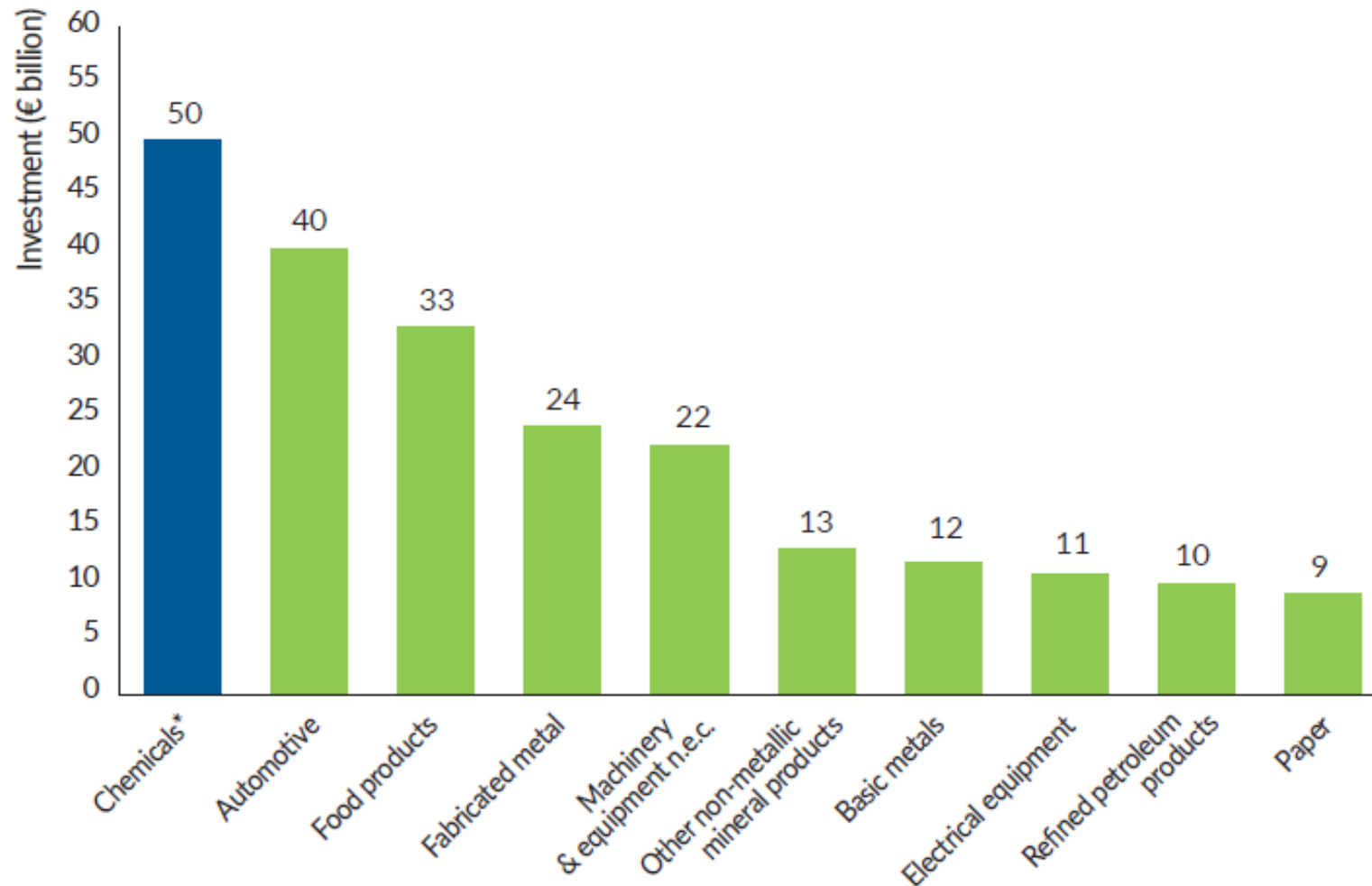
EU27 Labour productivity grows at 1.5% (CAGR)

Labour productivity in the EU27 chemical industry



Chemicals* is the largest investor in EU27 manufacturing sector

Top 10 sectors: EU27 investment (€ billion, 2018)



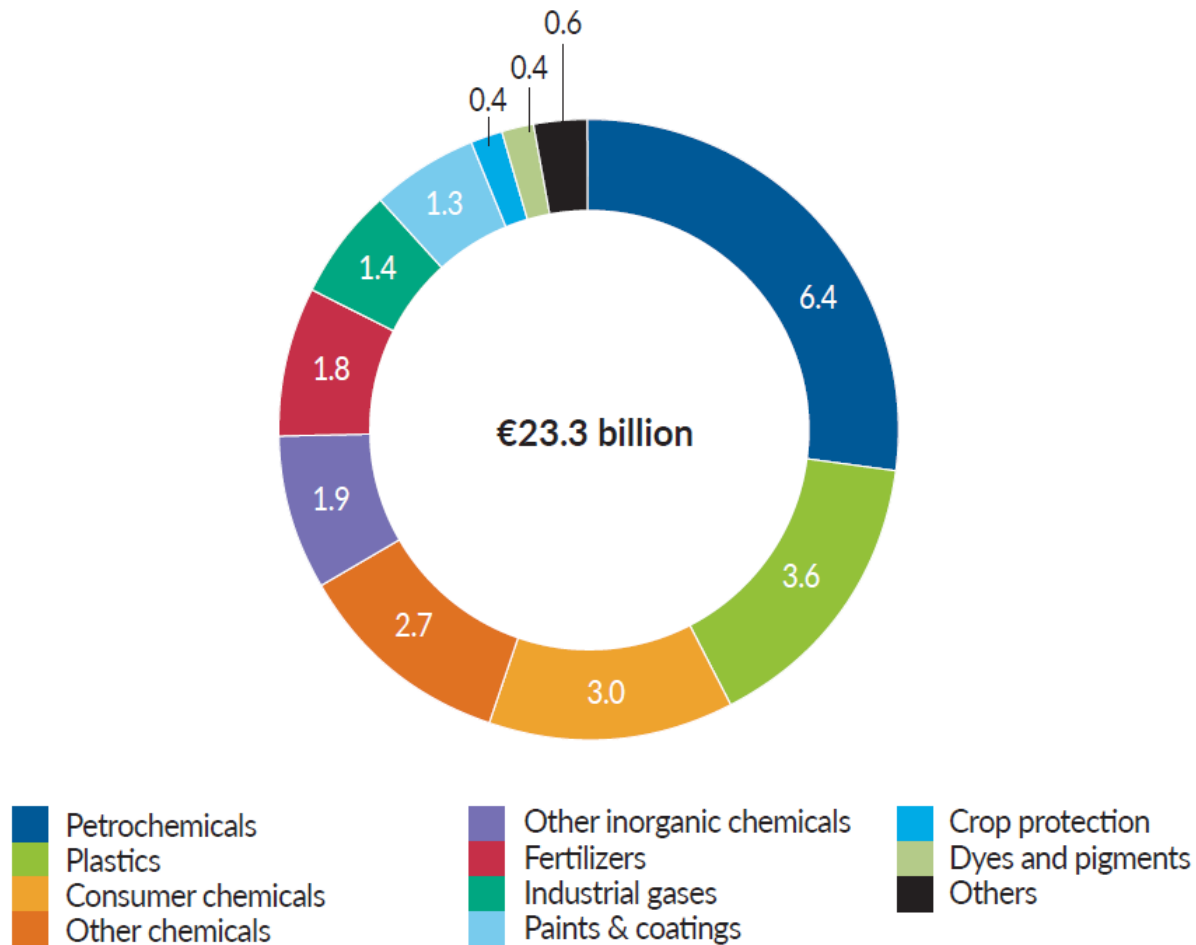
Source: Eurostat

*Pharmaceuticals and rubber & plastics included



Petrochemicals is the largest investor in the EU27 chemicals sector

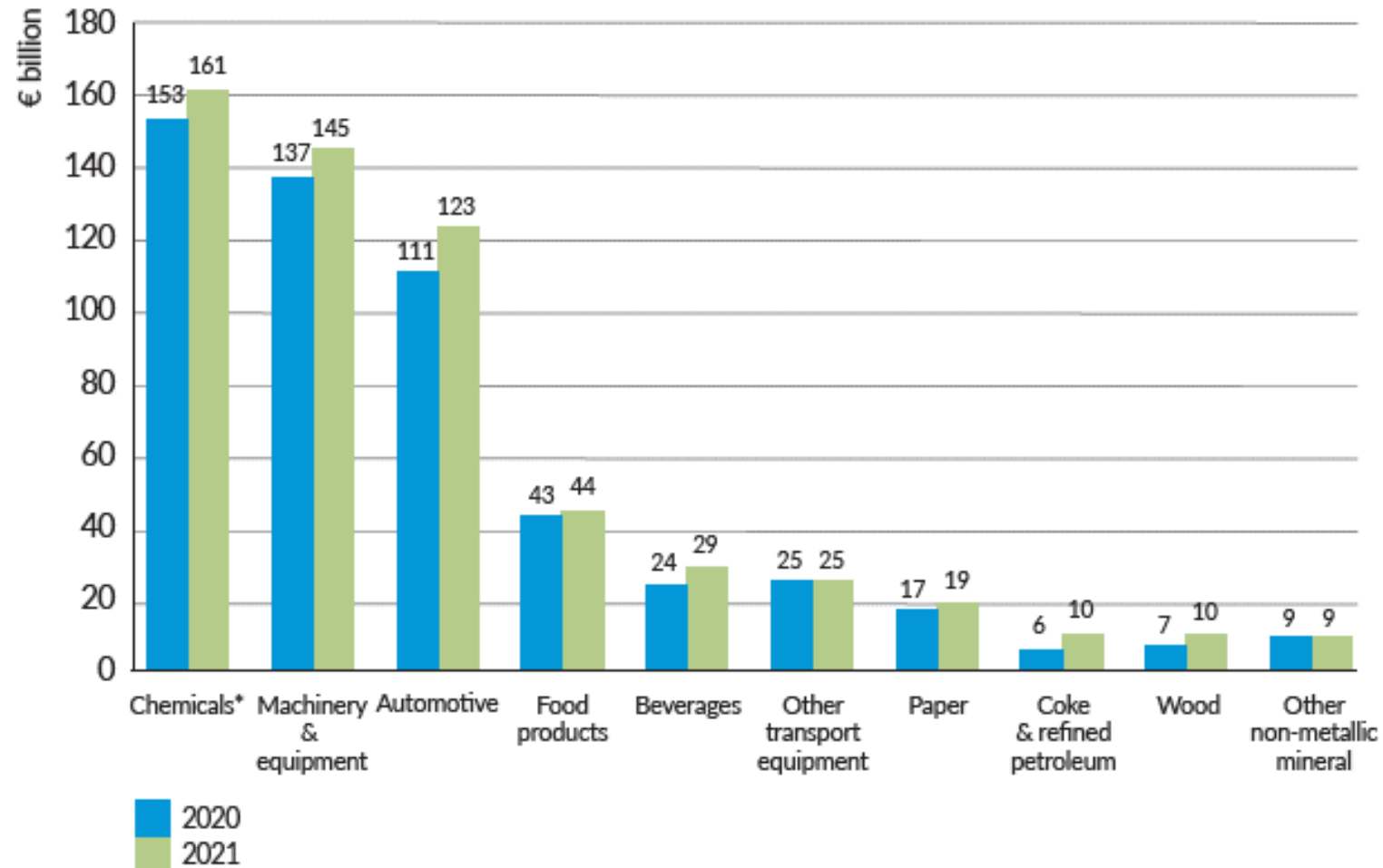
Capital spending in the EU27 chemicals industry (2020): top 10



