Labour Force Demand – Changes and Structure

**In 2017, 5.6 thousand people, or 0.6% of employed, were working in chemical and pharmaceutical industry.**

Since 2010, the number of employed in chemical and pharmaceutical industry has increased by 0.9 thousand. The increase can mainly be attributed to the growing demand for labour in the manufacture of pharmaceutical products and the manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations.

Number of Employed in Chemical and Pharmaceutical Industry

*changes*

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2010 | 2017f | changes |
| **MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS** | **2622** | **2911** | **289** |
| Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms | 797 | 970 | 173 |
| Manufacture of pesticides and other agrochemical products | 28 | 44 | 16 |
| Manufacture of paints, varnishes and similar coatings, printing ink and mastics | 537 | 330 | -207 |
| Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations | 837 | 1202 | 365 |
| Manufacture of other chemical products | 324 | 243 | -81 |
| Manufacture of man-made fibres | 99 | 122 | 23 |
| **MANUFACTURE OF BASIC PHARMACEUTICAL PRODUCTS AND PHARAMACEUTICAL PREPARATIONS** | **1713** | **2141** | **428** |
| Manufacture of basic pharmaceutical products | 130 | 102 | -28 |
| Manufacture of pharmaceutical preparations | 1583 | 2039 | 456 |
| **SCIENTIFIC RESEARCH AND DEVELOPMENT** | **451** | **585** | **134** |
| **TOTAL:** | **4786** | **5637** | **851** |

Source: CSB; f – forecast by the Ministry of Economics

Number of Employed in Chemical and Pharmaceutical Industry
*in thousands*

Source: CSB; f – forecast by the Ministry of Economics

Structure of Labour Force Demand in Chemical and Pharmaceutical Industry
*2015, %*

Source: State Revenue Service (SRS), CSB, calculations by the Ministry of Economics

**More than half of the labour force demand in chemical and pharmaceutical industry is generated by the manufacture of chemicals and chemical products,**

where approximately 40% of occupations require medium qualification (including almost 15% of chemical products plant and machine operators). The share of higher qualification occupations in the sub-sector comprises 37%.

A significantly larger share of higher qualification occupations can be observed in the manufacture of basic pharmaceutical products and pharmaceutical preparations, where more than 60% of occupations require higher qualification. Approximately one third of them are chemists and chemical processing plant controllers.

Scientific research and development is highly significant sub-sector in the chemical and pharmaceutical industry. Although the number of occupied posts in the sub-sector is relatively small, it is closely linked to the development of new products and innovations. The share of higher qualification occupations comprises 85%, and half of them are physicists and astronomers.

Sufficiency of Labour Force in Chemical and Pharmaceutical Industry Occupations

At the end of July 2018, the registered unemployment rate in chemical and pharmaceutical industry was 3.8% (2.6 percentage points lower than the national average). In June 2018, the average gross wage in chemical and pharmaceutical occupations reached EUR 1,383 (by 23% higher than the national average).

It should be taken into consideration that in the chemical and pharmaceutical industry occupational group 92% of occupied posts require higher qualification. Consequently, lower unemployment and higher remuneration in the sector can be observed. In comparison to the average gross wage in the chemical and pharmaceutical industry, the average gross wage in most of the occupations is lower. Low labour force demand for chemical engineering technicians and life science technicians can also be observed. Thus, when compared to the national average, these occupations have both lower gross wages and higher unemployment rates.

**At the same time, insufficiency of labour force can be observed among chemical products plant and machine operators and physicists and astronomers.**

Average gross wage

1128 EUR

Normalized Monthly Gross Wage in Chemical and Pharmaceutical Occupations\*
*June 2018, EUR*

\* Expressed in a full-time equivalent

Source: State Revenue Service of Latvia (SRS), calculations by the Ministry of Economics

Registered Unemployment Rate and Average Gross Wage in Chemical and Pharmaceutical Industry

*End of July 2018 (SEA), June 2018 (SRS)*

Source: State Employment Agency of Latvia (SEA), State Revenue Service of Latvia (SRS), CSB, the Ministry of Economics

Age Structure of Employees in Chemical and Pharmaceutical Industry
*2017*

Source: CSB, calculations by the Ministry of Economics

Overall, chemical and pharmaceutical occupations are not exposed to the risk of severe labour shortages due to high replacement demand for labour.

**Approximately 69% of employed in chemical and pharmaceutical industry are under 44 years of age**;

thus, no significant signs of aging workforce can currently be observed. The highest average age of the employed remains among chemical products plant and machine operators, where approximately 35% of employed are over 44 years of age.

