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_Chemical Industry

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Contents

_3 Main sector indicators

In 2022, the share of the chemical industry sector in Croatia's gross domestic product was 0.77 percent. At the same time, the manufacture of chemicals, chemical products, and man-made fibers accounted for 0.22 percent, while the manufacture of rubber and plastic products accounted for 0.55 percent of GDP.

_8 Trends

In 2024, the manufacture of chemicals and chemical products recorded a year-on-year growth of 3.7 percent, while the manufacture of rubber and plastic products recorded a year-on-year decline of 3.6 percent. Compared to 2019, the manufacture of chemicals and chemical products in 2024 was 23.4 percent lower, while the manufacture of plastic and rubber products was 3.4 percent lower.

_13 Leading companies

In 2023, the total revenues of the ten leading companies in the manufacture of chemicals and chemical products were 28.8 percent lower than the year before, while the total revenues of the ten leading companies in the plastic and rubber manufacture decreased by 6.6 percent.

_18 Report from the Zagreb Stock Exchange

In 2024, the shares of Saponia d.d. recorded a year-on-year decline in turnover of 1.05 percent.

_19 Chemical sector in the EU-27

In the first three quarters of 2024, the chemical sector of the European Union recorded a year-on-year growth in manufacture by 2.6 percent.

_24 Conclusion

The European Chemical Industry Council [CEFIC] does not forecast a near recovery in chemical manufacturing in the EU-27 and points to limitations in demand growth due to unfavorable economic conditions in Germany and the USA. The business and trade environment in which European chemical companies operate is exposed to high risk arising from additional US import duties. Growth in manufacture of chemicals in the EU-27 is expected to slow from an estimated 2 percent in 2024 to less than 0.5 percent in 2025.



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Main sector indicators

“In 2024, after three consecutive years of decline, the manufacture of chemicals and chemical products achieved year-on-year growth by 3.7 percent.

The chemical sector, defined on the basis of the statistical classification of economic activities (NACE Rev. 2, i.e., the European Classification of Economic Activities 2007), in a broader sense includes the manufacture of chemicals and chemical products (division C20), the manufacture of rubber and plastic products (division C22), and the manufacture of basic pharmaceutical products and pharmaceutical preparations (division C21)¹. The manufacture of chemicals and chemical products includes the manufacture of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms; manufacture of pesticides and other agrochemical products; manufacture of paints, varnishes and similar coatings, printing inks and mastics; manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations; manufacture of other chemical products and manufacture of man-made fibers. On the other hand, the manufacture of rubber and plastic products includes the manufacture of rubber tires and tubes; manufacture of other rubber products; manufacture of plastic products; manufacture of plastic plates, sheets, tubes, and profiles; manufacture of plastic packing goods; manufacture of builders' ware of plastic and other plastic products. Among the existing products of the chemical industry and the plastic and rubber industry in Croatia, the manufacture of technical gases, polymers, rubber, and plastic products, cleaning preparations, and paints and varnishes is at the forefront.

Table 1
Main sector indicators, year-to-year rates of change in 2023 and 2024, in %

Source: The author's calculation according to data from the Croatian Bureau of Statistics.

	2023	2024
Manufacture of chemicals and chemical products – C20		
Production	-2.6	3.7
Employment	-0.9	-0.2
Gross wages (nominal)	10.9	14.2
Manufacture of rubber and plastic products – C22		
Production	-3.6	-0.2
Employment	-1.6	0.8
Gross wages (nominal)	14.7	13.9

¹ Analysis of the pharmaceutical industry will be published in a special issue of *Sector Analyses*, which will be published in September.

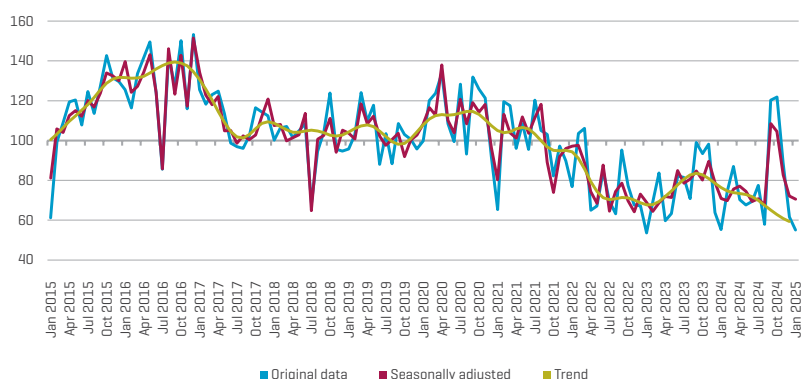
According to the latest available data from 2022, the share of the chemical sector in Croatia's gross domestic product (GDP) was 0.77 percent. The manufacture of chemicals, chemical products, and man-made fibers accounted for 0.22 percent, while the manufacture of rubber and plastic products accounted for 0.55 percent of GDP that year.

At the same time, the share of the manufacture of chemicals, chemical products, and man-made fibers in the total gross value added (GVA) of the manufacturing industry was 1.8 percent, while the share of the manufacture of rubber and plastic products amounted to 4.5 percent. For comparison, a year earlier, 3 percent of the GVA of the entire manufacturing industry was achieved in the manufacture of chemicals and chemical products, while 4.9 percent was achieved in the manufacture of rubber and plastic products.

In the total employment of the manufacturing industry in 2024, the chemical industry sector participated with a share of 7 percent. If viewed separately, the manufacture of chemicals and chemical products in the total employment of the manufacturing sector in 2024 accounted for 2.48 percent, while the manufacture of plastic and rubber products accounted for 4.55 percent.

Figure 1
Manufacture of chemicals and chemical products, 2021 = 100, from January 2015 to January 2025

Source: The Institute of Economics, Zagreb, based on source data from the Croatian Bureau of Statistics.



For the second year in a row, the total industry production recorded a year-on-year decline. Thus, in 2024, it recorded a year-on-year decline of 1.9 percent, and a year earlier by 0.3 percent. Looking at the divisions of the European Classification of Economic Activities, the highest year-on-year decline in 2024 was recorded in the manufacture of wearing apparel [-16.4 percent], followed by the manufacture of motor vehicles, trailers, and semi-trailers [-15.2 percent], manufacture of leather and related products [-15.1 percent], and the manufacture of furniture [-14.4 percent]. In other industries that experienced a decrease in manufacturing activity in 2024 compared to 2023, it ranged from 0.2 percent in the manufacture of rubber and plastic products to 9.5 percent in the manufacture of basic metals. On the other hand, year-on-year growth was recorded in only ten industries. At the same time, double-digit growth rates in manufacturing activity in

2024 compared to the previous year were recorded in the manufacture of coke and refined petroleum products, that is, by 12.5 percent, and in the manufacture of computers, electronic, and optical products, by 19.8 percent. The year-on-year growth in manufacture was also achieved in other manufacturing industries (0.4 percent), manufacture of food products (0.6 percent), manufacture of basic pharmaceutical products and pharmaceutical preparations (2.2 percent), manufacture of beverages (2.5 percent), manufacture of chemicals and chemical products (3.7 percent), manufacture of electrical equipment (3.9 percent), manufacture of tobacco products (6.4 percent), and printing and reproduction of recorded media (9.8 percent).