Source: Eurostat

Chemicals* generates the largest surplus in the European Economy

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



Source: Eurostat
*Pharmaceuticals included



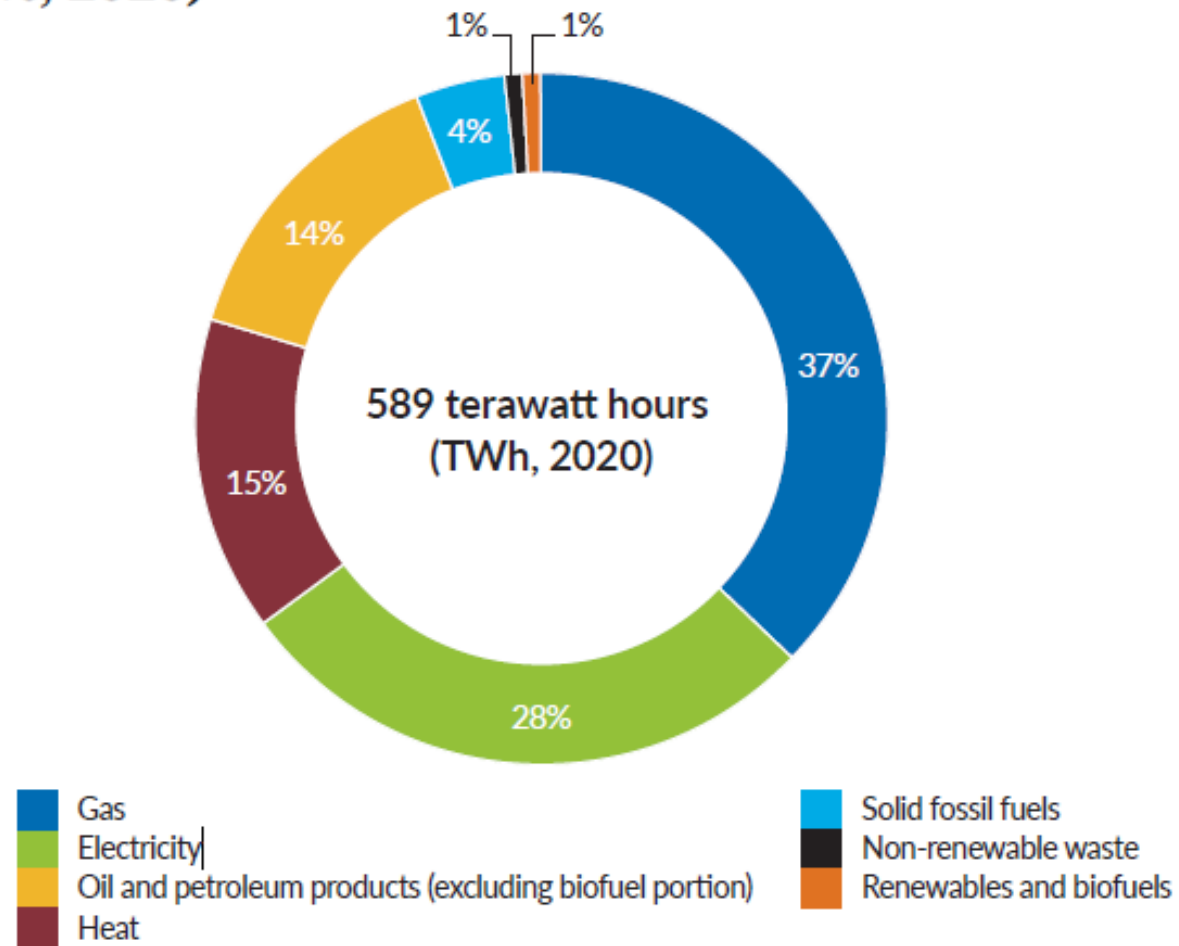


5. Energy Consumption



EU27 gas and electricity account for 2/3 of total energy consumption

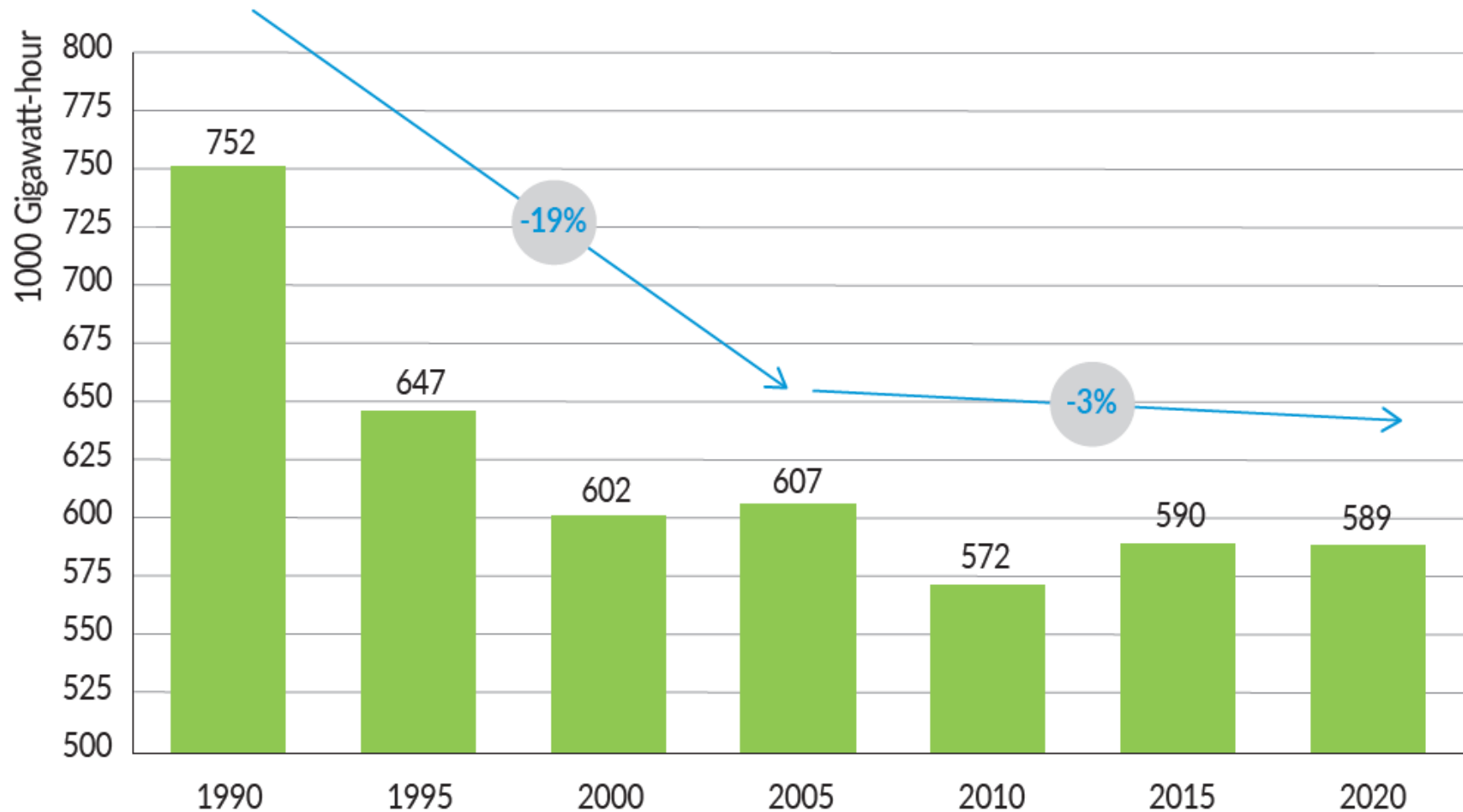
**Total energy consumption in the EU27 chemical industry
by source (%, 2020)**



Source: Eurostat

EU27 energy consumption falls 22% since 1990

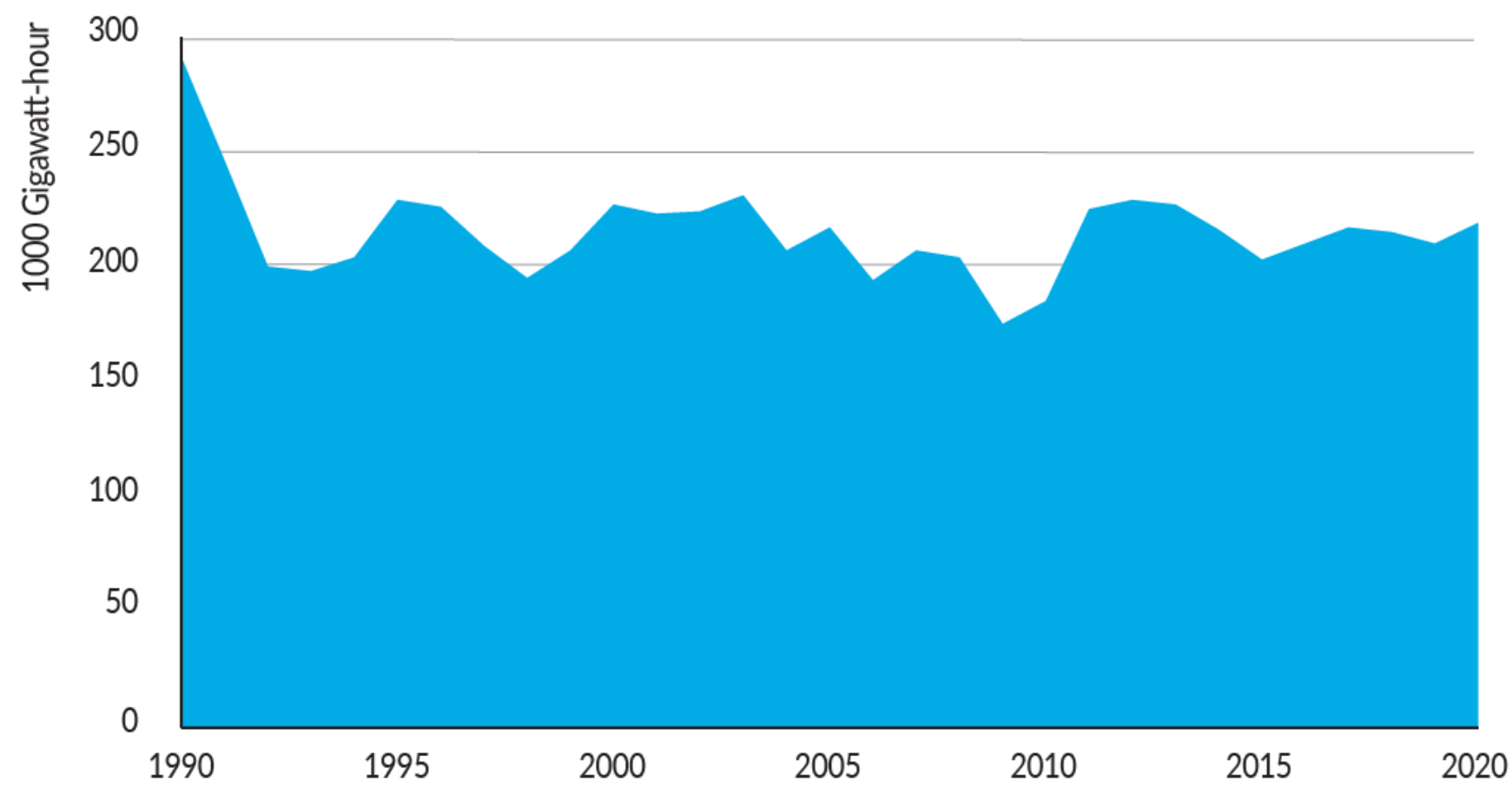
Energy consumption in the EU27 chemical industry