At the end of June 2018, 27 vacancies and 223 job seekers in the chemical and pharmaceutical industry at the State Employment Agency of Latvia were registered.

**The number of registered job seekers in the chemical and pharmaceutical occupations exceed the number of vacancies by more than 8 times.**

The largest number of vacancies was registered among chemical engineers and physicists and astronomers, which overall accounted for approximately half of all the registered vacancies in the chemical and pharmaceutical industry.

It should be noted that the ratio of the number of registered vacancies against the number of job seekers is not an indicator of strong labour shortage amongst the specialists in the chemical and pharmaceutical industry. The situation can partly be explained by the development of the chemical and pharmaceutical industry itself – no significant growth during the last decade in the number of new jobs has occurred.

In 2017-2018, 153 students graduated from higher education study programmes in chemistry and chemical technology. However, 117 graduated from the pharmaceutical study program.

Registered Unemployed and Job Vacancies in Chemical and Pharmaceutical Industry
*End of July 2018*

Source: State Employment Agency of Latvia (SEA)

Labour Force Demand and Supply Forecasts

In the medium- and long-term, it is anticipated that an annual growth of 5-6% could be reached, thus ensuring that the value added of the chemical and pharmaceutical industry at current prices would double by 2030. At the same time, it should be noted that the growth of the chemical and pharmaceutical industry will mainly rely on productivity growth; therefore, the growth of labour demand will remain moderate.

**Overall, more than 3,000 new workplaces in the chemical and pharmaceutical industry could be created by 2035, almost half of which will come from the manufacture of basic pharmaceutical products and pharmaceutical preparations.**

In terms of the number of workplaces, a significantly lower, albeit relatively rapid, increase in the labour force demand in scientific research and development, which is directly linked to the transfer of knowledge and innovations from research to final products and the increase in external demand for the corresponding services, could be observed.

Changes in the Labour Force Demand

*in thousands*

Source: forecast by the Ministry of Economics

Changes in the Labour Force Demand in Chemical and Pharmaceutical Occupations

Source: forecast by the Ministry of Economics

**Approximately ¼ of the total growth in the number of workplaces in chemical and pharmaceutical industry could occur in specialized industry occupations**.

In comparison to 2017, demand for specialists in the chemical and pharmaceutical industry by 2035 could increase by 2.5 thousand. Increase in the number of workplaces is anticipated in all chemical and pharmaceutical occupations. The largest increase, however, will be observed among physicists and astronomers, chemists, and pharmacists.

Source: forecast by the Ministry of Economics

Ratio of Labour Force Demand and Supply in Chemical and Pharmaceutical Occupations
*2025 (%), supply=100*

Along with an increase in labour demand in the chemical and pharmaceutical occupations, it is expected that in the medium- and long-term the demand for appropriate specialists will also increase. Nevertheless, in some chemical and pharmaceutical specialties the increase will not be sufficient to offset the growing labour demand. Therefore,

**labour force shortages could be observed among physicists and astronomers, chemists, chemical processing plant controllers, and chemical products plant and machine operators.**

It should be noted that, as in most medium qualification occupations, labour force supply of chemical products plant and machine operators will decline in the coming years due the age structure of employees.

SUMMARY

**ANNEX**

In 2017, 5.6 thousand people, or 0.6% of employed, were working in chemical and pharmaceutical industry.

Since 2010, the number of employed in chemical and pharmaceutical industry has increased by 0.9 thousand. Most of them were employed in the manufacture of pharmaceutical preparations and the manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations.

Although the unemployment rate in chemical and pharmaceutical industry is below the national average, significant labour force shortages cannot be observed. At the same time, problems with attracting appropriately qualified specialists, especially chemical products plant and machine operators, physicists and astronomers, may be faced by certain occupational groups in chemical and pharmaceutical industry.

Overall, more than 3,000 new workplaces in the chemical and pharmaceutical industry could be created by 2035, almost half of which will come from the manufacture of basic pharmaceutical products and pharmaceutical preparations. Approximately ¼ of the total growth in chemical and pharmaceutical industry could occur in specialized industry occupations.

In the medium-term, labour force demand will exceed labour force supply among chemical products plant and machine operators, chemical processing plant controllers, chemical and physical science technicians, chemists, and physicists and astronomers.