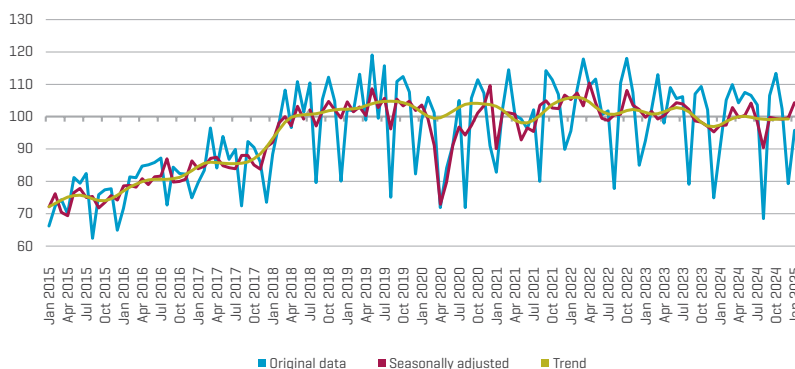
In 2024, after three consecutive years of decline, the manufacture of chemicals and chemical products achieved year-on-year growth of 3.7 percent. In 2021, this industry recorded a year-on-year decline of 12.9 percent, in 2022 it recorded a decline of 21.4 percent, while in 2023 it recorded a decline of 2.6 percent. For comparison, in 2020 and 2019, this industry achieved year-on-year growth of 11.3 and 2.3 percent. Seasonally adjusted data show that the production of chemicals and chemical products in the last quarter of 2024 increased by 5.6 percent compared to the previous quarter, which may indicate continued positive developments in this industry.

In 2024, the year-on-year growth in the manufacture of chemicals and chemical products was accompanied by wage growth and a slight decline in employment. Compared to 2023, in 2024, the average monthly nominal gross wages of persons employed in this industry increased by 14.2 percent, while employment decreased by 0.2 percent on average. When analyzing wage trends, one should also take into account the fact that, according to data from the Croatian Bureau of Statistics, inflation of 3.7 percent was recorded last year at the level of the entire Croatian economy. The average gross wage paid in December 2024 in the manufacture of chemicals and chemical products was 1,738 euros, which was 7.4 percent below the economy average and 4.7 percent above the average for the entire manufacturing industry.

The manufacture of rubber and plastic products has recorded a year-on-year decline for the second year in a row. While in 2023 it was 3.6 percent, in 2024 it was 0.2 percent. For comparison, this industry achieved year-on-year growth in both 2021 and 2022, of 4.7 and 3.7 percent, respectively. Although seasonally adjusted data show that in the last quarter of 2024, the manufacture of rubber and plastic products achieved an increase in production of 3.4 percent compared to the previous quarter, it cannot be said with certainty that this industry has recovered [Figure 2].

Figure 2
Manufacture of rubber and plastic products, 2021 = 100, from January 2015 to January 2025

Source: The Institute of Economics, Zagreb, based on source data from the Croatian Bureau of Statistics.



Despite the year-on-year decline in production in the manufacture of rubber and plastic products over the past year, both employment and wages in this industry are increasing. Thus, compared to 2023, in 2024, average monthly gross wages in this industry recorded a nominal growth of 13.9 percent, while employment increased by 0.8 percent. Despite wage increases, wages in the manufacture of rubber and plastic products are still among the lowest in the manufacturing industry.

The average nominal gross salary paid in December 2024 in the manufacture of rubber and plastic products was 1,479 euros, which was 21.2 percent below the economy average and 10.9 percent below the average for the entire manufacturing industry. Lower wages were paid in only six industries: the manufacture of wearing apparel, the manufacture of leather and leather products, the manufacture of wood and of products of wood and cork, the manufacture of textiles, the manufacture of furniture, and other manufacturing.

While producer prices at the level of the overall manufacturing industry increased by 0.3 percent in December 2024 compared to December 2023, producer prices in the manufacture of chemicals and chemical products in the same period recorded a decrease of 2.3 percent. At the same time, prices of rubber and plastic products increased slightly, i.e., by 0.1 percent.

Contrary to the manufacturing industry, which recorded a year-on-year decline in labor productivity of 2.3 percent during the period from January to December 2024, the labor productivity of the manufacture of chemicals and chemical products increased by 1.6 percent. At the same time, the manufacture of rubber and plastic products recorded a decline in labor productivity of 2.1 percent. The increase in labor productivity in the manufacture of chemicals and chemical products can be attributed to an increase in production, accompanied by a decline in employment, while the decline in labor productivity in the manufacture of rubber and plastic products can be explained by a decrease in production, accompanied by an increase in employment.

IN DECEMBER 2024, PRICES OF PRODUCERS OF CHEMICALS AND CHEMICAL PRODUCTS RECORDED A YEAR-ON-YEAR DECLINE BY 2.3 PERCENT, WHILE PRICES OF PRODUCERS OF RUBBER AND PLASTIC PRODUCTS RECORDED AN INCREASE BY A MERE 0.1 PERCENT.

In the total export of the manufacturing industry realized from January to December 2024, the chemical sector² participated with 10.5 percent, whereby the manufacture of chemicals and chemical products participated with 6.8 percent, and the manufacture of plastic and rubber products with 3.7 percent. At the same time, in the total import of the manufacturing industry, the chemical sector participated with 12 percent [the manufacture of chemicals and chemical products with 7.9 percent and the manufacture of plastic and rubber products with 4.1 percent]. Compared to the previous year, in 2024, the export of the chemical sector increased by 7.7 percent, while import increased by 2.4 percent. In the manufacture of chemicals and chemical products, exports [10.5 percent] are increasing faster than imports [1.2 percent]. Simultaneously, in the manufacture of semi-finished and finished rubber and plastic products, exports are increasing more slowly than imports. Thus, in the period from January to December 2024, the export of the manufacture of plastic and rubber products increased by 2.9 percent and import by 4.8 percent year-on-year. Due to the dependence on imported raw materials, both industries constantly record a foreign trade deficit. In 2024, the foreign trade deficit of the manufacture of chemicals and chemical products was 1.5 billion euros, and that of rubber and plastic products was 761.6 million euros.

² The chemical sector includes the manufacture of chemicals and chemical products, and the manufacture of rubber and plastic products.

Trends

Compared to 2019, the total manufacture of chemicals and chemical products in 2024 was 23.4 percent lower. Nevertheless, this industry simultaneously recorded an increase in employment [Figure 3]. Thus, in December 2024, the manufacture of chemicals and chemical products employed 5,875 employees, which is 288 (or 5.2 percent) more employees compared to December 2019. This trend resulted in an increase in the share of the manufacture of chemicals and chemical products in the total employment of the manufacturing industry, i.e., from 2.4 percent in December 2019 to 2.5 percent in the same month in 2024. Additionally, it is important to note that compared to February 2024, in February of this year, this industry recorded an increase in employment [47 more persons employed].

Figure 3
Persons employed in legal entities, manufacturing industry, manufacture of chemicals and chemical products, from January 2019 to January 2025

Source: Croatian Bureau of Statistics.