Source: Eurostat

EU27 gas consumption falls 25% since 1990

Gas consumption in the EU27 chemical industry

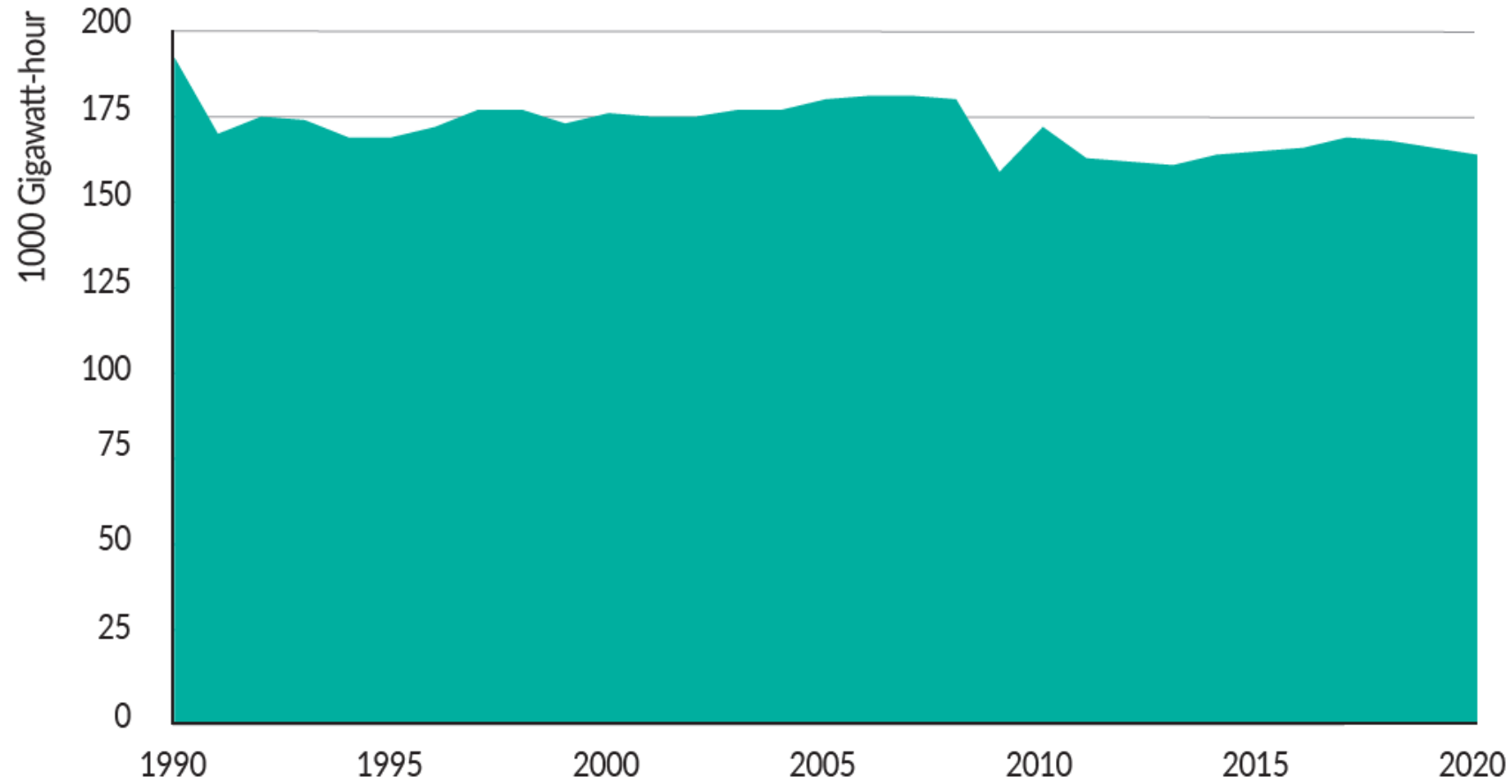


Source: Eurostat



EU27 electrical energy consumption falls 15% since 1990

Electrical energy consumption in the EU27 chemical industry

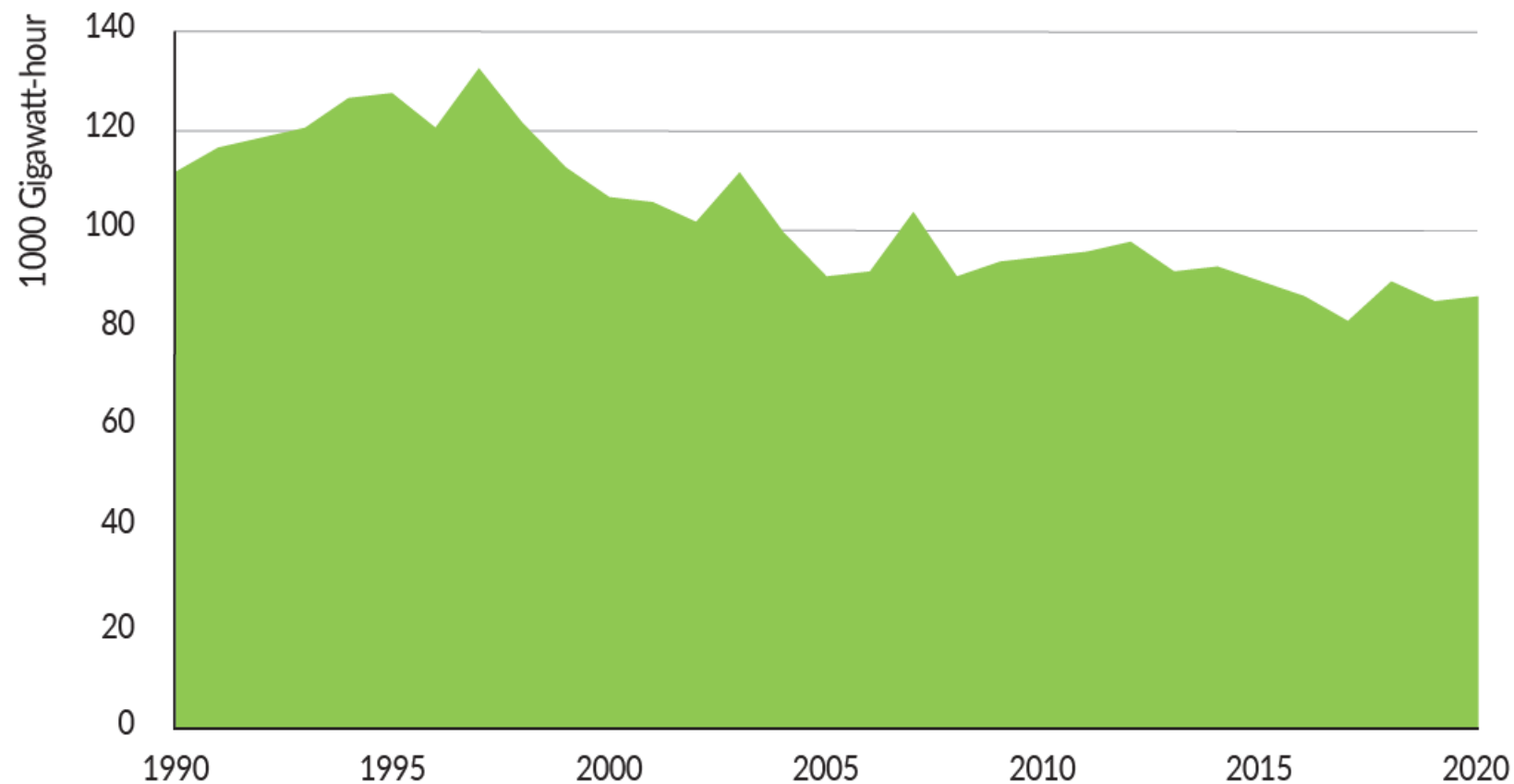


Source: Eurostat



EU27 Total petroleum consumption falls 22% since 1990

Total petroleum products consumption in the EU27 chemical industry

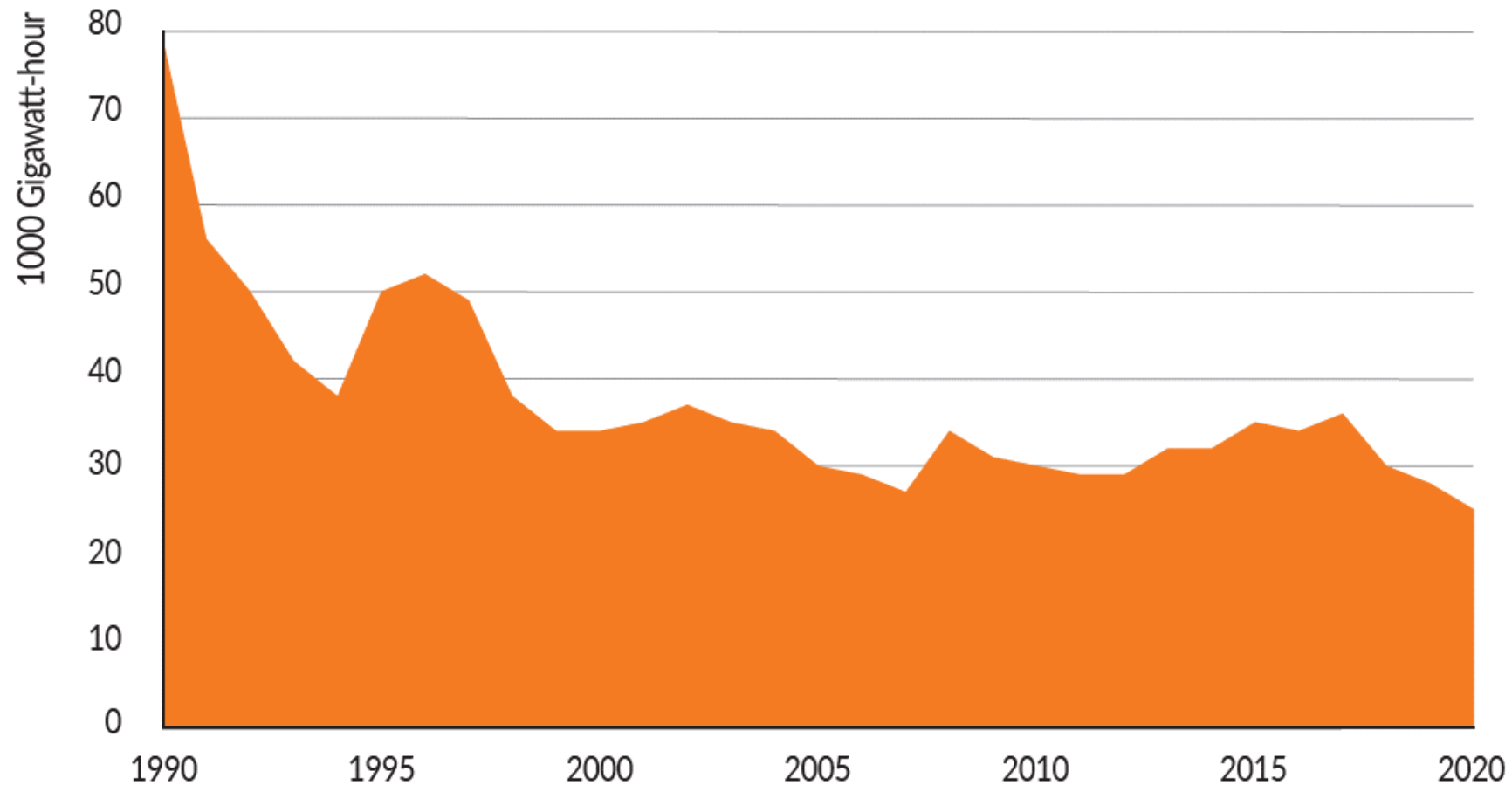


Source: Eurostat



EU27 solid fuels consumption falls 68% since 1990

Solid fuels consumption in the EU27 chemical industry

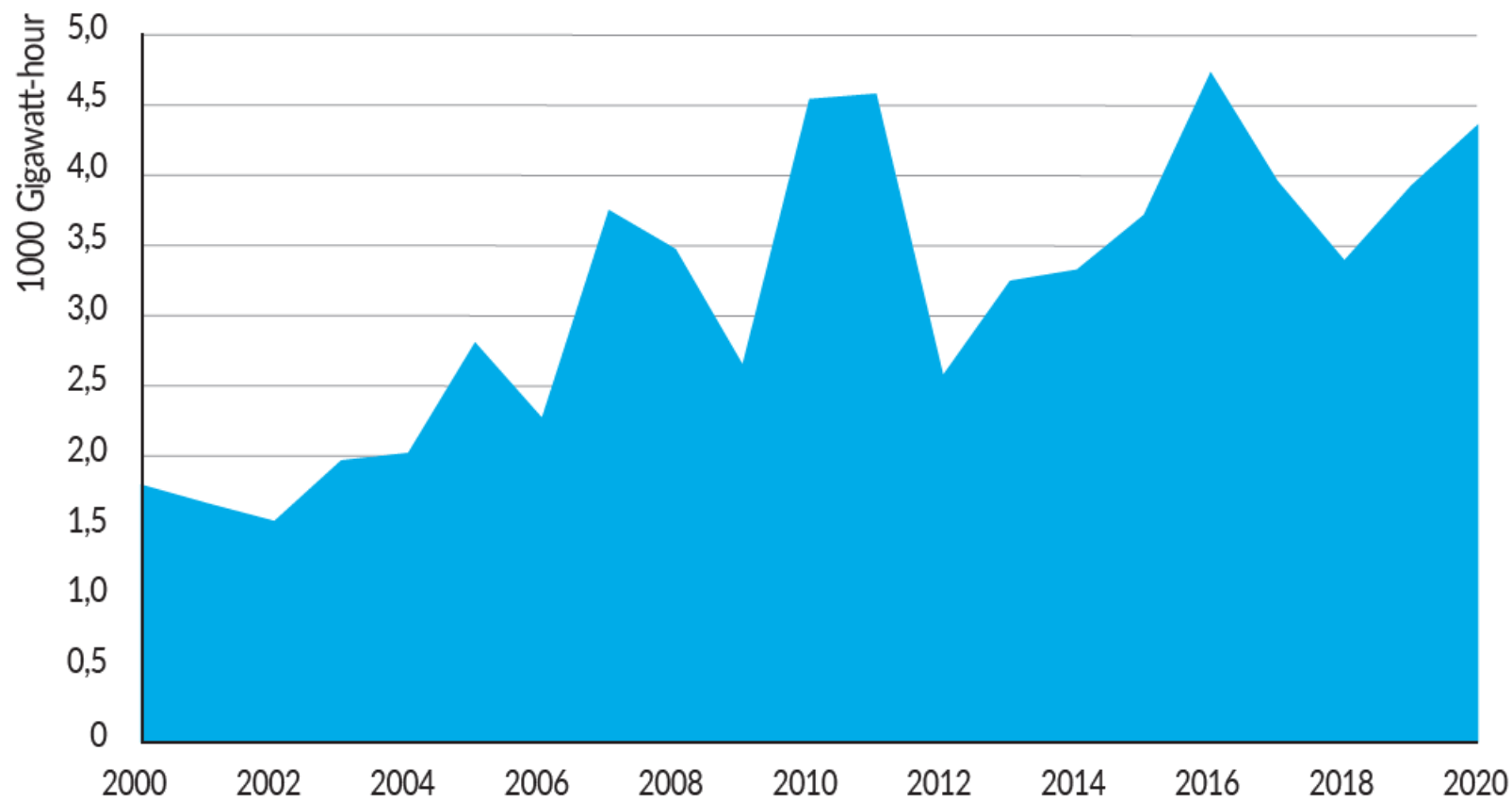


Source: Eurostat



EU27 Renewable energies consumption more than doubled

Renewable energies consumption in the EU27 chemical industry

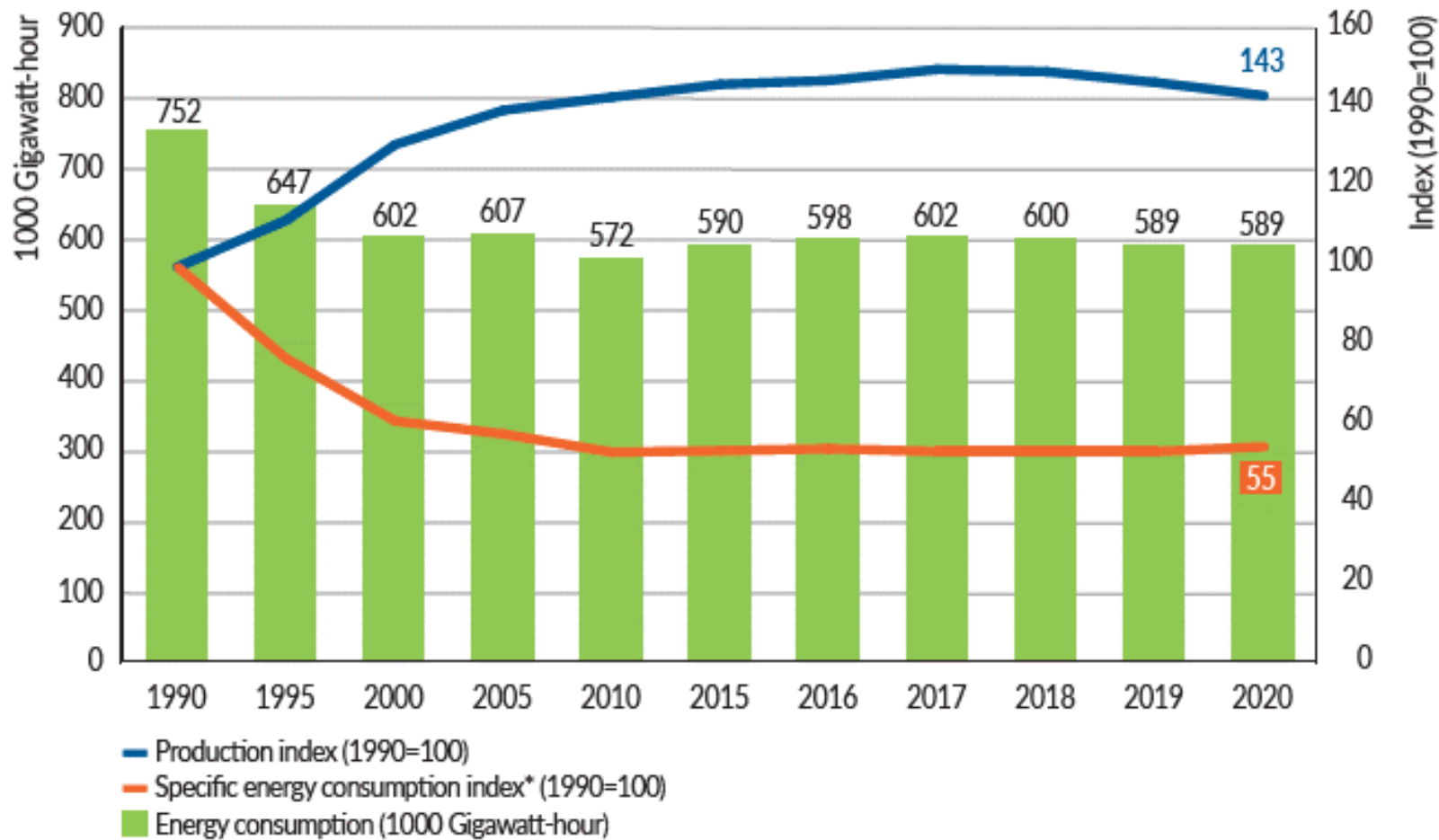


Source: Eurostat



EU27 specific energy consumption* dropped by 45%

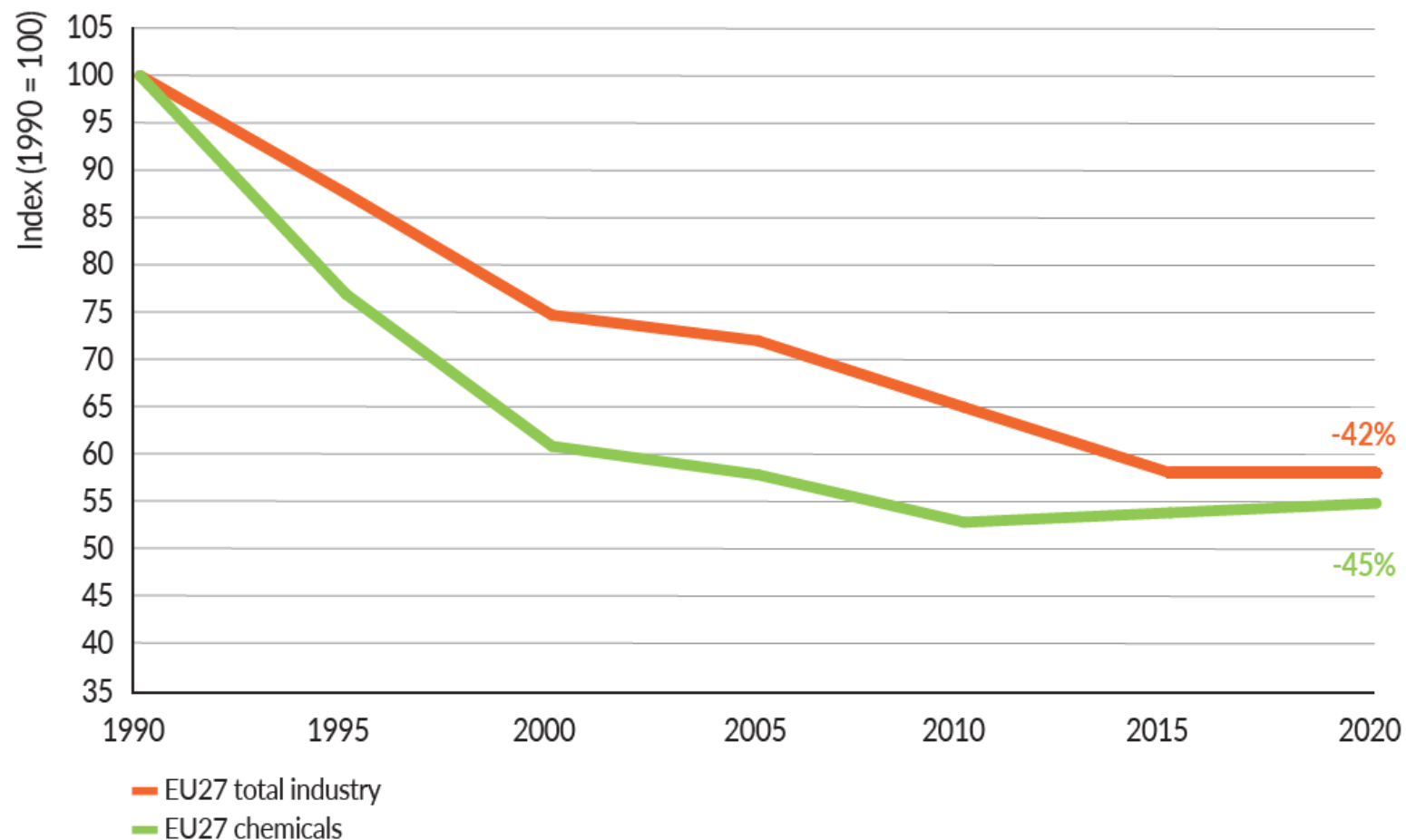
Efficient use of energy in the EU27 chemical industry



Source: Eurostat
*Specific energy consumption index is calculated as (energy consumption index/production index), (1990=100)

EU27 chemicals performance* is slightly higher than overall industry

EU27 specific energy consumption*: Chemicals vs total industry



Source: Eurostat

*Specific energy consumption index is calculated as (energy consumption index/production index), (1990=100)