**Chemical and Pharmaceutical Industry**

|  |  |
| --- | --- |
| NACE 2 code | Sector and sub-sectors |
|  | **Manufacture of chemicals and chemical products** |
| C201 | Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms |
| C202 | Manufacture of pesticides and other agrochemical products |
| C203 | Manufacture of paints, varnishes and similar coatings, printing ink and mastics |
| C204 | Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations |
| C205 | Manufacture of other chemical products |
| C206 | Manufacture of man-made fibres |
|  | Manufacture of basic pharmaceutical products and pharmaceutical preparations |
| C211 | Manufacture of basic pharmaceutical products |
| C212 | Manufacture of pharmaceutical preparations |
|  | **Scientific research and development** |
| M721 | Research and experimental development on natural sciences and engineering |

**Occupations in Chemical and Pharmaceutical Industry**

|  |  |
| --- | --- |
| ISCO-08 code | Occupational groups and sub-groups |
| **2** | **Professionals** |
| 2111 | Physicists and astronomers |
| 2113 | Chemists |
| 2131 | Biologists, botanists, zoologists and related professionals |
| 2145 | Chemical engineers |
| 2262 | Pharmacists |
| **3** | **Technicians and associate professionals**  |
| 3111 | Chemical and physical science technicians |
| 3116 | Chemical engineering technicians |
| 3133 | Chemical processing plant controllers |
| 3141 | Life science technicians (excluding medical) |
| **8** | **Plant and machine operators, and assemblers** |
| 8131 | Chemical products plant and machine operators |

**Number of Employed in Chemical and Pharmaceutical Industry**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Fact |  |  | Estimate |  |
|  | 2006 | 2010 | 2016 | 2017 | 2025 | 2035 |
| **Manufacture of chemicals and chemical products** | **2725** | **2622** | **2846** | **2910** | **3440** | **4233** |
| Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms | 618 | 797 | 936 | 970 | 1092 | 1249 |
| Manufacture of pesticides and other agrochemical products | 15 | 28 | 42 | 44 | 53 | 67 |
| Manufacture of paints, varnishes and similar coatings, printing ink and mastics | 469 | 537 | 351 | 330 | 372 | 425 |
| Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations | 1112 | 837 | 1152 | 1202 | 1451 | 1833 |
| Manufacture of other chemical products | 370 | 324 | 244 | 243 | 314 | 438 |
| Manufacture of man-made fibres | 141 | 99 | 121 | 122 | 158 | 220 |
| **Manufacture of basic pharmaceutical products and pharmaceutical preparations** | **1957** | **1714** | **2120** | **2141** | **2709** | **3675** |
| Manufacture of basic pharmaceutical products | 160 | 130 | 98 | 102 | 124 | 159 |
| Manufacture of pharmaceutical preparations | 1797 | 1583 | 2022 | 2039 | 2585 | 3516 |
| **Scientific research and development** | **836** | **451** | **579** | **585** | **706** | **977** |
| **Total:** | **5518** | **4787** | **5545** | **5636** | **6855** | **8885** |

**Ratio of Labour Force Demand and Supply in Chemical and Pharmaceutical Occupations**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Demand thousands | Supply thousands | Demand vs. supply (“-” shortage) |
|  | 2025 | 2035 | 2025 | 2035 | 2025 | 2035 |
| **Professionals** | **4298** | **5103** | **4184** | **5044** | **-114** | **-59** |
| Physicists and astronomers | 1561 | 1875 | 1461 | 1807 | -100 | -68 |
| Chemists | 1001 | 1201 | 949 | 1166 | -52 | -35 |
| Biologists, botanists, zoologists and related professionals | 469 | 524 | 471 | 525 | \*\* | \*\* |
| Chemical engineers | 417 | 498 | 425 | 508 | 8 | 10 |
| Pharmacists | 850 | 1005 | 878 | 1038 | 28 | 33 |
| **Technicians and associate professionals**  | **1312** | **1688** | **1174** | **1590** | **-138** | **-98** |
| Chemical and physical science technicians | 273 | 354 | 240 | 295 | -33 | -59 |
| Chemical engineering technicians | 439 | 574 | 445 | 617 | 6 | 43 |
| Chemical processing plant controllers | 572 | 722 | 460 | 643 | -112 | -79 |
| Life science technicians (excluding medical) | 28 | 38 | 29 | 35 | \*\* | \*\* |
| **Chemical products plant and machine operators** | **1147** | **1321** | **1020** | **816** | **-127** | **-505** |
| **Total:** | **6757** | **8112** | **6378** | **7450** | **-379** | **-662** |

\*\* balance

**Age Structure of Employees in Chemical and Pharmaceutical Industry**

%

 **Professionals Technicians and associate professionals Chemical products plant and machine operators**