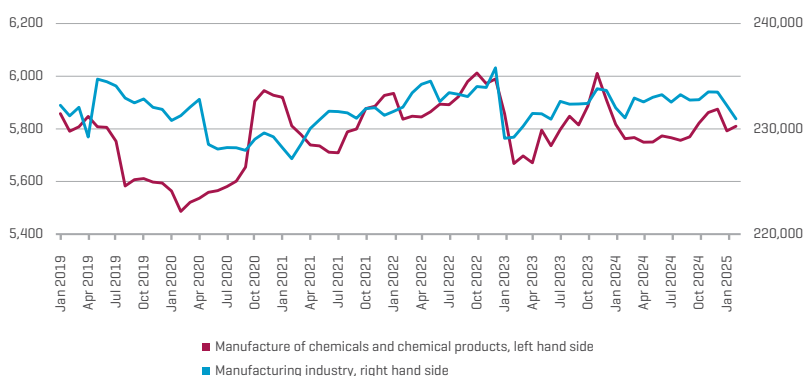
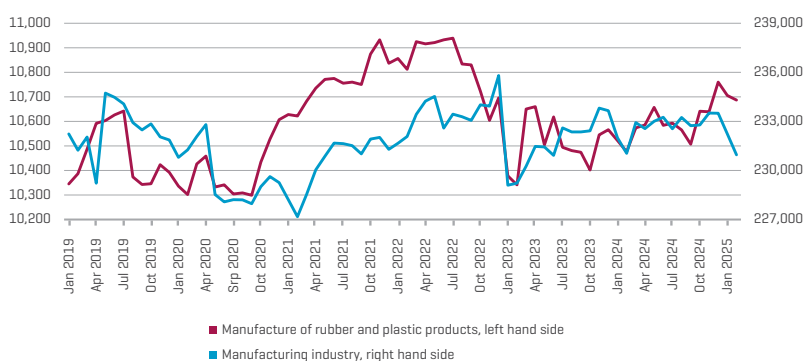


Figure 4
Persons employed in legal entities, manufacturing industry, manufacture of rubber and plastic products, from January 2019 to January 2025

Source: Croatian Bureau of Statistics.



COMPARED TO 2019, THE MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS IN 2024 WAS 23.4 PERCENT LOWER.

Table 2 shows data on average monthly gross wages paid in this industry from 2019 to 2024 [annual averages]. The average gross wages paid in 2024 in the manufacture of chemicals and chemical products were nominally higher by 44.4 percent compared to the average in 2019. If we compare the ratio of wages paid in the manufacture of chemicals and chemical products to wages paid at the level of the entire manufacturing industry during the period from 2019 to 2024, it is evident that, throughout the observed period, the wages paid in this industry were above the average of the manufacturing industry, but below the national average. Although the average gross wages paid in the manufacture of chemicals and chemical products in 2019 approached the average of the Croatian economy [98.9 percent of the national average], from 2020, the deviation from the national average is increasing again [from 97.3 in 2020 to 91.2 percent of the national average in 2024].

Although during the period from 2019 to 2024, the manufacture of plastic and rubber products also recorded a decline in production, it is nevertheless significantly weaker compared to the decline in the manufacture of chemicals and chemical products. Compared to 2019, the total manufacture of plastic and rubber products in 2024 was lower by 3.4 percent. After two years of consecutive year-on-year growth in the production of this industry [of 4.7 percent in 2021 and 3.6 percent in 2022], in the following two years it recorded a year-on-year decline. In 2023, it was 3.6 percent, while in 2024 it was 0.2 percent.

The manufacture of rubber and plastic products employed 10,687 employees in February 2025, which is 300 employees (2.9 percent) more than in the same month of 2019. Figure 4 shows two periods in the trend in the number of persons employed in this industry. The first period was marked by an increase in the number of employees, from 10,345 employees in January 2019 to 10,939 employees in July 2022. This is followed by a period of decrease in employment. In the period from 2019 to 2025, both industries recorded a slight increase in their share of total employment in the manufacturing industry, i.e., the manufacture of chemicals and chemical products recorded an increase from 2.4 to 2.5 percent, while the manufacture of rubber and plastic products recorded an increase from 4.5 to 4.6 percent.

Table 2

Average monthly gross wage per person employed in legal entities in Croatia, manufacturing industry, manufacture of chemicals and chemical products, and manufacture of rubber and plastic products, 2019–2024

Average monthly gross wage	2019	2020	2021	2022	2023	2024
Republic of Croatia (in euros)	1,164	1,223	1,274	1,380	1,584	1,821
Manufacturing industry (in euros)	1,058	1,115	1,161	1,264	1,439	1,626
Croatia = 100	90.9	91.1	91.1	91.6	90.8	89
Manufacture of chemicals and chemical products (in euros)	1,150	1,190	1,232	1,312	1,455	1,661
Manufacturing industry = 100	108.7	106.8	106.2	103.8	101.1	102.2
Croatia = 100	98.9	97.3	96.7	95.1	91.9	91.2
Manufacture of rubber and plastic products (in euros)	931	974	1,018	1,107	1,270	1,447
Manufacturing industry = 100	88.0	87.4	87.7	87.6	88.3	89.0
Croatia = 100	80.0	79.6	79.9	80.2	80.2	79.5

Source: Croatian Bureau of Statistics.

Table 3

Annual producer price indices on the domestic market, manufacturing industry, manufacture of chemicals and chemical products, and manufacture of rubber and plastic products, 2019–2024

Producer price indices	2019	2020	2021	2022	2023	2024
Manufacturing industry	100.3	96.9	105.2	114.7	102.9	100.1
Manufacture of chemicals and chemical products	100.8	98.1	112.1	106.0	96.3	96.9
Manufacture of rubber and plastic products	100.1	98.7	102.7	107.7	98.2	98.8

Source: The author's calculation according to data from the Croatian Bureau of Statistics.

“The producer prices of chemicals and chemical products in 2024 were lower by 3.7 percent compared to the previous year, while the producer prices of rubber and plastic products were lower by 1.8 percent.

Average gross wages paid in 2024 in the manufacture of plastic and rubber products were nominally 55.4 percent higher than the 2019 average. This is a consequence of the continuous growth of the average monthly gross wages in this industry throughout the observed period. The average monthly gross wage paid in this industry during the entire period from 2019 to 2024 was below the average wage in the manufacturing industry and the economic average. Compared to the average of the manufacturing industry, the average monthly gross wages paid in the manufacture of plastic and rubber products ranged from 87.4 percent (2020) to 89 percent (2024), while, compared to the average for the Croatian economy, they ranged from 79.6 percent (2020) to 80.2 percent (2022 and 2023).

After the producer prices of chemicals and chemical products in 2021 and 2022 recovered from the decline recorded in the pandemic year 2020 [–1.1 percent], in the following two years, their year-on-year decline

COMPARED TO 2019, THE MANUFACTURE OF PLASTIC AND RUBBER PRODUCTS IN 2024 WAS LOWER BY 3.4 PERCENT.