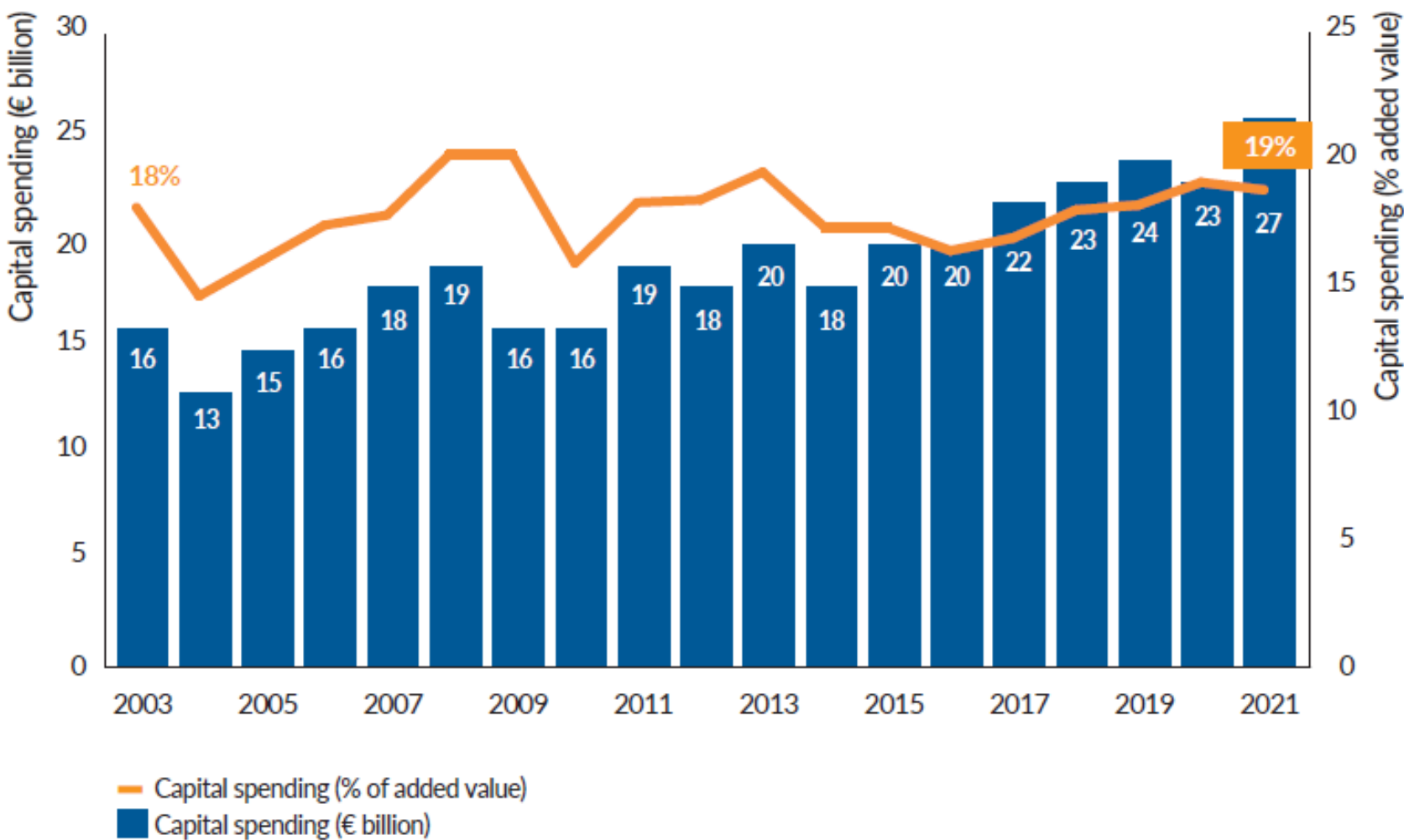


6. Capital and R&I Spending



EU27 capital spending increased significantly in 2021

Capital spending in the EU27 chemical industry

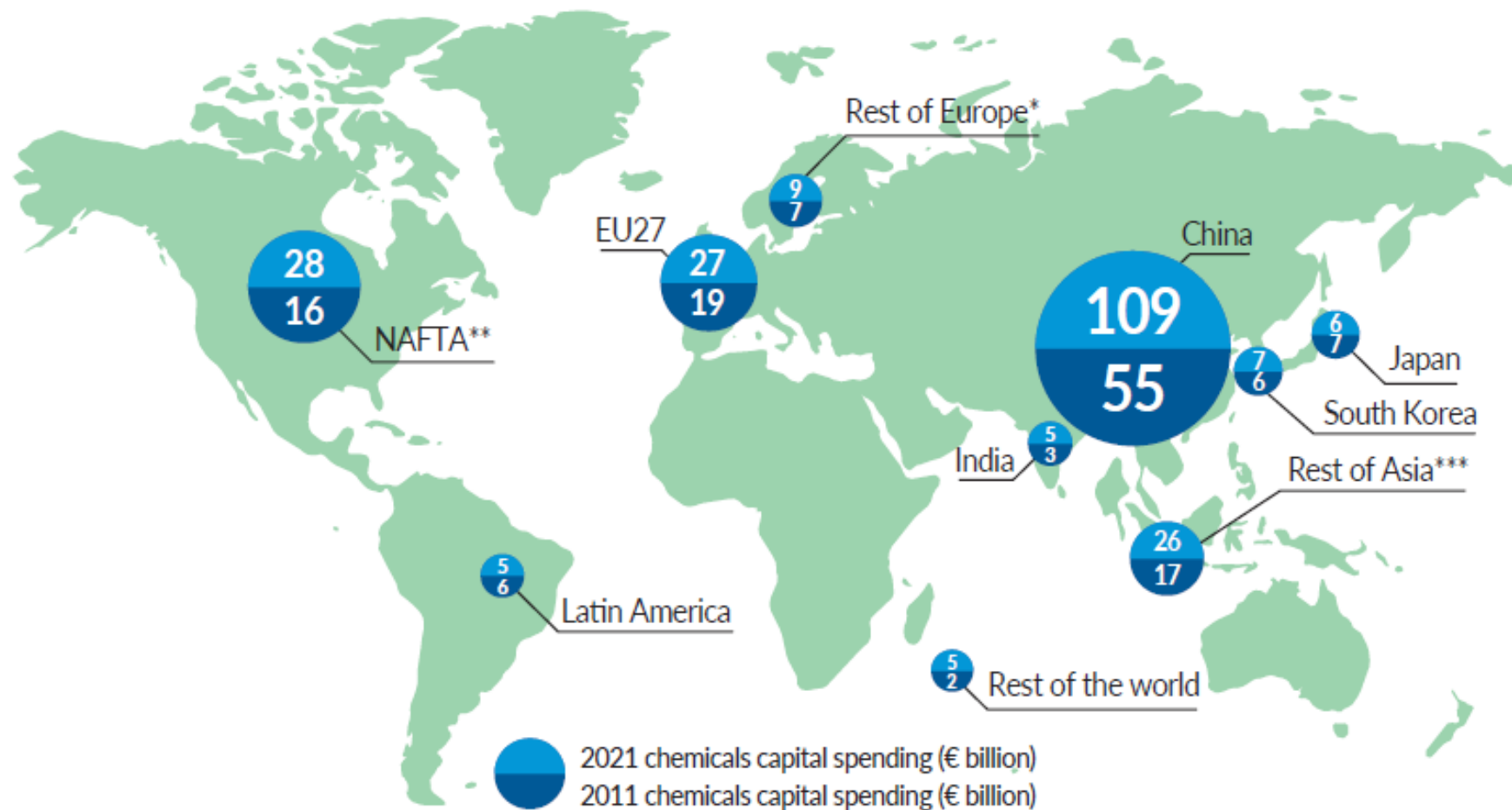


Source: Cefic Chemdata International



China leads the global chemicals investment

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



Source: Cefic Chemdata International

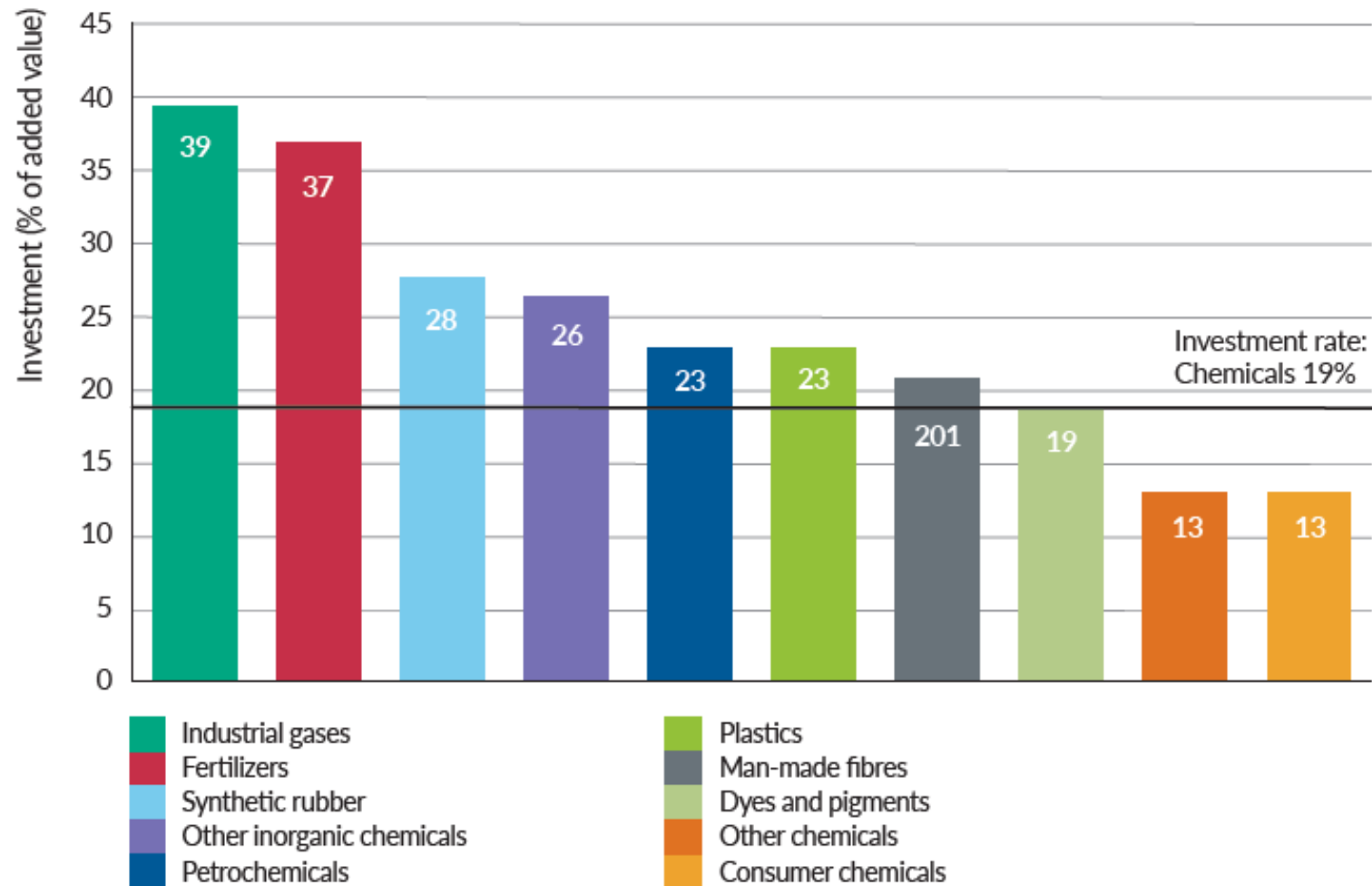
*Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine

**North American Free Trade Agreement

***Asia excluding China, India, Japan and South Korea

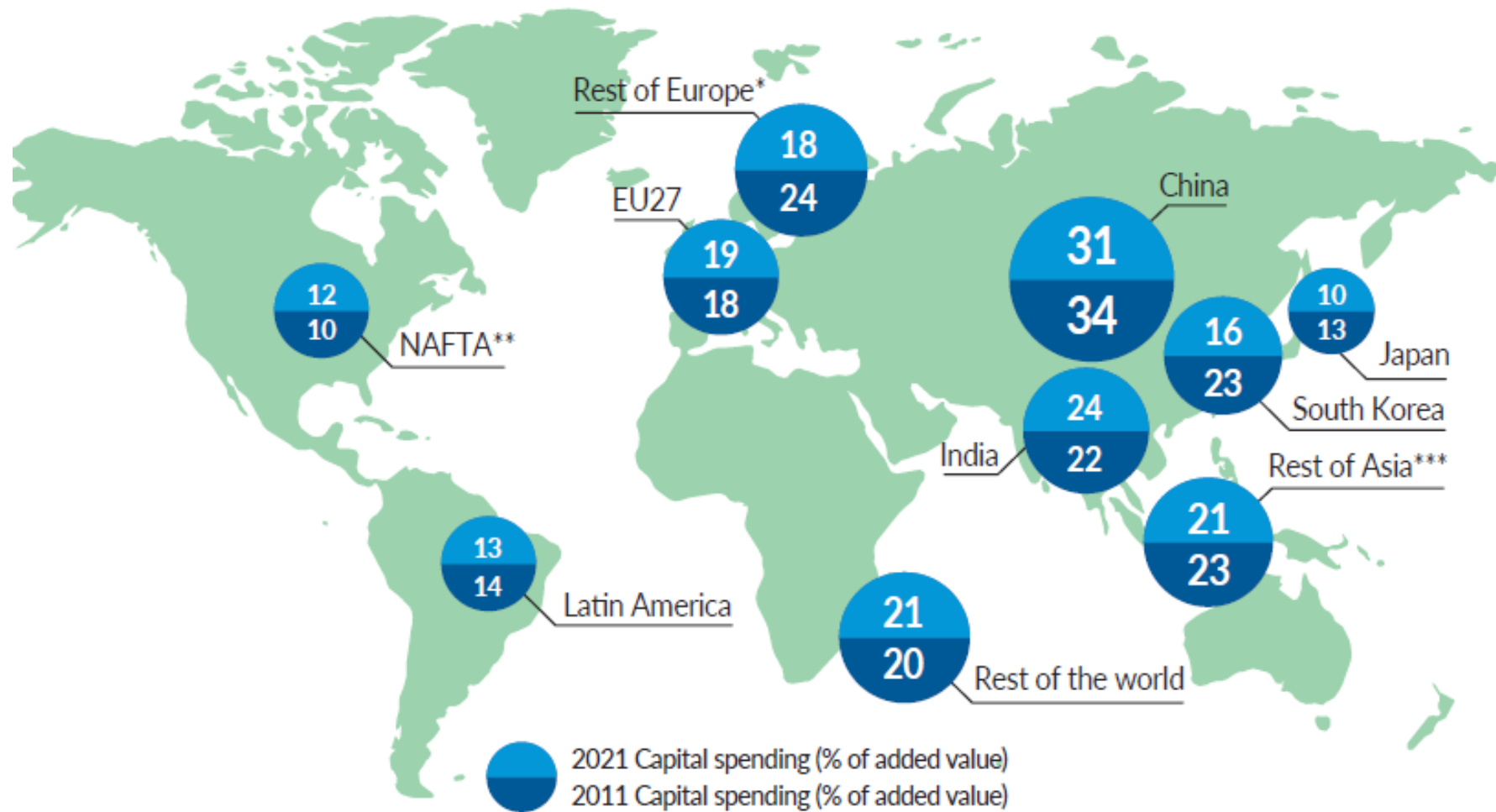
Hight capital intensity in the EU27 chemical sector

Capital intensity in the EU27 chemical industry



EU27 capital intensity below China and India economies

Capital spending (% of added value, 2021 vs 2011)



