Industry Portrait 2016

Core Messages

- The chemical-pharmaceutical industry makes substantial contributions to prosperity in Germany. Investments and innovations from the industry help expand Germany’s leading position and make this country fit for the future.

- In 2014 the German chemical industry exceeded Japan in terms of sales and is since then ranking third among the “chemistry nations” with strongest sales.

- The industry is an important provider of impulses for the German economy. With its investments and application know-how, the industry constantly triggers further developments in industrial processing sectors. The chemical industry contributes every fifth patent of cross-sectoral significance.

- Irrespective of its eminent position, in a global comparison the German chemical-pharmaceutical industry has been losing in competitiveness since 2008.

- Internationally competitive framework conditions should be created to early counteract this negative trend. The following topics are of central importance: energy, raw materials, investment, research & development. Combined with consistent bureaucracy reduction and an active trade policy, the attractiveness of the location Germany can be maintained and enhanced.

Note:
All figures relate to the Chemical-pharmaceutical industry, unless otherwise noted.

Chemical-pharmaceutical industry: Core industry in Germany

Hardly any other industry has a comparably diverse product portfolio and a wide range of customers like the chemical-pharmaceutical industry. This portfolio includes not only products that are deemed classics in chemistry, like e.g. sulphuric acid, fertilisers or plastics; there are also cough syrups or care creams. Consequently, chemical-pharmaceutical companies have customers in the most different sectors and directly among final consumers.

Chemical products also reach consumers indirectly. As manufacturers of basic chemicals, chemical companies have close supply relationships with processors. Plastics processing, car-making or construction are just a few examples – chemistry is closely linked with almost all sectors. This makes chemistry an integral part of many value chains.

Not only are the products an indispensable part of daily life. Innovations and international competitiveness are further characteristics of the chemical-pharmaceutical industry, which is a guarantor for the industry location Germany. As the third-largest industry, its sales and investments decisively contribute to prosperity in this country. For example, the chemical industry accounts for ca. 11 percent of German industrial sales.

The chemical-pharmaceutical industry is highly capital-intensive. Over 13 percent of investments by the manufacturing industry in Germany fall to the share of chemical companies. Their investments increase the industry’s own production potential and secure the future of Germany as an industry location.

Companies are just as diverse as their products. Public perception is coined by DAX-listed, globally operating business groups – while most of the over 2,000 chemical undertakings in Germany have mid-sized structures. Over 90% of chemical undertakings have fewer than 500 staff. Overall, well over one third of jobs are provided by small and medium-sized enterprises (SMEs). Their strategy of opening up and filling niches, especially in fine and specialty chemistry, makes SMEs very successful. They contribute nearly 30 percent to the industry’s total sales. Quite often, they are world market leaders in their fields. Medium-sized enterprises are not only important suppliers to huge business groups but also major customers of the latter. This makes the chemical industry different from many other industries. No other chemical nation anywhere else has a “medium layer” of such strong performance and specialisation.

For historical reasons, the geographic centre of the German chemical and pharmaceutical industry is along the Rheinschiene (the railway line along the river Rhine). One third of chemical sales are generated in the federal state of North Rhine-Westphalia alone, followed by Rhineland-Palatinate and Hessen. In the new federal states of East Germany, especially Saxony-Anhalt should be mentioned as a chemical industry location. Chemical parks are another special feature of the

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<th>Indicators</th>
<th>2013</th>
<th>2014</th>
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<tr>
<td>Sales (in billion Euro)</td>
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<td>188.7</td>
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<tr>
<td>Production (change y/y in %)*</td>
<td>2.2</td>
<td>0.6</td>
<td>0.8</td>
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<tr>
<td>Employment (in 1000)</td>
<td>438</td>
<td>445</td>
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<tr>
<td>Exports (in billion Euro)</td>
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<td>169.0</td>
<td>178.5</td>
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<tr>
<td>Imports (in billion Euro)</td>
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<td>115.4</td>
<td>123.0</td>
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<td>FDI (stocks in billion Euro)</td>
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<tr>
<td>R&amp;D expenditure (in billion Euro)</td>
<td>10.0</td>
<td>10.1</td>
<td>10.5</td>
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Source: Statistisches Bundesamt, Deutsche Bundesbank, Stifterverband, VCI; *seasonal and working-day adjusted
German chemical industry. Their advantage is that they have all infrastructures and services available to the companies located there. Since 2000, production capacities are increasingly being built in chemical parks. This includes expansions of existing undertakings and companies new to the parks.