“The import-export coverage of the manufacture of chemicals and chemical products increased from 43.5 percent in 2019 to 48.2 percent in 2024.

followed. Similarly, in 2023, producer prices of chemicals and chemical products recorded a year-on-year decline of 3.7 percent, and in 2024 of 3.1 percent [Table 3]. In 2024, the producer prices of rubber and plastic products were lower by 1.2 percent compared to the previous year, while in 2023 they were lower by 1.8 percent. The year-on-year decline in the producer prices of rubber and plastic products was also recorded in 2020 [-1.3 percent], while in 2021 and 2022 the prices achieved year-on-year growth of 2.7 percent and 7.7 percent, respectively [Table 3].

Table 4 shows the trend of foreign trade exchange of the chemical sector during the period from 2019 to 2024. Compared to 2019, the export in the manufacture of chemicals and chemical products in 2024 was 62.6 percent higher, while the import was 46.7 percent higher. Due to a stronger increase in exports compared to imports during the observed period, the

Table 4
Foreign trade exchange, manufacturing industry, manufacture of chemicals and chemical products, and manufacture of rubber and plastic products, 2019–2024

	2019	2020	2021	2022	2023	2024	2024 2019
Manufacture of chemicals and chemical products							
Export (in millions of euros)	855.6	817.3	1,063.70	1,209.26	1,259.58	1,390.8	162.6
Manufacturing industry (in %)	6.2	6.4	6.9	6.4	6.5	6.8	0.6
Import (in millions of euros)	1,965.2	1,951.4	2,437.8	3,046.6	2,842.3	2,883.3	146.7
Manufacturing industry (in %)	8.8	9.4	9.8	9.2	8.3	7.9	-0.9
Export-import coverage ratio	43.5	41.9	43.6	39.7	44.3	48.2	4.7
Manufacture of plastic and rubber products							
Export (in millions of euros)	490.7	489.5	621.8	753.231	721.308	743.0	151.4
Manufacturing industry (in %)	3.6	3.8	4	4.0	3.7	3.7	0.1
Import (in millions of euros)	1,014.6	996.9	1,251.1	1,458.9	1,433.2	1,504.7	148.3
Manufacturing industry (in %)	4.6	4.8	5.1	4.4	4.2	4.1	-0.5
Export-import coverage ratio	48.4	49.1	49.7	51.6	50.3	49.4	1.0

Source: The author’s calculation according to data from the Croatian Bureau of Statistics.

“In 2024, the export of the manufacture of plastic and rubber products was 51.4 percent higher compared to 2019, while the import was 48.3 percent higher.

import-export coverage ratio of this industry increased by 4.7 percentage points [from 43.5 to 48.2]. During the observed period, the manufacture of chemicals and chemical products achieved the highest export and import values in 2024. Thus, last year the export of this industry amounted to 1.4 billion euros, while import amounted to 2.9 billion euros.

At the same time, this industry recorded the lowest value of both exports and imports in the pandemic year of 2020, i.e., 817.3 million euros of exports and 1.95 billion euros of imports. In the period from 2019 to 2024, the manufacture of rubber and plastic products recorded a cumulative growth of exports by 51.4 percent and imports by 48.3 percent. Due to the stronger growth of exports than imports, there was an improvement in the foreign trade balance and an increase in the export-import coverage ratio of this sector. Thus, the export-import coverage ratio of rubber and plastic products increased from 48.4 percent in 2019 to 49.4 percent in 2024. The increase in the export-import coverage ratio of the manufacture of rubber and plastic products is an indicator of the gradual reduction of dependence on imported raw materials, as well as its redirection to placement on the foreign market.

Leading companies

The operations of the leading companies in the manufacture of chemicals and chemical products during 2023 were marked by a decline in total revenue and employment (Table 5). The total revenue of the ten leading companies in the manufacture of chemicals and chemical products in 2023 was 28.8 percent lower compared to 2022, while the number of persons employed was 2.8 percent lower [85 employees fewer than a year earlier]. In 2023, the ten leading companies cumulatively operated with a loss of 31.1 million euros.

According to FINA data for 2023, the ten leading manufacturers of chemicals and chemical products contributed 56.5 percent to the total revenue of this industry. According to the same source, in 2023, 392 business entities were active in the C20 "Manufacture of chemicals and chemical products" activity, while the total revenue of the activity amounted to 789.9 million euros.

Table 5
The average values of the selected performance indicators of the ten leading companies in the manufacture of chemicals and chemical products, 2022 and 2023

Note: Covers leading companies: Saponia d.d., Petrokemija d.d., Hempel d.o.o., Messer Croatia Plin d.o.o., Scott Bader d.o.o., Chromos-Svjetlost d.o.o., Meteor grupa – Labud d.o.o., LUSH manufaktura d.o.o., Adriatica Dunav d.o.o., and Maxam Detines d.o.o.

Source: FINA.

	2022	2023	2023/2022
Total revenue (in millions of euros)	626.9	446.2	71.2
Profit before tax (in millions of euros)	44.0	-31.1	26.1
Number of persons employed	3,041.0	2,956.0	97.2
Gross margin (in %)	7.0	-7.0	-14.0
Return on asset (in %)	9.9	-8.1	18.0
Labor productivity (revenue in thousands of euros per person employed)	206.2	150.9	73.2
Asset turnover ratio	1.6	1.0	62.7
Current ratio	1.7	1.2	73.3
Debt ratio	0.38	0.57	149.5

The significant year-on-year decrease in cumulative profit, i.e., operating at a loss at the level of the ten leading companies in the manufacture of chemicals and chemical products in 2023, is the result of the Petrokemija d.d. company's negative performance. More precisely, the company ended

THE TOTAL REVENUE OF THE TOP TEN LEADING COMPANIES IN THE MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS IN 2023 WAS 28.8 PERCENT LOWER COMPARED TO 2022.

the year 2023 with a loss of 62.8 million euros. The other nine companies ended 2023 with a positive business result, so the cumulative gross profit at the level of these nine companies amounts to 31.6 million euros. Thus, in 2023, the value of the current ratio for the ten leading manufacturers of chemicals and chemical products was 1.2, which is below the 2022 level of 1.7 [Table 5]. Similarly, the value of the debt ratio of the leading ten companies in the chemical industry increased from 38 percent in 2022 to 57 percent in 2023. The business results of Petrokemija d.d. are conditioned by external factors such as geopolitical instability [Russian aggression against Ukraine], high prices of energy and raw materials, increases in CO₂ prices, and supply chain disruptions. Due to the increase in the price of natural gas as a key raw material, which was unfavorable in relation to the prices of the finished product, weak sales, high prices, low market demand, and the expectation of the completion of the ownership takeover process and a new business direction, in March 2022, the Management Board of the company made a decision to temporarily suspend production, which lasted until July 2023. In April 2023, the shares of Petrokemija were purchased by YILDIRIM Group, which is the sole company responsible for the operations and management of Petrokemija. YILDIRIM Group is one of the fastest-growing Dutch-Turkish industrial conglomerates, currently operating in nine different sectors, present in 56 countries on five continents,

Table 6
Ten leading companies in the manufacture of chemicals and chemical products – selected financial indicators, 2023

	Total revenue (in millions of euros)	Debt ratio	Current ratio	Gross margin (in %)
Saponia d.d.	107.9	0.3	2.6	3.3
Petrokemija d.d.	97.8	1.0	0.6	-64.1
Hempel d.o.o.	40.7	0.5	1.7	10.7
Messer Croatia Plin d.o.o.	37.4	0.1	5.1	19.0
Scott Bader d.o.o.	33.7	0.4	1.7	4.3
Chromos-Svjetlost d.o.o.	30.6	0.0	25.5	10.8
Meteor grupa – Labud d.o.o.	30.0	0.6	1.0	17.7
LUSH manufaktura d.o.o.	24.2	0.2	4.9	9.2
Adriatica Dunav d.o.o.	23.7	0.5	2.6	2.3
Maxam Detines d.o.o.	20.0	0.5	1.5	19.0

Source: The author's calculation according to data from FINA.