Source: Cefic Chemdata International

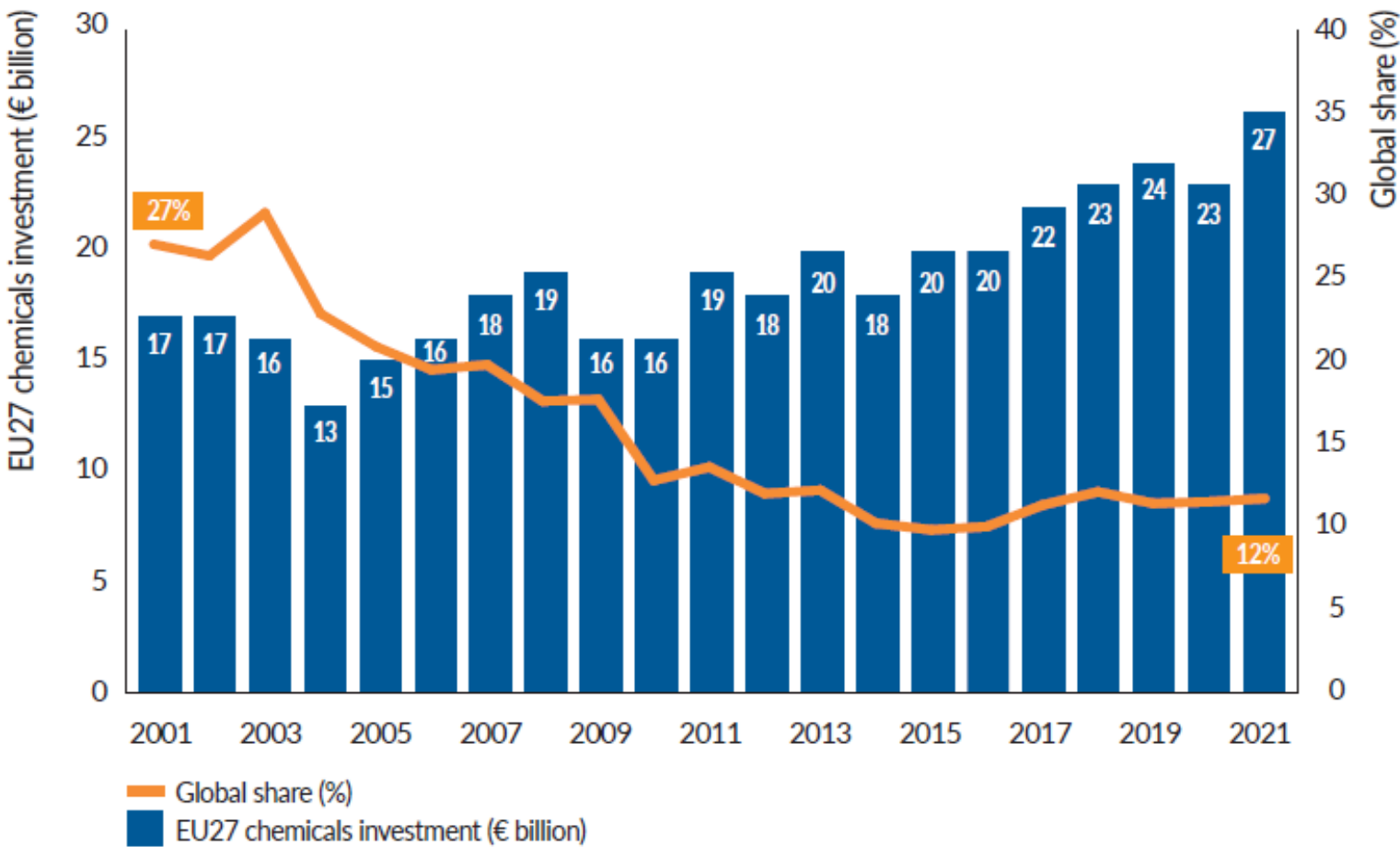
*Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine

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EU27 loses more than 50% of its original market share

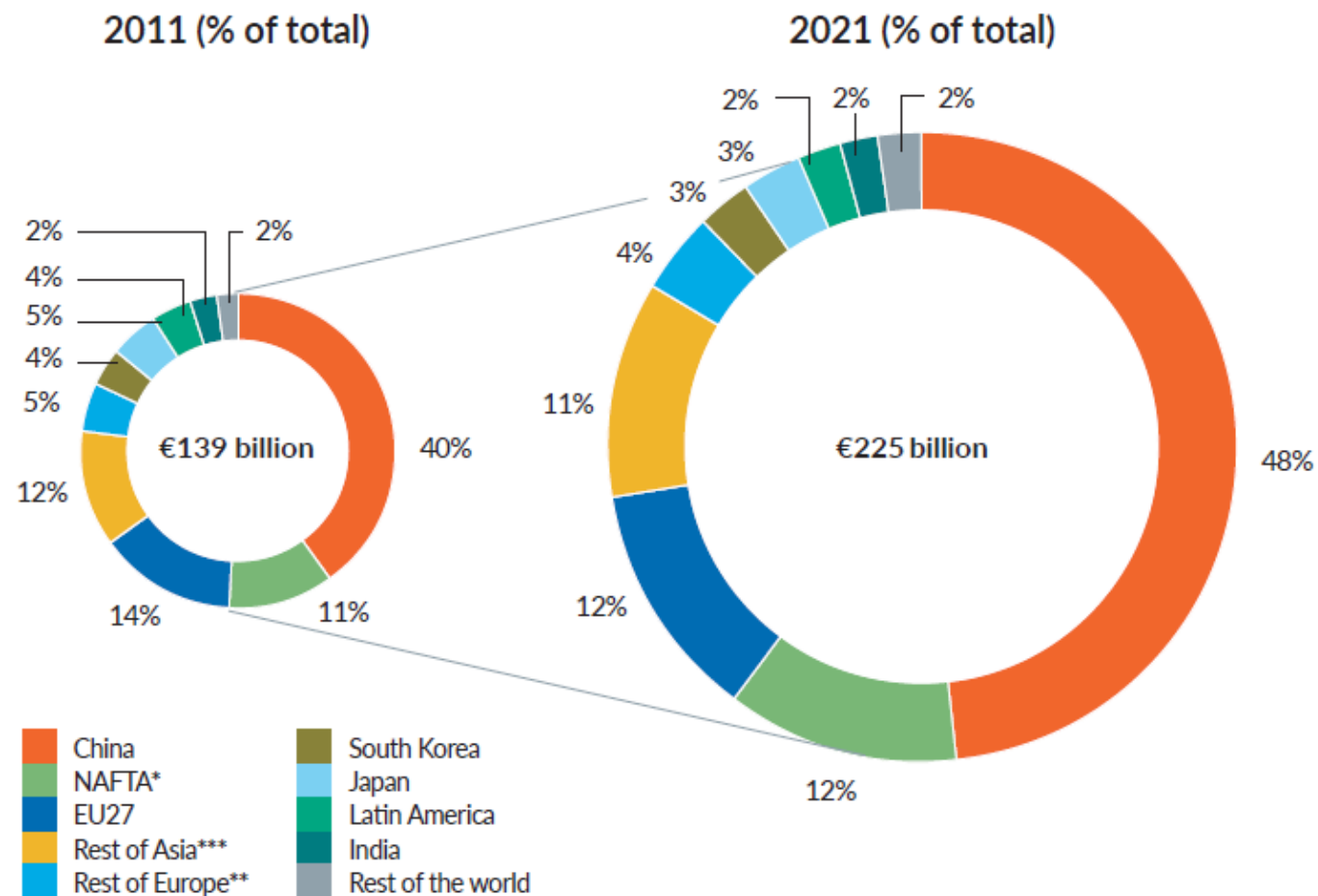
EU27 share of global chemicals investment



Source: Cefic Chemdata International

Decreasing share of chemicals capital spending for the EU27

Chemicals capital spending by country (2011 vs 2021)



Source: Cefic Chemdata International

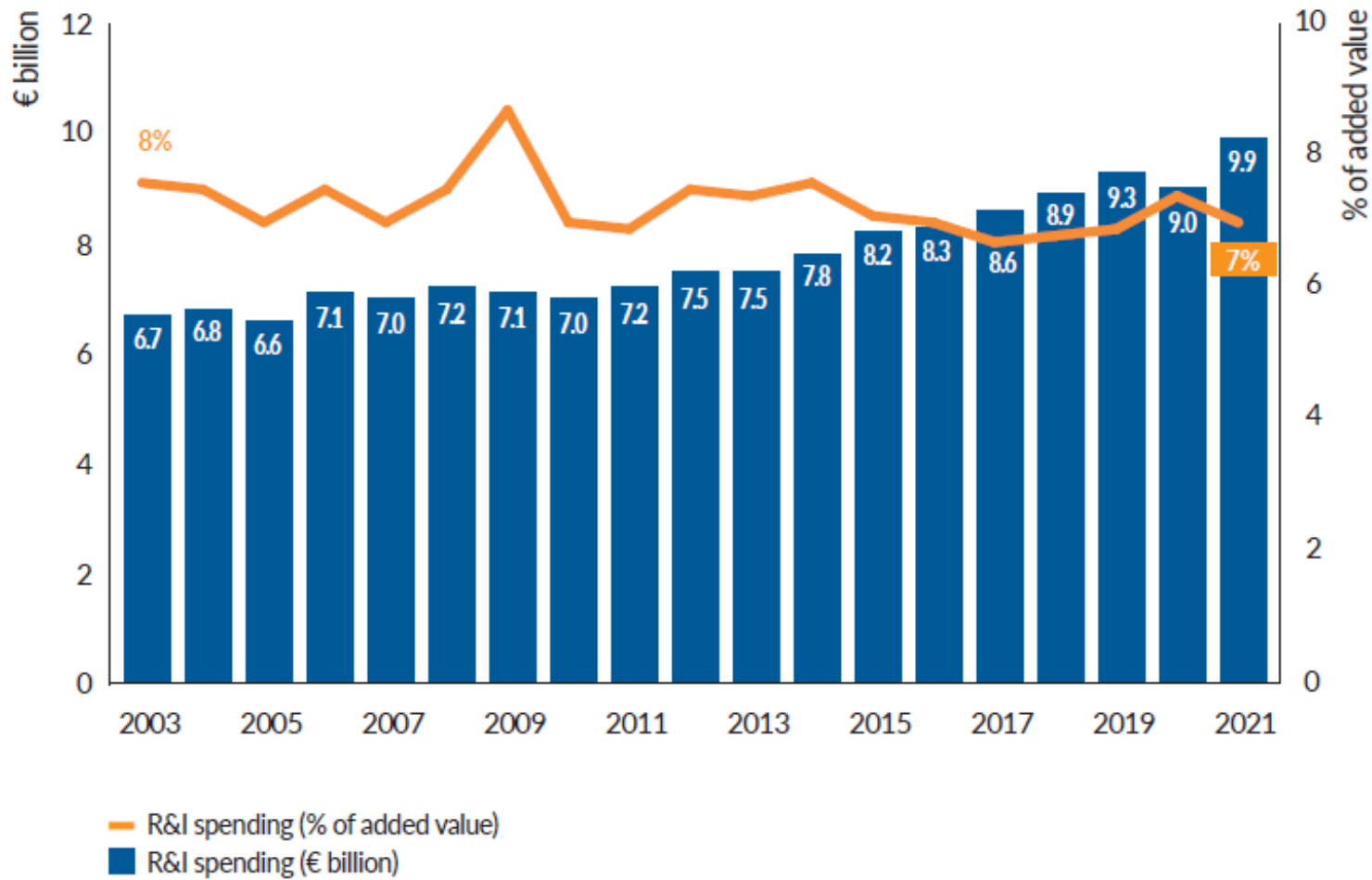
*North American Free Trade Agreement

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EU27 R&I spending reaches the highest level in 2021

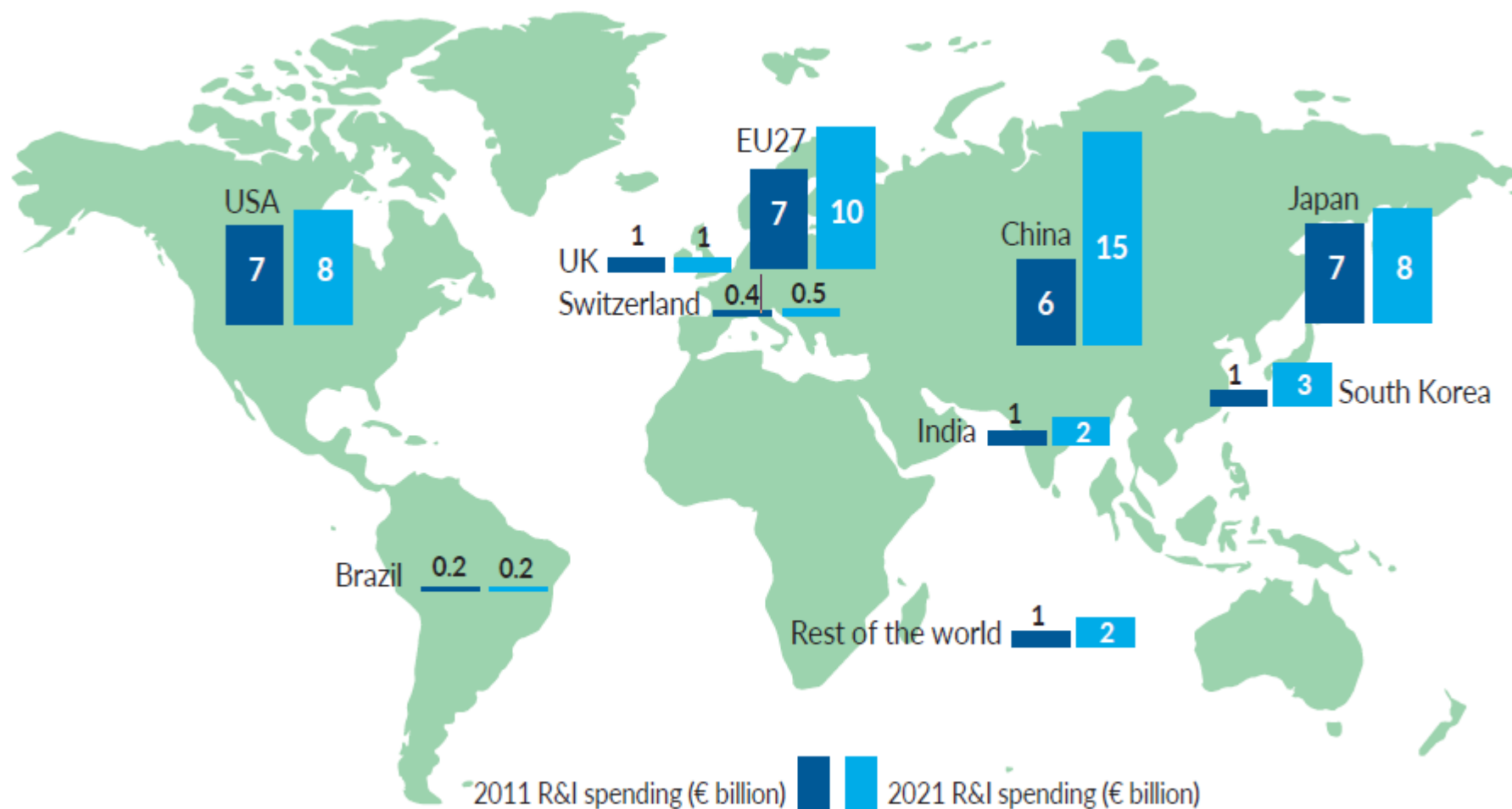
R&I spending in the EU27 chemical industry