**High degree of added value in chemistry**

A high degree of added value ranks among the important singular characteristics of the chemical-pharmaceutical industry. Until used by other industries or final consumers, chemical products undergo many processing steps. For example, in a steam cracker the crude oil derivative naphtha becomes propylene which is next processed into polypropylene. With the help of several additives, polypropylene turns into a plastic material for further processing by the plastics industry.

This high degree of added value is both the consequence and the result of the wide product range in the chemical-pharmaceutical industry which consists of polymers, petrochemicals, inorganic basic chemicals, fine and specialty chemicals, detergents, personal care products and pharmaceuticals.

The sector of organic basic chemicals – which includes petrochemicals and polymers – has a share of 37 percent in the total production value of the industry; it constitutes the largest subgroup. Petrochemistry mainly provides products for polymer production. Polymers comprise plastics in primary form, synthetic rubber and man-made fibres. These products are largely supplied to industrial customers for further processing. Thus, plastic processors and carmakers are the major customers.

Unlike organic basic chemicals, fine and specialty chemicals are not produced in large volumes. This sector provides products that are precisely tailored to the customers’ specific needs. Here, it is often essential to achieve a guaranteed level of purity. Products are varied and highly heterogeneous. They include dyestuffs, pigments, paints, printing inks and sealants as well as pesticides, plant protectants and disinfectants. Most customers come from industry too. The largest customers are, inter alia, the construction industry, the paper and print industry, wood processing, agriculture and final consumers.

Inorganics account for 9 percent of the production value in the chemical-pharmaceutical industry. Typical goods are e.g. industrial gases, fertilisers, nitrogen compounds and other inorganic basic materials. They are supplied exclusively to industrial customers like metal manufacturers, the electrical industry and agriculture.

With a production value of 7 percent, detergents and personal care products are the smallest sector. Final consumers are the customers for its products, for example, soaps, detergents, cleaning and polishing agents and also fragrances and personal care products.

Pharmaceuticals are broken down in two large subgroups. Firstly, there are basic pharmaceutical products. Usually, they are processed right away inside the pharma industry. The second subgroup comprises all medicines and pharmaceutical specialties. Products from the pharma sector are mainly supplied to the domestic health care system (e.g. hospitals and pharmacies), or they are exported.

A glance at the supply relationships of the chemical-pharmaceutical industry shows that 50 percent of all products “made in Germany” are exported. 75 percent of those chemical and pharmaceutical products that stay in Germany are purchased by industrial customers, with the largest share of further processing remaining inside chemistry. Major other customer industries in Germany are rubber and plastic...
manufacturing, the automobile industry and construction. A small share is supplied directly to the service industry. The other 22 percent of products go to final consumers.

The chemical and pharmaceutical industry is an important economic factor not only as a supplier of inputs and products; it is also a major customer for industrial goods of both German and foreign origin. Roughly 50 percent of inputs (e.g. electricity, machinery or chemicals for processing) come from German production. One fifth of inputs fall to the share of services in Germany, for example, disposal and transport services or services in real estate (land/buildings). The chemical industry purchases the rest of the required goods and services from abroad.

At home on the world market

Since 2014 Germany has been no. 3 in the global sales ranking, following China and the USA. The chemical industry of Japan was exceeded for the first time.

Overall, chemistry has a positive foreign trade balance, contributing 56.6 billion euros to the trade balance of Germany.

The EU is the most important export market for Germany. Almost 60 percent of German chemical exports go to neighbouring countries. This region has been somewhat losing in importance due to much stronger growth in other regions, but this development is progressing very slowly. There are strong interconnections inside Europe.

Also outside the EU, there is a brisk demand for chemical products “made in Germany”. By way of exports, the industry has succeeded in benefiting from strong growth in other regions. In the past six years, mainly exports to Asia – in particular to China – have been growing. Exports to the USA and Eastern Europe have been on the increase too.