IN 2023, THE TOTAL REVENUE OF THE TEN LEADING COMPANIES IN THE MANUFACTURE OF PLASTIC AND RUBBER PRODUCTS AMOUNTED TO 465.4 MILLION EUROS AND WAS 6.6 PERCENT LOWER COMPARED TO THE PREVIOUS YEAR.

and employing more than 25,000 people. According to data from the Central Depository and Clearing Company, YILDIRIM Group's equity is 74.89 percent, while the state, i.e., all shareholders in its ownership, from CERP, Janaf, and the Fund for financing the decommissioning of the Krško Nuclear Power Plant to Plinacro, when their shares are added up across all accounts, hold 25 percent of the shares.

Measured by total revenue, the top ten leading companies in the chemical industry in 2023 are Saponia d.d. (107.9 million euros), Petrokemija d.d. (97.8 million euros), Hempel d.o.o. (40.7 million euros), and Messer Croatia Plin d.o.o. (37.4 million euros). They are followed by Scott Bader d.o.o., Chromos-Svjetlost d.o.o., Meteor grupa – Labud d.o.o., LUSH manufaktura d.o.o., Adriatica Dunav d.o.o., and Maxam Detines d.o.o. Interestingly, in 2022, Petrokemija d.d. was in the leading position, and the company Maxam Detines d.o.o. was included in the top ten leading companies in the manufacture of chemicals and chemical products for the first time, while the company Ireks Aroma d.o.o. is no longer part of this group.

According to data from Poslovna Hrvatska, only Petrokemija d.d. recorded a decline in revenue in 2023 compared to 2022 (-9.6 percent). At the same time, the largest year-on-year growth in total revenue was achieved by the Adriatica Dunav d.o.o. company (152.7 percent), followed by Hempel d.o.o. with a growth of 19.6 percent, Meteor grupa – Labud d.o.o. with a growth of 16.4 percent, and Ireks Aroma d.o.o., which achieved an increase in total revenue of 10.7 percent.

According to FINA data, in 2023, 802 business entities were active in the C22 "Manufacture of rubber and plastic products" activity, generating total revenue of 1.3 billion euros. An analysis of the financial indicators of the ten leading companies in the manufacture of plastic and rubber products indicates a decline in the sector during 2023 (Table 7).

The main characteristics of the business operations of the observed group of manufacturers of plastic and rubber products are a decline in revenue, profit, and employment. In 2023, the total revenue of the ten leading companies in this sector amounted to 465.4 million euros and was lower

by 6.6 percent compared to the previous year. The number of persons employed decreased from a total of 2,180 in 2022 to 2,106 in 2023 (a decrease of 3.4 percent). Ten leading manufacturers in both observed years, 2022 and 2023, cumulatively operated profitably, whereby in 2022 they realized a cumulative profit of 29.1 million euros, and in 2023 of 20.4 million euros (a decrease of 29.9 percent).

A stronger decline in revenue [-6.6 percent] than the decline in employment [-3.4 percent] resulted in a 3.3 percent decrease in labor productivity. The value of the current ratio of ten leading manufacturers of plastic and rubber products of 1.7 indicates that the companies had no significant difficulties in meeting short-term obligations during 2023. In 2023, the debt ratio took on a value of 0.53, which is slightly above the level of the previous year, when it was 0.50. At the same time, the asset turnover ratio decreased compared to 2022, from 1.5 to 1.3. While in 2022, every euro of assets of the ten leading plastic and rubber manufacturers resulted in 8.1 euros of revenue, in 2023, 5.1 euros of revenue was realized for each euro of assets. After covering the manufacturing costs, the observed companies were left with 4.4 percent of total revenue in 2023 and 5.9 percent of total revenue in 2022.

Table 7
The average values of the selected performance indicators of the ten leading companies in the manufacture of plastic and rubber products, 2022 and 2023

Note: Covers leading companies: Bomark Pak d.o.o., Gumiimpex-GRP d.d., Muraplast d.o.o., Deceuninck d.o.o., Alpla d.o.o., Aquaestil plus d.o.o., Marlex d.o.o., Vargon d.o.o., Plastform d.o.o., and Heplast-pipe d.o.o.

Source: The author's calculation according to data from FINA.

	2022	2023	2023/2022
Total revenue (in millions of euros)	498.0	465.4	93.4
Profit before tax (in millions of euros)	29.1	20.4	70.1
Number of persons employed	2,180	2,106	96.6
Gross margin (in %)	5.9	4.4	-1.5
Return on asset (in %)	8.1	5.1	-3.0
Labor productivity (revenue in thousands of euros per person employed)	228.4	221.0	96.7
Asset turnover ratio	1.5	1.3	85.4
Current ratio	2.0	1.7	84.6
Debt ratio	0.50	0.53	107.3

Looking at the level of individual companies, an increase in total revenue in 2023 compared to 2022 was achieved by only two leading manufacturers of plastic and rubber products, i.e., Deceuninck d.o.o. (25 percent) and Marlex d.o.o. (8.9 percent). The remaining eight companies experienced a year-on-year decline in total revenue, ranging from 16.9 percent in Muraplast d.o.o. to 0.1 percent in Alpla d.o.o. The highest gross profit in 2023 was achieved by Muraplast d.o.o. (4.8 million euros), Gumiimpex-GRP d.d. (4 million euros), and Bomark Pak d.o.o. (3.7 million euros). The highest liquidity in 2023 was recorded by Marlex d.o.o. (3.5), followed by Plastform d.o.o. (2.7), and Aquaestil plus d.o.o. (2.3). Operations of the companies

Table 8

Ten leading companies in the manufacture of plastics and rubber – selected financial indicators, 2023

	Total revenue (in millions of euros)	Debt ratio	Current ratio	Gross margin (in %)
Bomark Pak d.o.o.	105.8	0.57	1.5	3.5
Gumiimpex-GRP d.d.	74.4	0.91	1.3	5.4
Muraplast d.o.o.	68.9	0.40	2.0	7.0
Deceuninck d.o.o.	50.1	0.89	1.0	0.6
Alpla d.o.o.	32.4	0.51	1.9	2.7
Aquaestil plus d.o.o.	31.9	0.44	2.3	3.3
Marlex d.o.o.	28.1	0.36	3.5	7.9
Vargon d.o.o.	27.6	0.21	1.8	5.2
Plastform d.o.o.	24.2	0.26	2.7	2.3
Heplast-pipe d.o.o.	22.0	0.44	2.0	6.7

Source: The author's calculation according to data from FINA.