Source: Cefic Chemdata International

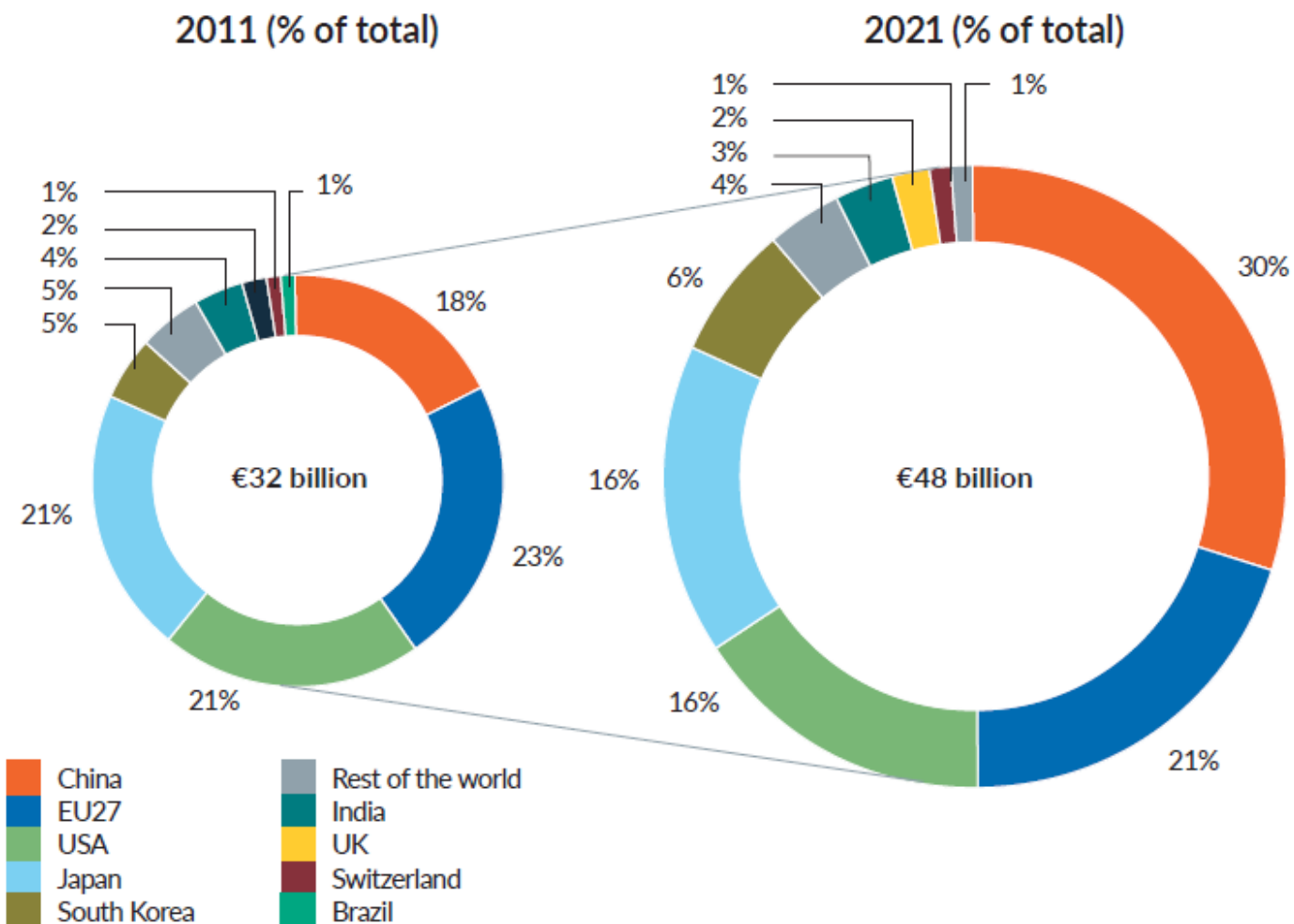
EU27 is the second largest R&I investor in the world

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



Decreasing share of R&I spending for the EU27, USA and Japan

Chemicals R&I spending by country (2011 vs 2021)



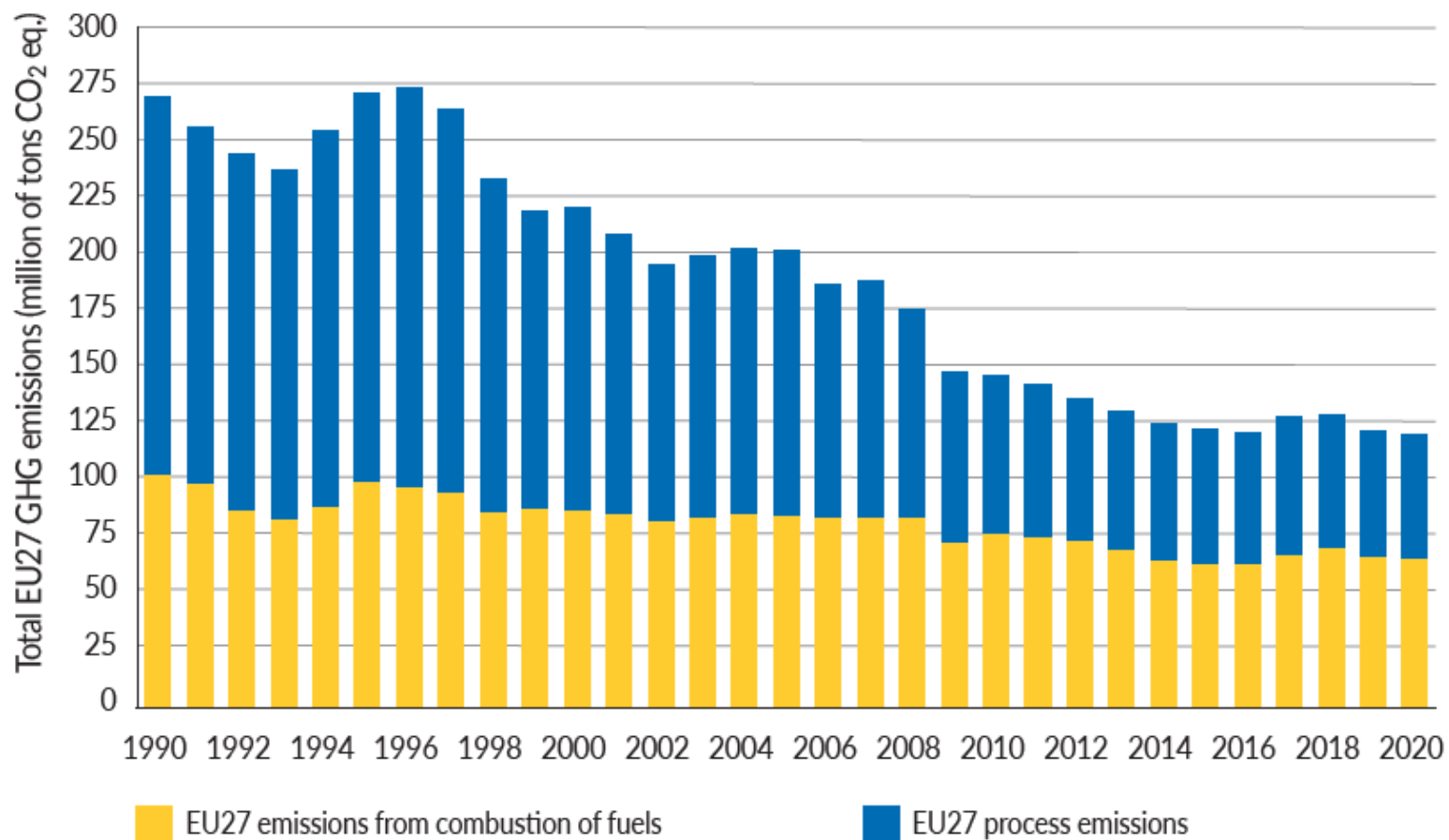


7. Environmental Performance



EU27 scope 1 GHG emissions fall 55% since 1990

Total scope 1 GHG emissions* by the EU27 chemical industry

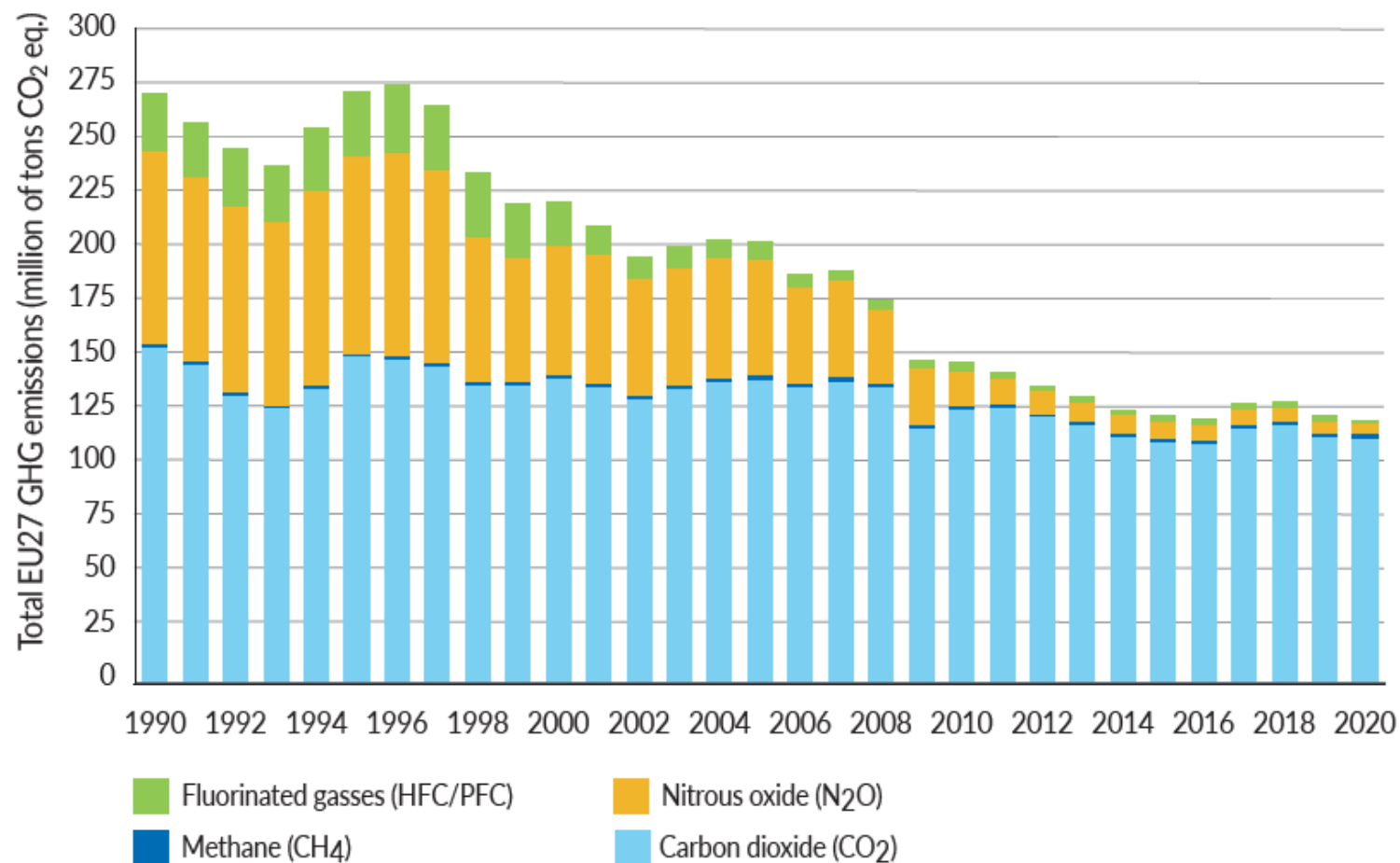


Source: European Environment Agency (EEA)
*Germany and Malta did not separately report GHG emissions from combustion of fuels in the chemical sector.



EU27 scope 1 GHG emissions* fall by 149 million tonnes (CO₂) since 1990

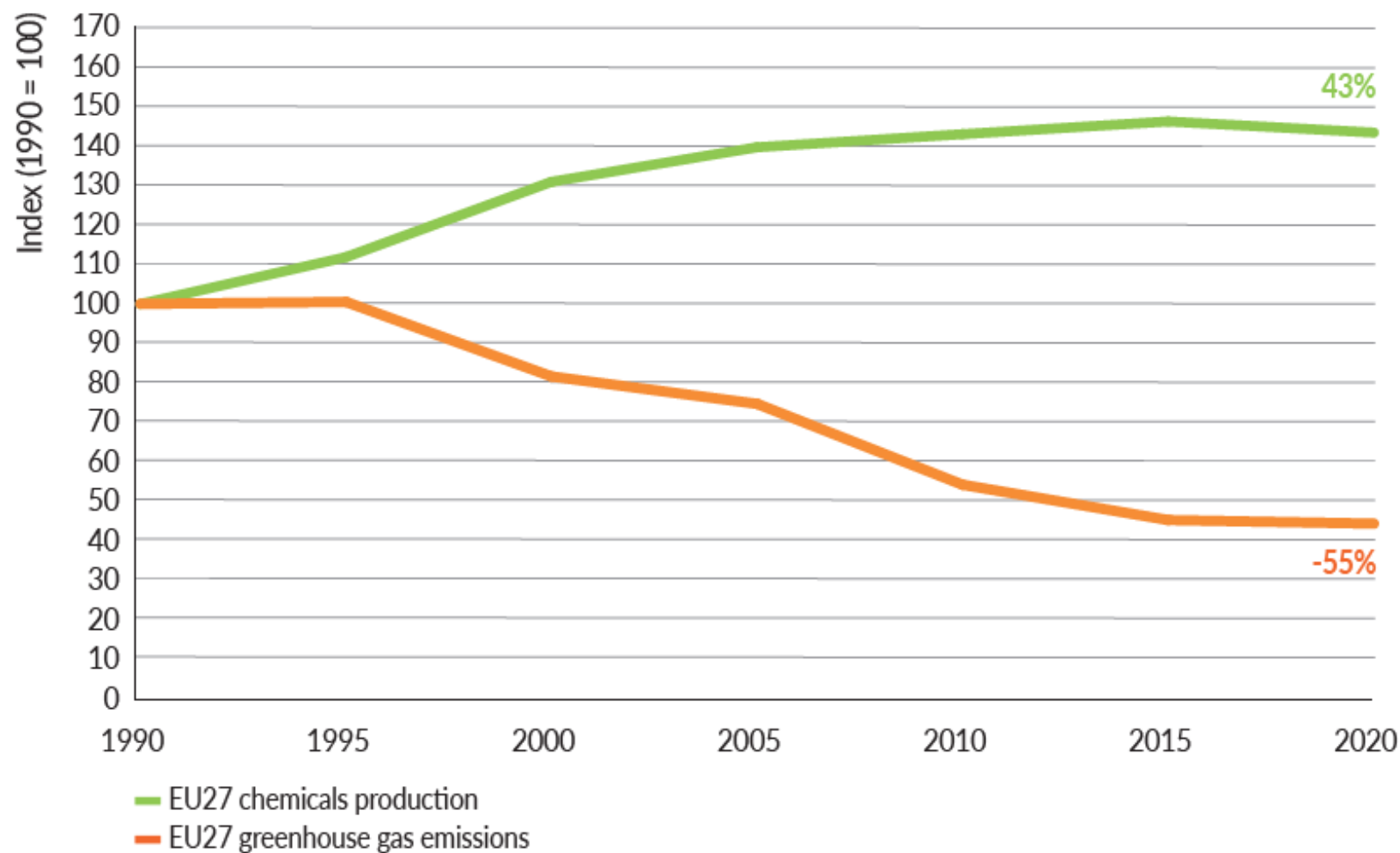
Total scope 1 GHG emissions* per type of GHG by the EU27 chemical industry



Source: European Environment Agency (EEA)
*Germany and Malta did not separately report GHG emissions from combustion of fuels in the chemical sector.