The industry opens up global markets not only with exports; companies also have production sites and participations in most countries worldwide. German chemical and pharmaceutical companies have been global players for a long while. In this connection, especially regions outside Europe are gaining in attractiveness due to the growing demand for chemicals that comes with progressing industrialisation and rising prosperity. Moreover, geographical distance and the comparatively huge transport effort for many chemicals make it interesting to open up non-European markets in a local approach. Against this backdrop, foreign investments by German chemical and pharma companies are much more dynamic than domestic investments.

With the end of the global economic crisis, activities abroad became even more attractive. In 2012 foreign investments exceeded – for the first time since 2001 – investments at home. In that year, chemical industry investments in fixed assets outside Germany rose by around 25 percent to 7.7 billion euros. Growth lasted in the following years, albeit at a more moderate speed. In the planning for 2015 of German chemical and pharma companies, ca. 8.4 billion euros are earmarked for foreign investments.
Source of technical progress

Germany is comparatively small and poor in raw materials. For this reason, innovations have always been important for the German economy. Innovations are a necessary factor of differentiation in the world market. The eminent position of German industry globally is not least attributable to Germany’s strength as a research location. This holds true especially for the German chemical-pharmaceutical industry which struggles with high energy and raw material costs at home and can only succeed in the world market thanks to innovations.

In the year 2015 the chemical-pharmaceutical industry invested 10.5 billion euros in research and development, accounting for nearly 16 percent of the R&D spending in the manufacturing industry. In a comparison with other industries, the chemical-pharmaceutical industry ranks third with its R&D spending. Around 90 percent of such spending is self-financed. The lion’s share of research (75 percent) is performed directly in the chemical companies. The cooperation with universities or research institutes is another important part of the chemical industry’s R&D activities.

Over 60 percent, the pharma sector has a particularly high share in the industry’s R&D spending. Research intensity is very high in the pharma sector. There are considerable requirements to the development of medicines, and innovation cycles to the time-to-market are very long for products.

The staff structure, too, allows conclusions about research intensity. Following the reductions in employment 2013, new jobs in R&D were created the year after. In 2014, just under 42,050 employees were working in the R&D departments of the industry. As a supplier to other industries, the chemical-pharmaceutical industry — with its patents, new products, processes and application know-how — is a driver of innovation with a strong multiplier effect. The chemical industry contributes every fifth patent of cross-sectoral significance in Germany. The industry constantly develops and improves new materials as well as innovative inputs and end products. There are more and more tailor-made problem solutions for customers, who are enabled to introduce new or better performing product lines in the international market. This technological and innovative lead is the success secret of German industry.

Six countries account for more than 80 percent of the global R&D spending in chemistry. Germany is the 4th largest location of chemical innovation, following the USA, China and Japan. The R&D spending is rising in industrial nations; it is just less dynamic than in emerging markets. The latter are taking an increasingly active role in research.

In a comparison of the strongest competitors, the R&D intensity (i.e. R&D spending measured against sales) of the German chemical-pharmaceutical industry is ranking somewhere in the middle. However, chemistry excluding pharma holds a top position. Overall, the German chemical industry is strongly oriented to innovation. For example, no other country has as many research-based companies as Germany. Germany is also a top league player in trading with research-intensive chemical products.
Sustainability: more than just marketing

The chemical-pharmaceutical industry is fully aware of its special responsibility for humans and the environment. The chemical industry is an alliance partner in the initiative Chemie3. The German Chemical Industry Association (VCI), the Mining, Chemical and Energy Industrial Union (IG BCE) and the German Federation of Chemical Employers’ Associations (BAVC) have set themselves the goal to underpin sustainability as the guiding principle in the industry. Here, the protection of humans and the environment as well as good and fair working conditions are the fundamental principles of action. The Responsible Care programme and the Social Partnership Chemistry are exemplary of this.

In 2013 the industry spent over 2.3 billion euros for operating existing environmental protection facilities, e.g. air and sewage purification plants. In the same year, the German chemical-pharmaceutical industry additionally invested 691 million euros in environmental protection.