Deceuninck d.o.o. and Gumiimpex-GRP d.d. were marked by the weakest ability to finance short-term liabilities. Compared to 2022, the company Heplast-pipe d.o.o. entered the group of ten leading plastic and rubber manufacturers in 2023, while the company Sipro d.o.o. left that group.

Report from the Zagreb Stock Exchange

“In 2024, the shares of Saponia d.d. recorded a year-on-year decline in turnover of 1.05 percent.

—Only one company from the manufacture of chemicals and chemical products, i.e., Saponia d.d., was listed on the Zagreb Stock Exchange, while not a single company from the manufacture of plastics and rubber was listed on the Zagreb Stock Exchange. As of March 9, 2022, the Petrokemija d.d. company is no longer listed on the Zagreb Stock Exchange. By revising the stock indices from September 8, 2022, the shares of Saponia d.d. were excluded from the CROBEX, CROBEXtr, CROBEXplus® index composition and associated sector indices [CBXindustrija].

It is interesting to note that the trade statistics for the year 2024 were marked by the growth of most indices, with the strongest year-on-year growth of 39.05 percent recorded by the CROBEXindustrija index, followed by the CROBEX10tr with a growth of 33.46 percent, then the CROBEXtr index [30.37 percent], and CROBEX10 [29.32 percent]. Year-on-year decline was recorded by only three indices, namely CROBEXtransport [-17.91 percent], CROBEXnutris [-5.73 percent], and CROBExturist [-0.16 percent]. Last year, the shares of Saponia d.d. recorded a year-on-year decline in turnover of 1.05 percent.

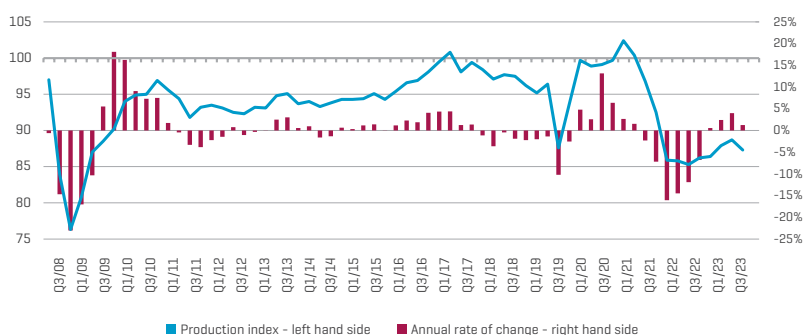
Chemical sector in the EU-27³

“After recording a year-on-year decline in manufacture by 8.5 percent in 2023, the European Union’s chemical sector recorded year-on-year growth of 2.6 percent in the first three quarters of 2024.

After the manufacture of the European Union’s chemical sector experienced a year-on-year decline for two consecutive years, in 2024 it achieved year-on-year growth. Compared to the same period last year, the chemical sector achieved a growth in production by 2.6 percent in the first three quarters of 2024. For comparison, in 2022, the manufacture of this sector decreased by 6.1 percent year-on-year, and in 2023 it decreased by 8.5 percent [CEFIC, 2025a]. Looking at trends in consecutive quarters of 2024, it is evident that the manufacture of the chemical sector in the third quarter of last year decreased by 1.6 percent compared to the previous quarter. The described trends are caused by weak demand and a high level of uncertainty.

Figure 5
Trends of chemical industry activities (seasonally adjusted) from the third quarter of 2008 to the third quarter of 2023 (2021 = 100)

Source: Created by the author according to CEFIC data [CEFIC, 2025a].



Looking at individual member states, the largest decline was recorded in Germany, where, in September 2024, chemical manufacturing decreased by 4.3 percent compared to the same month in 2023. According to data from Eurostat and CEFIC, in 2024, the production of the European Union’s manufacturing industry also recorded a year-on-year decline of 2.6 percent. This decline was largely contributed to by negative trends in the manufacture of leather, electrical equipment, and the automotive sector.

³ The data in this chapter are taken from a report published by the European Chemical Industry Council [CEFIC].

If we look at the trend in production by individual activities of the chemical sector, the largest decline in manufacture in 2023 compared to 2022 is observed in the manufacture of basic chemicals, led by petrochemical manufacturing [-10.6 percent], and manufacture of polymers [-10.5 percent]. This is followed by the manufacture of specialty chemicals and the manufacture of basic inorganics, with a year-on-year decline in manufacture of 6.3 and 5.2 percent, respectively. Year-on-year increase in manufacture in 2023 was recorded only in the manufacture of consumer chemicals [soaps, detergents, and cosmetics], i.e., of 3.2 percent.

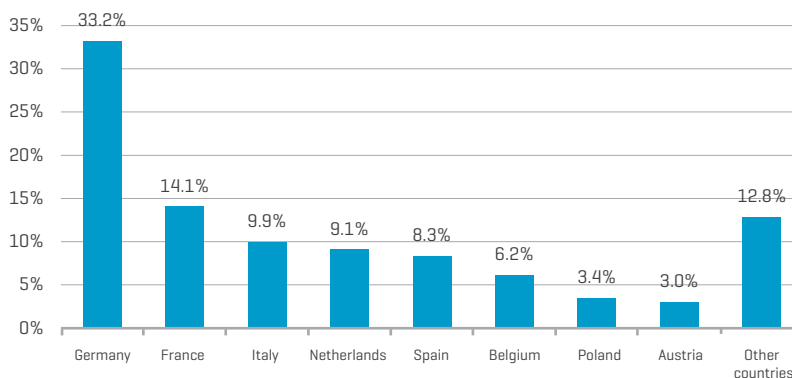
At the same time, export of the European Union's chemical sector decreased by 6.8 percent, while import decreased by 20.4 percent. Looking at individual industries, the largest year-on-year decline in export in 2023 was recorded in the manufacture of polymers [-18.5 percent], the manufacture of basic inorganics [-12.8 percent], and the petrochemical manufacturing [-11.3 percent]. On the other hand, in 2023, only the manufacture of consumer chemicals [soaps, detergents, and cosmetics] recorded a year-on-year increase in export. Similarly, the largest year-on-year decline in imports in 2023 was recorded in the manufacture of basic inorganics [-26.2 percent], the petrochemical manufacturing, and the manufacture of polymers [-23.1 percent each], while the smallest year-on-year decline was recorded in the manufacture of consumer chemicals [-1.8 percent].

The described trends in the EU-27 chemical sector were largely contributed to by the energy crisis, marked by rising costs of energy and raw materials, and a lack of demand for chemical sector products. Since March 2022, the European Union's chemical sector has been facing limited demand with low capacity utilization, which has been below the capacity utilization level of the US industry for three consecutive years. Average capacity utilization level in the EU-27 chemical sector amounted to around 75 percent in the first three quarters of 2024, which is roughly at the level of the same period last year.