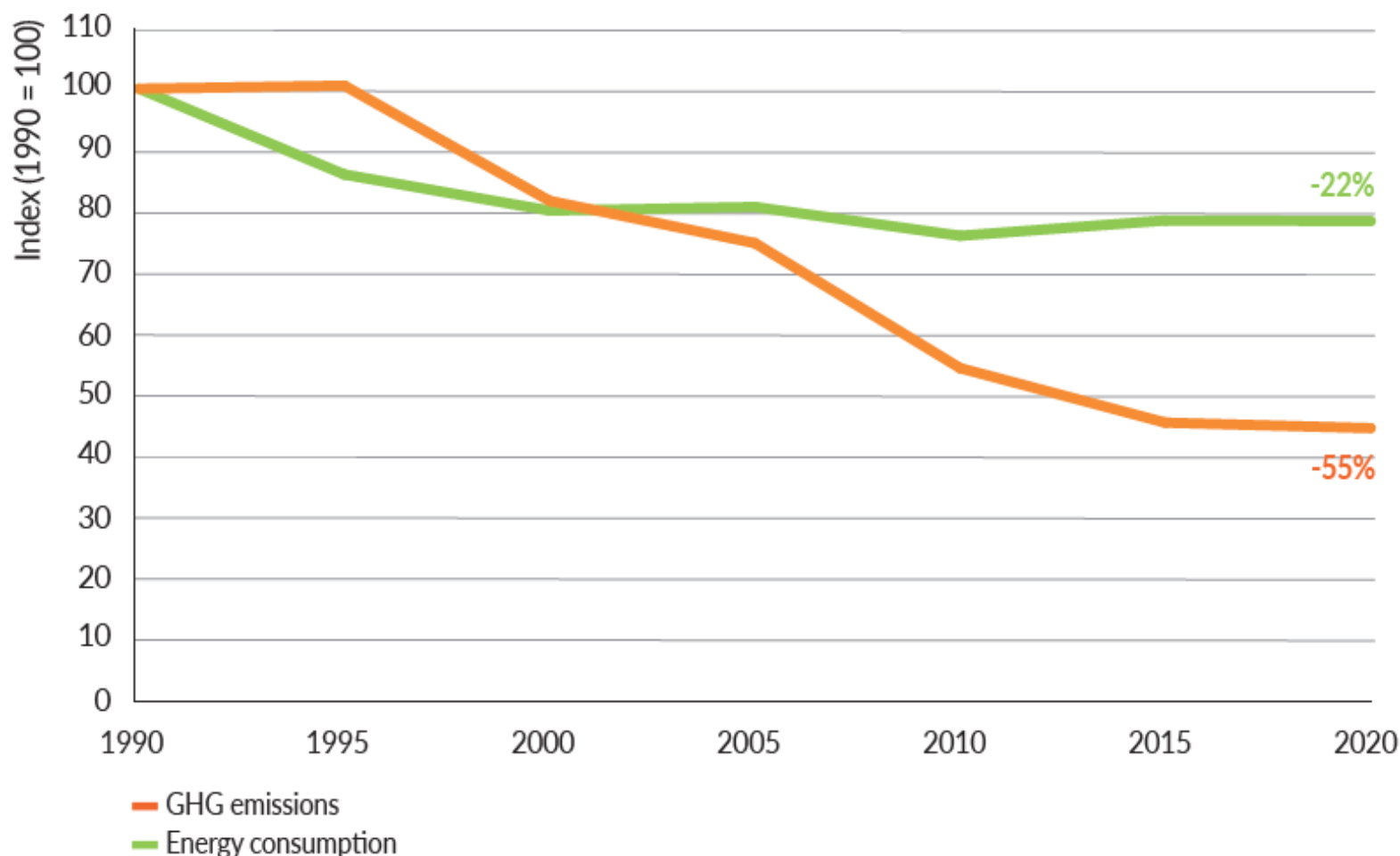
EU27 chemical production and greenhouse gas emissions decouple

Total GHG emissions and production in the EU27 chemical industry



EU27 greenhouse gas intensity plummets significantly since 1990

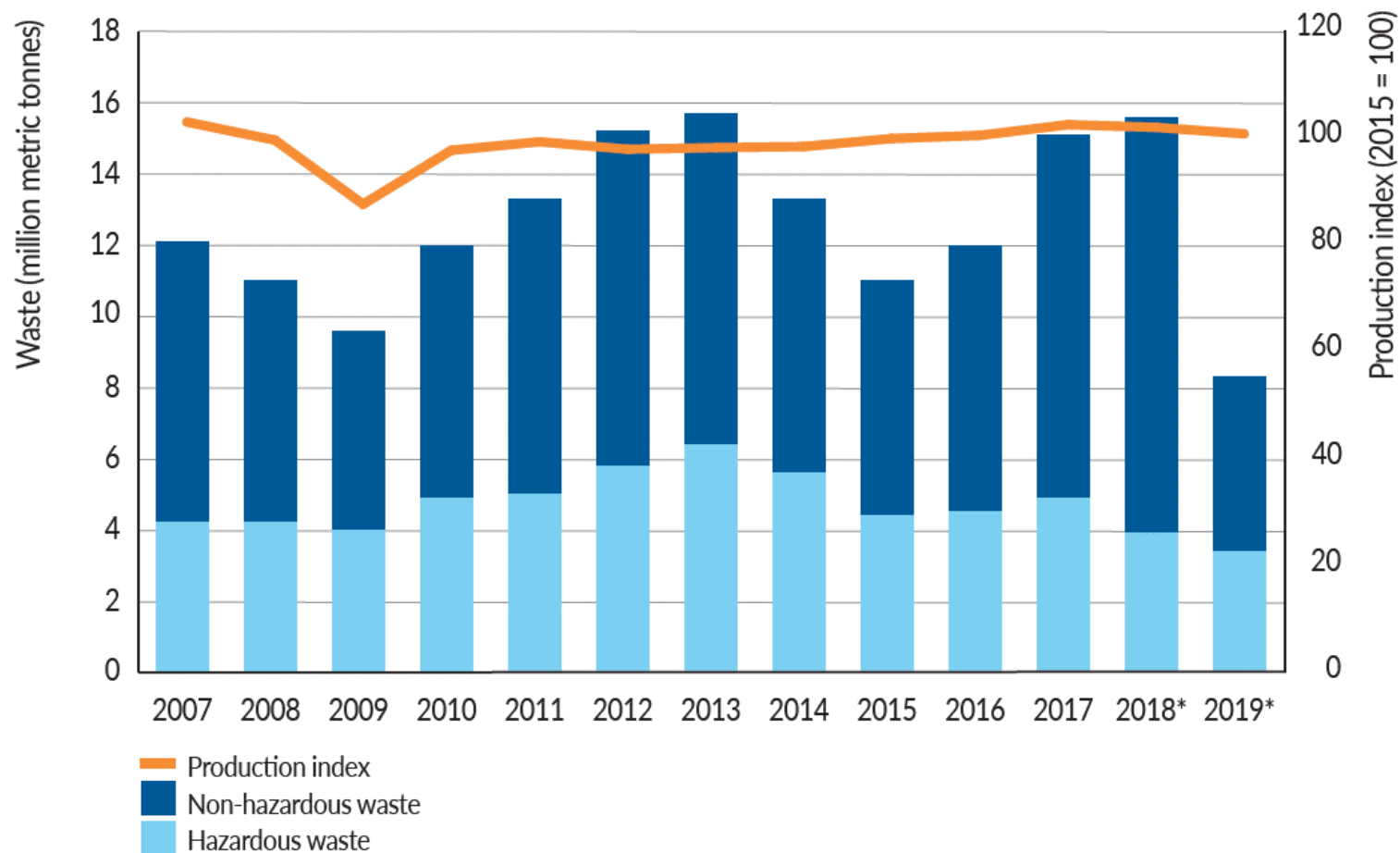
Total EU27 GHG emissions and energy consumption in the EU27 chemical industry



Source: European Environment Agency (EEA)

EU27 chemical waste fall by nearly one third since 2007

Total hazardous and non-hazardous waste in the EU27 chemicals industry

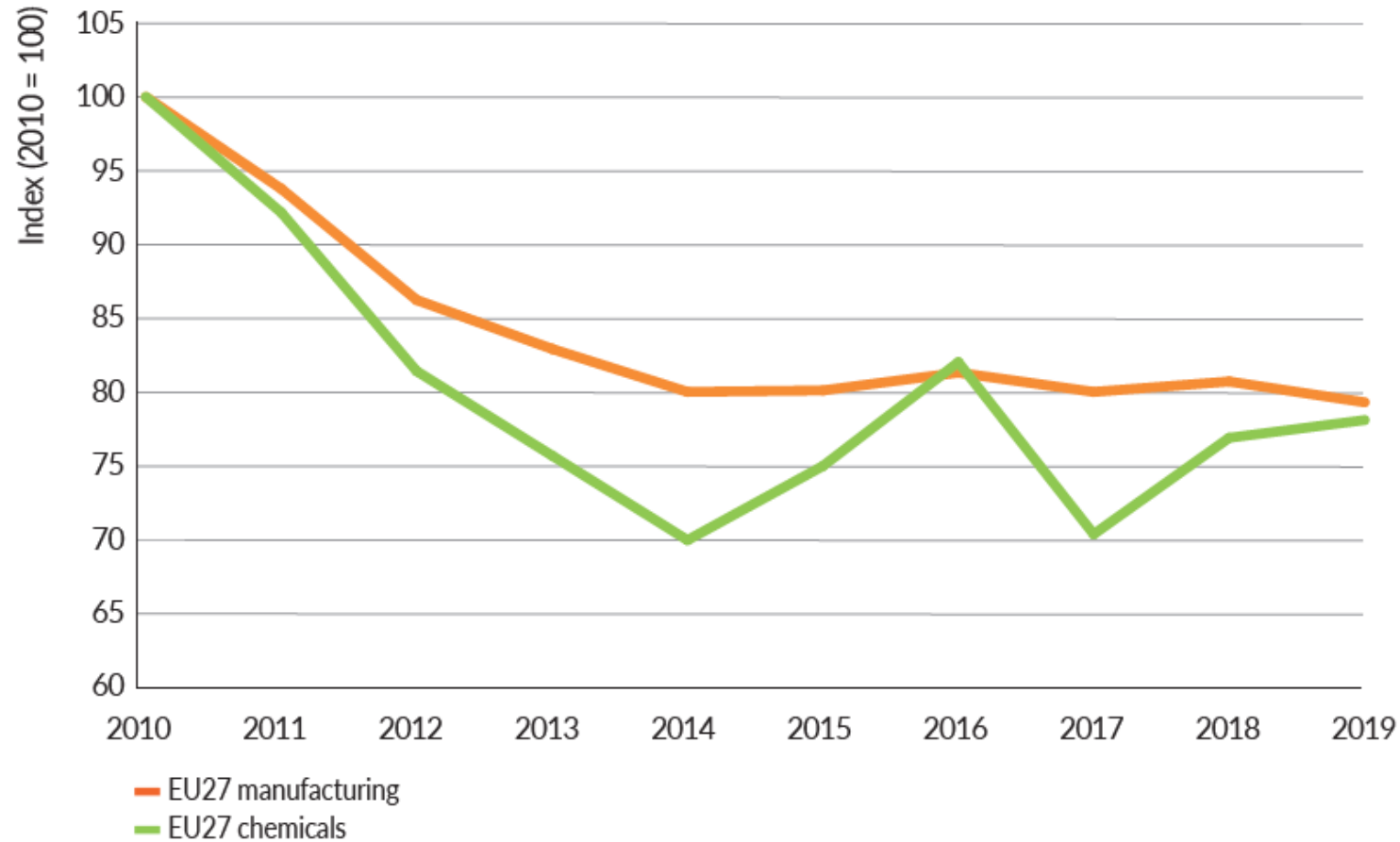


Source: European Pollutant Release and Transfer Register (E-PRTR)

* Slovakia did not report data under the EU Registry. Data for Germany, Latvia, Lithuania, Liechtenstein, Lithuania, and Portugal are incomplete for 2018 and 2019. Data for Italy, Malta and Switzerland are incomplete for the year 2019.

Number of accidents dropped by 22% in the EU27 chemical industry

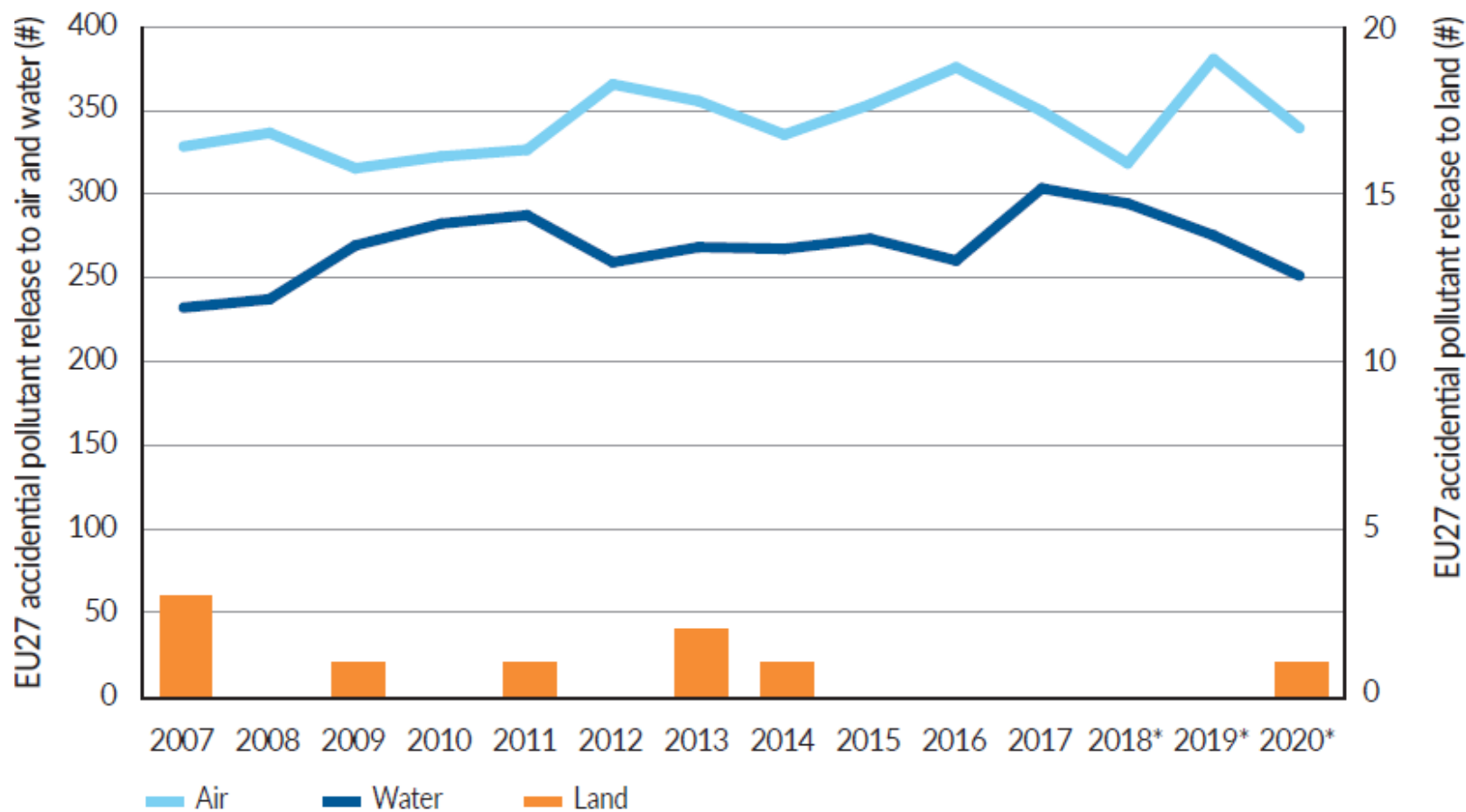
EU27 number of accidents at work: chemicals vs manufacturing