Environmental protection investments are not the only measures. The sector is working to reduce greenhouse gases in production and to lower energy consumption. It develops products and processes that contribute to resource preservation in its own production activities, in other industries and at final consumers.

The industry has reduced its greenhouse gas emissions in Germany by 47 percent since 1990. Furthermore, when examining their entire life cycles, chemical products save twice as many greenhouse gases as are generated in their production. Thanks to plastic components and light-weight vehicle construction, vehicles need lower amounts of fuels. Insulators reduce the oil or gas consumption of buildings. Chemistry also paves the way for many energy-saving technologies of the future, e.g. biofuels from plant residues or e-mobility.

Chemistry is raw material and energy-intensive, accounting for over one fifth of the energy requirement in the manufacturing industry. Costs are growing for the scarce production factor energy. Optimising processes and methods helps to further reduce energy consumption. These efforts are successful: In the past 20 years the chemical industry has lowered its absolute energy consumption by ca. 20 percent – while increasing its production by well over 60 percent.

Novel products, processes and auxiliaries improve energy efficiency. They enable a better use of existing energy sources like mineral oil or natural gas, and new technologies – e.g. wind, solar or bio energy – are driven forward. “Green” technologies of the future are neither conceivable nor feasible without chemistry.

Sustainable action comprises not only a responsible approach to nature; it also means the awareness of social responsibility. With 446,282 staff the chemical-pharmaceutical industry is one of the largest and most attractive employers in Germany. The industry provides well-paid and secure, future-oriented jobs. Expert employees from the natural science-technical field are the capital of the industry. There are systematic investments in the training and advanced education of junior staff. In this manner, the industry continually increases the qualification standards for its workplaces. Promotion also takes the shape, for example, of financial support for natural science teaching in schools and universities. This commitment is nothing new to the industry. Already since the 1950s the chemical industry fund Fonds der Chemischen Industry has been supporting young talent. Companies provide vocational training, currently to around 20,000
apprentices. The high level of training and education in the industry is also reflected in its wages and salaries.

**Focus on the future**

The growing world population, urbanisation and energy determine our future. No answers can be found without the chemical industry. Its products and services are key to a sustainable development.

In the next 15 years the German chemical industry will benefit from the growing global demand for chemicals, especially from Asia and Latin America. With rising exports to 2030, chemical production in Germany can increase by 1.5 percent every year. This is the result of the update of the study "German Chemical Industry in 2030", performed by the research institute Prognos in cooperation with the VCI.

However, shifts in growth centres away from Europe to Asia will bring even more competitive pressure on chemistry at the location Germany. The industry will respond with a multi-layered adaptation strategy, in order to remain competitive.

- **Further improve efficiency:** Global competition and rising energy and raw material costs lead to even higher yardsticks for resource efficiency in the companies. Despite the growing production the consumption of energy and raw material will remain stable.

- **Emphasis on specialty chemicals:** Research-intensive and superior grade specialty chemicals for dyestuffs, plant protectants, specialty plastics and consumer products will gain further shares in production. Also in the future, innovations will make all the difference in the competition with other chemical nations.

- **Intensify innovation efforts:** By 2030 the industry will raise its research budget to nearly 2 percent per year.

- **Optimise the raw material base:** By 2030 chemical companies in Germany will use more renewables for their processes than they are doing at present. Today 13 percent of the raw materials used for chemical process are renewables. 2030 it will be 18 percent. There is a lasting qualitative change in the raw material base, which reduces the industry’s dependence on finite fossil resources. Already now, the industry uses annually ca. 2.7 million tonnes of plant raw materials, mainly for the production of specialty chemicals.

**Taking the necessary measures**

Politicians should create future-oriented framework conditions, so that the German chemical-pharmaceutical industry can realise its growth potential in the next decades. The necessary measures can be broken down in three categories: preserve and enhance the competitiveness of the location Germany; improve the framework conditions in Europe; and enable easy access to world markets.