The European Union's chemical industry continues to face challenges due to weak demand, falling business confidence, and high energy costs, which negatively affect its competitiveness at the global level. Gas prices in the European Union were 98 percent higher in 2024 compared to pre-pandemic levels [2014–2019]. With gas prices 3.9 times higher than in the US, Europe is at a significant competitive disadvantage. The recovery has been interrupted, and demand is expected to remain limited due to weak economic conditions and high uncertainty in Europe. There are around 29,000 companies active in the EU-27 chemical industry, which accounts for 1.4 percent of the European Union's manufacturing industry. The European Union's chemical sector employs around 1.2 million employees directly and around 3.4 million indirectly [CEFIC, 2025b].

Figure 6
Structure of total sales
of the chemical sector
by member states of the
European Union, 2023
[EU-27 = 100%]

Source: Created by the author
 according to CEFIC data
 [CEFIC, 2025a].



In 2023, the chemical sector in the EU-27 generated sales revenue of 655.3 billion euros, which is a decrease of 12.4 percent compared to 2022. An analysis of the sales structure of the chemical sector by EU-27 member states shows that more than half of the total sales of the European Union's chemical sector in 2023 was achieved in just three countries, i.e., Germany [33.2 percent], France [14.1 percent], and Italy [9.9 percent] (Figure 6). If the Netherlands, Spain, Belgium, and Austria join them, the share will increase to 84.2 percent. Other member states account for only 12.8 percent of total trade in the European Union's chemical sector. Croatia, with a share of 0.1 percent, occupies a modest 22nd place in the ranking of EU member states in 2023. For comparison, in 2022, Croatia was in 24th place on this list with a share of 0.13 percent.

If the structure of exports and imports of the chemical sector of the EU in 2023 is observed according to product groups, it is evident that more than half of exports refer to the export of specialty chemicals [31.4 percent] and the export of petrochemicals [24.7 percent] (Table 9).

This is followed by polymers, with a share of 15.2 percent, and consumer chemicals, which represent 17.8 percent of the total export. The smallest part of the export of the chemical sector is the export of basic inorganics, that is, 10 percent. On the other hand, the largest part of the import of chemical products is petrochemicals [39.4 percent], followed by specialty chemicals [24.5 percent]. Polymers account for 16 percent of total imports, basic inorganics for 13.6 percent, and consumer chemicals for 6.2 percent. Looking at product groups, the positive balance of EU-27 foreign trade with the rest of the world was recorded in consumer chemicals [28.3 billion euros], specialty chemicals [24.3 billion euros], and polymers [4 billion euros]. On the other hand, greater imports than exports were realized in petrochemicals [-19.0 billion euros] and basic inorganics [-3.3 billion euros].

Table 9

Exports and imports of the EU-27 chemical sector to the rest of the world by main product groups in 2023

	Petrochemicals	Polymers	Basic inorganics	Consumer chemicals	Specialty chemicals
Export, in billions of euros	55.6	34.3	22.6	40.1	70.7
%	24.7%	15.2%	10.0%	17.8%	31.4%
Import, in billions of euros	74.6	30.3	25.9	11.8	46.5
%	39.4%	16.0%	13.6%	6.2%	24.5%
Foreign trade balance	-19.0	4.0	-3.3	28.3	24.3

Source: Created by the author according to CEFIC data (CEFIC, 2025a).

The chemical industry of the European Union, with a share of 12.6 percent in the realized world sales of products of the chemical sector in 2023, ranks second among the ten leading countries in the world, after China and before the USA and Japan (Figure 7). Dynamically, the share of the European Union's chemical industry on the world market has decreased over the last decade. Thus, despite the increase in total sales of the chemical sector from 510 billion euros in 2013 to 655 billion euros in 2023, the share of the EU-27 in the total world sales of chemicals decreased from 16.4 percent to 12.6 percent (Figure 7). On the other hand, China (from 34 percent to 43.1 percent), India (from 2.1 percent to 2.6 percent), Saudi Arabia (from 0.9 percent to 1.5 percent), and Russia (from 1.2 to 1.3 percent) recorded an increase in the share of the chemical industry on the world market during the same period. Factors such as population ageing, maturity of the market, high energy and labor costs, regulatory burden, and an increasingly competitive global market contributed to the decline in the market share of the European chemical industry. If we look at the average annual growth rates of production of the chemical sector by the leading countries of the world economy from 2013 to 2023, a strong growth of the chemical sector in China, of 6.7 percent, followed by Russia with an average annual growth of 4.8 percent, is visible. On the other hand, on average, the manufacture of the EU-27 chemical sector decreased by 0.8 percent annually. In addition to the EU-27, a negative average annual growth rate of chemical manufacturing was also recorded by Brazil (-1.2 percent), Japan (-1.1 percent), the USA and Taiwan (-0.7 percent each), and South Korea (-0.3 percent). According to CEFIC forecasts, the share of the European Union's chemical industry in the world market will decrease to 10.7 percent by 2030. Much of the expected increase in chemical manufacturing at the world level will be transferred to developing countries and economies in transition. At the same time, the European Union will position itself as a leader in health and environmental standards in the field of chemicals management, with the aim of taking the lead in the manufacture and use of sustainable chemicals.

Figure 7
Ten leading countries
according to the share of
world trade in chemical
sector products, 2013
and 2023

Source: CEFIC [2025a].

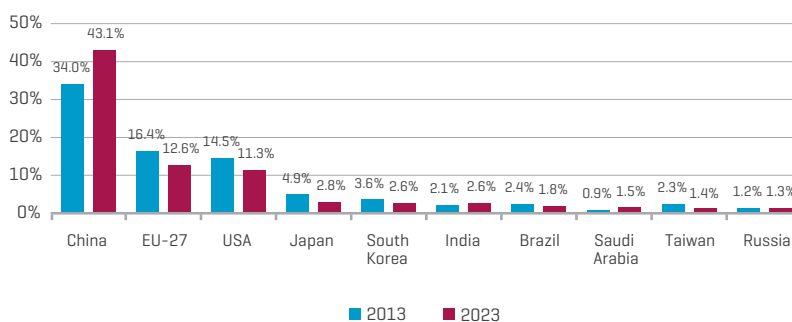
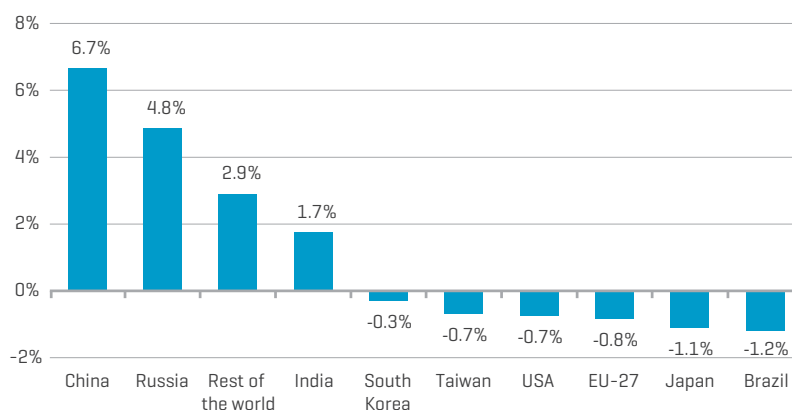


Figure 8
Average annual growth
rate of production of
the chemical sector
by leading countries
of the world economy,
2013–2023

Source: Created by the author
 according to CEFIC data
 [CEFIC, 2025a].