Source: Eurostat

Accidental pollutant releases by the EU27 chemicals industry

Accidental pollutant release in the EU27 chemical industry

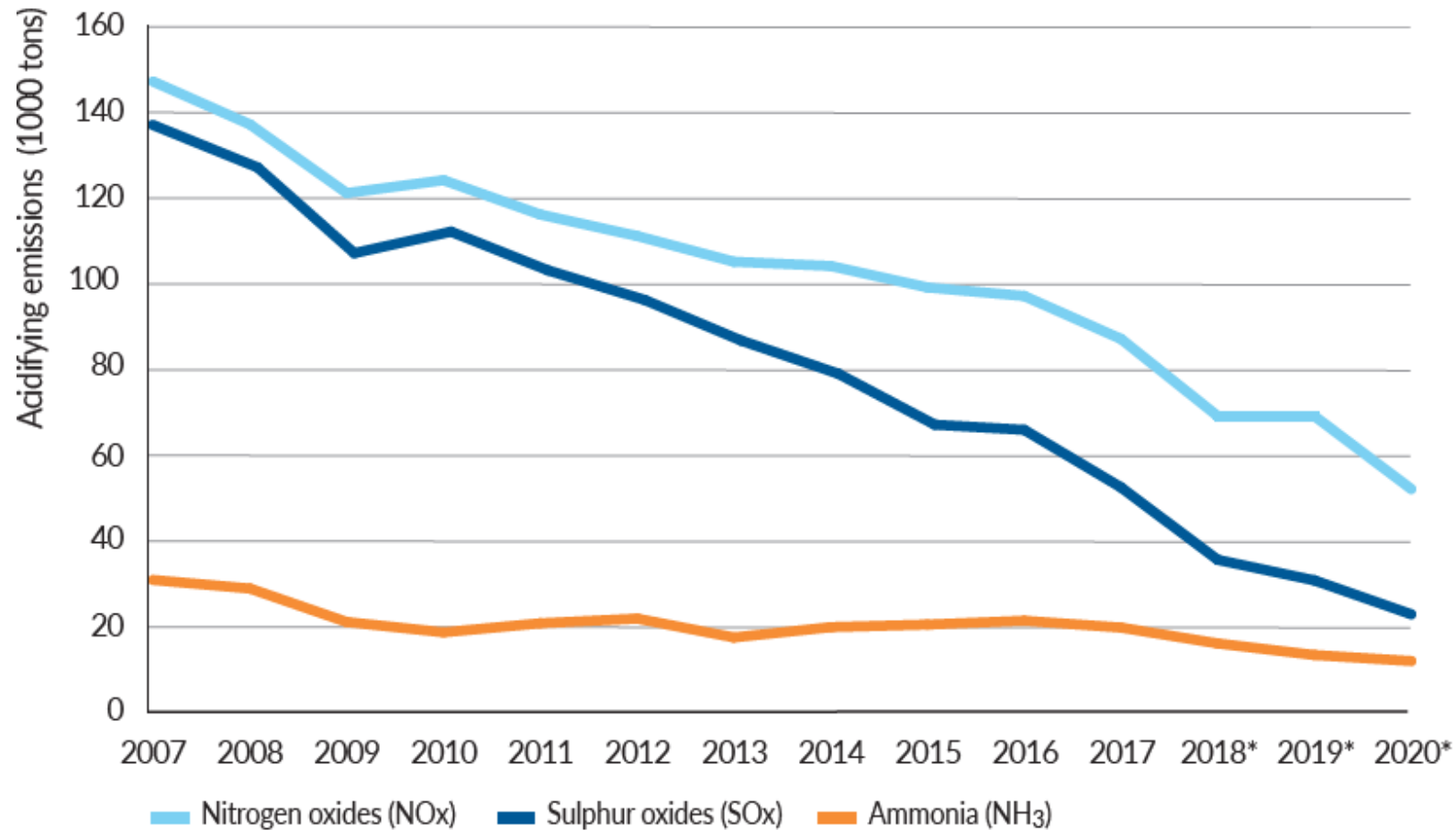


Source: European Pollutant Release and Transfer Register (E-PRTR)
*Slovakia did not report data under the EU Registry.
Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.
Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.



EU27 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.

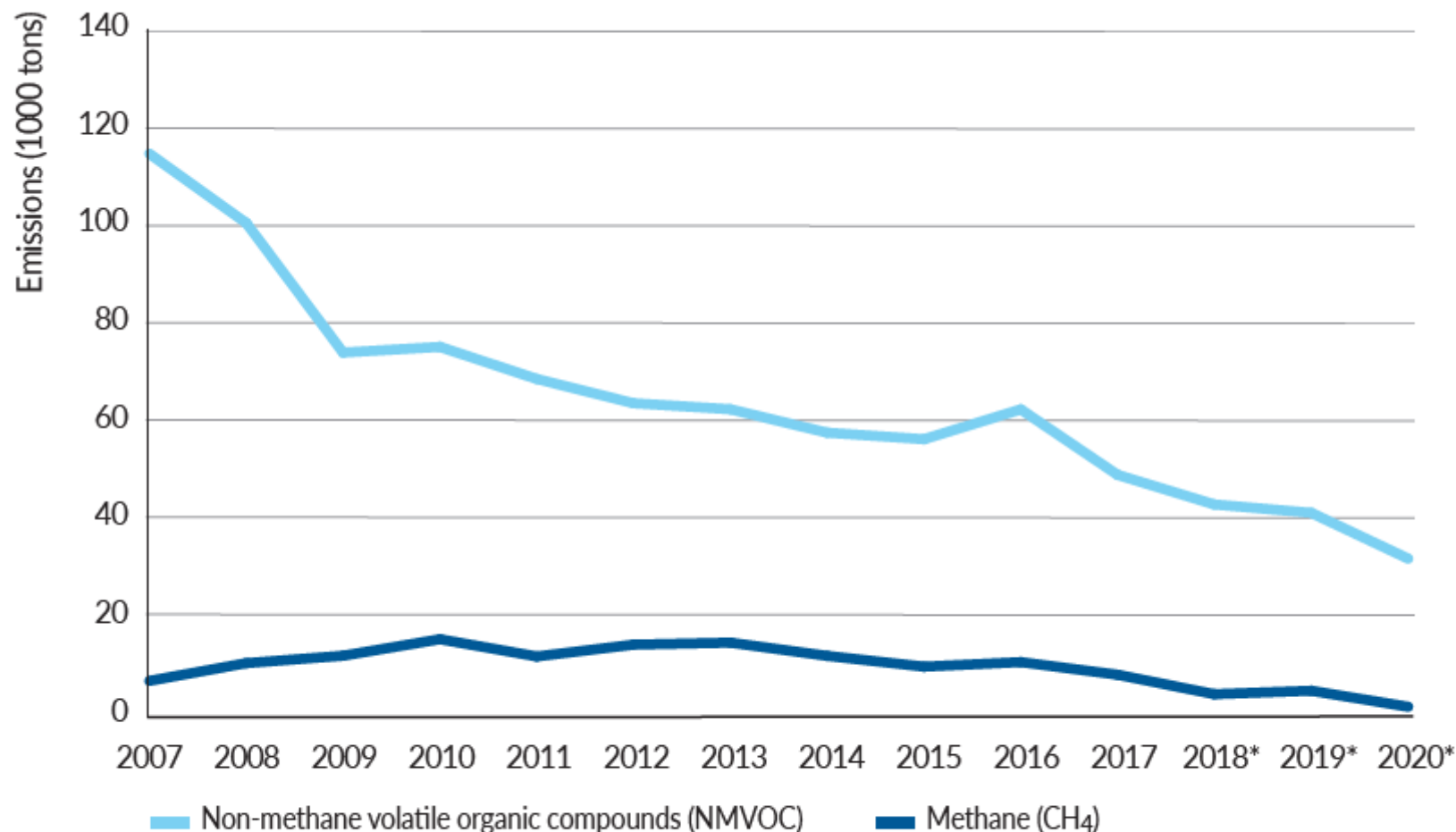
Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.

Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.



EU27 Methane & NMVOC Emissions to air fall by 70% since 2007

Methane & NMVOC emissions by the EU27 chemical industry

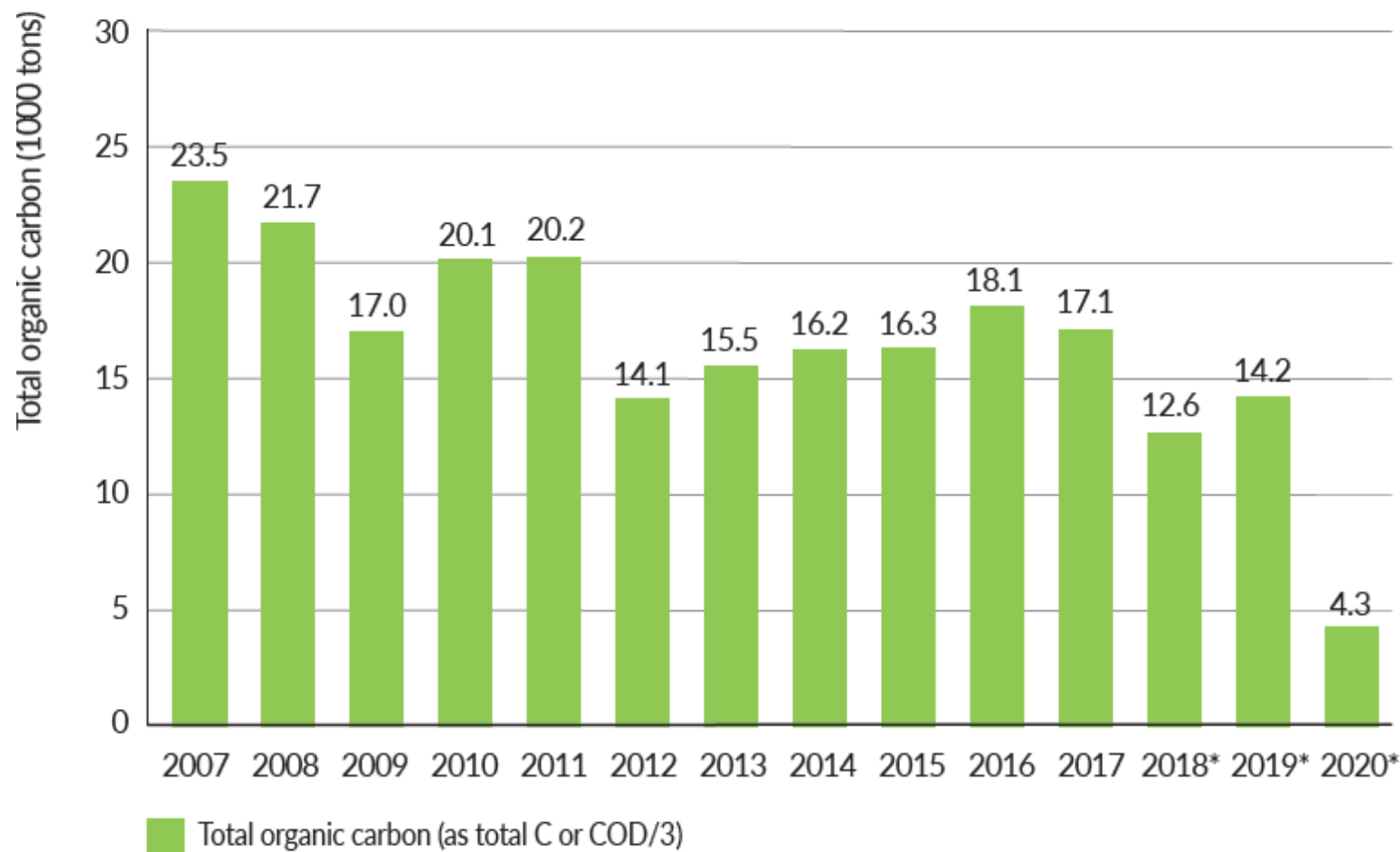


Source: European Pollutant Release and Transfer Register (E-PRTR)
*Slovakia did not report data under the EU Registry.
Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.
Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.



EU27 Emission of water pollutants dropped significantly since 2007

Total organic carbon emissions by the EU27 chemical industry



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

*Slovakia did not report data under the EU Registry.

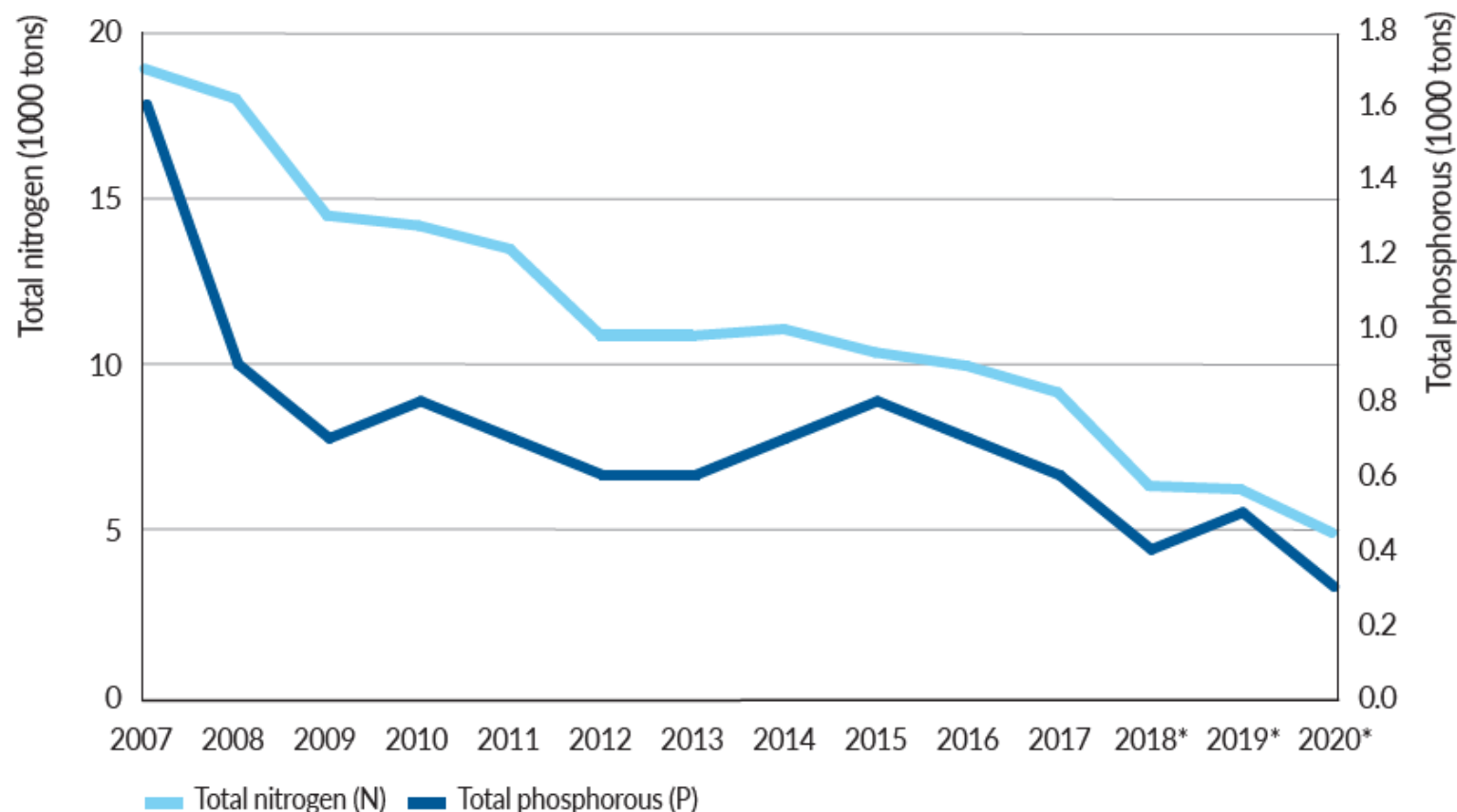
Data for 2018 and 2019 are incomplete for Germany, Lithuania and Liechtenstein.

Data for 2020 is incomplete for Germany, Italy, Lithuania and Malta.



EU27 total Nitrogen & Phosphorous emissions dropped significantly

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.



Contact :
Dr Moncef HADHRI
Cefic Industrial Policy - Economic Affairs
mha@cefic.be



About Cefic

Cefic, the European Chemical Industry Council, founded in 1972, is the voice of large, medium and small chemical companies across Europe, which provide 1.1 million jobs and account for 15% 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.

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