The EU-27 chemical industry is involved in complex international value chains that are sensitive to geopolitical developments, such as the Russian aggression against Ukraine. Although it is difficult to predict the longer-term impact of the war on the EU economy, its effects are already visible and are reflected in inflation, more fragile supply chains with possible disruptions in the supply of fossil raw materials and energy sources, and weakened growth prospects. Therefore, growth expectations for 2025 are still limited. Bearing in mind the uncertain global economic and business environment, the European Chemical Industry Council (CEFIC) does not forecast a near recovery in chemical manufacturing in the EU-27 and points to limitations in demand growth due to unfavorable economic conditions in Germany and the USA, while the situation in China will remain unchanged. The business and trade environment in which European chemical companies operate is exposed to high risk arising from additional US import duties. The growth in chemical manufacturing in the EU-27 is expected to decrease from an estimated 2 percent in 2024 to less than 0.5 percent in 2025.

Conclusion

— In 2024, after three consecutive years of decline, the manufacture of chemicals and chemical products achieved year-on-year growth of 3.7 percent. On the other hand, the manufacture of rubber and plastic products recorded a decrease in production for two years in a row, i.e., by 3.6 percent in 2023, and by 0.2 percent in 2024. The year-on-year increase in the manufacture of chemicals and chemical products in 2024 was accompanied by wage growth, but also a slight decline in employment. Compared to 2023, in 2024, the average monthly nominal gross wages of persons employed in this industry increased by 14.2 percent, while employment decreased by 0.2 percent on average. At the same time, the manufacture of rubber and plastic products, despite a decline in activity over the past year, has recorded both wage growth and employment growth. Thus, compared to 2023, in 2024, average monthly gross wages in this industry recorded a nominal growth of 13.9 percent, while employment increased by 0.8 percent.

Compared to the previous year, in 2024, the export of the chemical sector increased by 7.7 percent, while import increased by 2.4 percent. In the manufacture of chemicals and chemical products, exports (10.5 percent) are increasing faster than imports (1.2 percent). Simultaneously, in the manufacture of semi-finished and finished rubber and plastic products, exports are increasing more slowly than imports. Thus, in the period from January to December 2024, the export of the manufacture of plastic and rubber products increased by 2.9 percent and import by 4.8 percent year-on-year. Due to the dependence on imported raw materials, both industries constantly record a foreign trade deficit. In 2024, the foreign trade deficit of the manufacture of chemicals and chemical products was 1.5 billion euros, and that of rubber and plastic products was 761.6 million euros.

The contribution of the chemical sector to the Croatian economy is also visible in data on GVA, employment, and the number of active business entities. In 2022, the share of the chemical sector in the GDP of the Croatian economy was 0.77 percent. The manufacture of chemicals,

chemical products, and man-made fibers accounted for 0.22 percent, while the manufacture of rubber and plastic products accounted for 0.55 percent of GDP. At the same time, the share of the chemical sector in the GVA of the manufacturing industry amounted to 6.3 percent, 1.8 percent of which was accounted for by the manufacture of chemicals, chemical products, and man-made fibers, while 4.5 percent was accounted for by the manufacture of rubber and plastic. The total number of persons employed in the chemical sector in February 2025 was 16,497, which accounted for 7.1 percent of total employment in the manufacturing industry. According to FINA data for 2023, business entities in the chemical sector account for as much as 7.3 percent of business entities in the Croatian manufacturing industry. There were 392 business entities active in the manufacture of chemicals and chemical products, while 802 were active in the manufacture of rubber and plastic.

The business activity of leading companies in the manufacture of chemicals and chemical products and the manufacture of plastics and rubber during 2023 recorded a decline in total revenue. Compared to 2022, total revenue at the level of the ten leading companies in the manufacture of chemicals and chemical products in 2023 was 28.8 percent lower, and at the level of the ten leading companies in the manufacture of plastics and rubber, it was 6.6 percent lower.

According to CEFIC data, in the first three quarters of 2024, the manufacture of the chemical sector in the European Union recorded year-on-year growth of 2.6 percent. For comparison, in 2022, the manufacture of this sector decreased by 6.1 percent year-on-year, and in 2023 it decreased by 8.5 percent. If we look at production by individual activities of the EU-27 chemical sector, the largest decline in manufacture in 2023 compared to 2022 is observed in the manufacture of basic chemicals, led by the manufacture of petrochemicals (-10.6 percent), and the manufacture of polymers (-10.5 percent). This is followed by the manufacture of specialty chemicals and the manufacture of basic inorganics, with a year-on-year decline in manufacture of 6.3 and 5.2 percent, respectively. Year-on-year increase in manufacture in 2023 was recorded only in the manufacture of consumer chemicals (soaps, detergents, and cosmetics), i.e., by 3.2 percent. A decline in production compared to 2023 was also recorded last year at the level of the entire manufacturing industry of the European Union, i.e., by 2.6 percent. This decline was largely contributed to by negative trends in the manufacture of leather, electrical equipment, and the automotive sector. According to data for 2023, the export of the European Union's chemical sector is experiencing a year-on-year decline of 6.8 percent, while the import is experiencing a year-on-year decline of 20.4 percent. If the structure of exports and imports of the chemical sector of the EU in 2023 is observed according to product groups, it is evident that more than half

of exports refer to the export of specialty chemicals (31.4 percent) and the export of petrochemicals (24.7 percent). This is followed by polymers, with a share of 15.2 percent, and consumer chemicals, which represent 17.8 percent of the total export. The positive balance of EU-27 foreign trade with the rest of the world was recorded in consumer chemicals (28.3 billion euros), specialty chemicals (24.3 billion euros), and polymers (4 billion euros). On the other hand, greater imports than exports were realized in petrochemicals (-19.0 billion euros) and basic inorganics (-3.3 billion euros). Dynamically, the share of the European Union's chemical industry on the world market has decreased over the last decade. Thus, despite the increase in total sales of the chemical sector from 510 billion euros in 2013 to 655 billion euros in 2023, the share of the EU-27 in the total world sales of chemicals decreased from 16.4 percent to 12.6 percent.

Although it is difficult to predict the longer-term impact of the war on the EU economy, its effects are already visible and are reflected in inflation, more fragile supply chains with possible disruptions in the supply of fossil raw materials and energy sources, and weakened growth prospects. Therefore, growth expectations for 2025 are still limited. Bearing in mind the uncertain global economic and business environment, the European Chemical Industry Council (CEFIC) does not forecast a near recovery in chemical manufacturing in the EU-27 and points to limitations in demand growth due to unfavorable economic conditions in Germany and the USA, while the situation in China will remain unchanged. The business and trade environment in which European chemical companies operate is exposed to high risk arising from additional US import duties. Growth in the manufacture of chemicals in the EU-27 is expected to slow from an estimated 2 percent in 2024 to less than 0.5 percent in 2025.

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