**PRESERVE GERMANY AS AN ATTRACTIVE LOCATION FOR CHEMISTRY**

In a highly export-oriented country like Germany, politicians should create framework conditions that do not constitute a disadvantage in international competition. Germany is an attractive chemical industry location – still. But a study by Oxford Economics shows that chemistry in Germany has been increasingly losing in competitiveness since 2008. Most decisive for this loss in the attractiveness of the location are cost disadvantages for raw materials and energy. This adversely affects especially small and medium-sized chemical enterprises (SMEs). Here, energy costs due to the EEG-Umlage – charge under the German renewable energy act, which has risen significantly – have a major role.

- **Energy:** The German Energiewende (energy turnaround) is a huge economic challenge for the chemical industry. For example, the industry is paying ca. 1 billion euros in EEG-Umlage, irrespective of the EEG reform of 2014 and burden-easing for particularly energy-intensive plants. These costs are paid essentially by SMEs not benefiting from burden-easing. But not only financial costs are detrimental to competitiveness. German companies are mainly concerned about the reliability of investments and planning. A capital-intensive industry like chemistry has long investment cycles. If the rules on burdens and burden-easing for individual industrial sectors continue to come under political discussion in every second year, there is less confidence in the location. If it must be feared that the basis for investment decisions no longer exists in two years’ time, the companies see themselves forced to increasingly become active abroad.

- **Raw material base:** Beside energy costs, chemical companies in Germany continue to struggle mainly with expensive raw materials. Organic chemical production builds on carbon compounds. The mineral oil derivative naphtha is the major raw material source for this. Naphtha is an input for nearly three quarters of products. Raw materials from biomass and natural gas are used in much lower shares. Against this backdrop, the industry depends on reliable and competitive raw material supplies. State dirigism in the raw materials policy – with instruments such as quotas or taxation of fossil raw materials, intended to force the use of renewables – harms the industry and lacks awareness of the industry’s technical and economic restrictions.

- **Innovation:** Germany needs new innovations to make up for the competitive disadvantage of a resource-poor country. At the moment, this approach is still successful. But this differentiation characteristic should be further enhanced constantly. More incentives for innovation are called for, in order to strengthen the research location, stimulate growth and preserve the innovative ability of companies. For example, other major industrial countries usually grant tax credits of 8 - 20 percent for R&D activities. Fiscal incentives...
for research and development for both SMEs and large company groups would lead to a substantial increase in industry’s research activities. Furthermore, human capital is decisive for maintaining an attractive research location. Higher investments in education and easier incoming migration of qualified persons can increase the availability of qualified staff and thus counteract demographic change.

**Investment:** Usually, innovations only come about in a dynamic environment. This only forms where there is trust in the future of a location and where investment decisions are made in favour of that location. If the economic framework conditions are not right, new plants are constructed preferably elsewhere. This is acknowledged, inter alia, in the analysis of the investment behaviour in the chemical-pharmaceutical industry. In phases of falling competitiveness, domestic investments are reduced and more new plants are built abroad. Consequently, the necessary investments are not made at home where existing plants become obsolete. This further reduces the attractiveness of the location. A self-intensifying process is triggered and can lead to the tearing of value chains. The attractiveness of the home location is still strong enough to keep existing plants at the latest state-of-the-art and to achieve production growth of up to 1.5 percent. But an investment agenda is needed to prevent that the already emerging weakness of the location turns into an investment weakness and endangers competitiveness in the long run. Here, it is a major concern of the chemical-pharmaceutical industry to examine regulation as to obstacles to innovation and to make changes where they are necessary. More support for start-ups would be thinkable too.

The industry is also concerned about the weakness in public investment. In Germany investments – in relation to GDP – in infrastructure and other types of construction and buildings have been reduced for years. In an international comparison the infrastructure is still very good, but Germany has been losing in ranking for quite some time. Most importantly, there is the need to increase public investments in improving the transport infrastructure. More money should be made available for a long-term expansion of all modes of transport, according to their need for rehabilitation and volumes of traffic. Moreover, municipalities need support in the implementation of infrastructure projects. On the financial side, no form of funding – e.g. public-private partnerships – should be excluded right from the start.

**Bureaucracy:** The perception of the chemical industry location Germany is coined, inter alia, by complex bureaucracy. Already in 2006 the grand coalition government took the first steps towards bureaucracy reduction. With the measures enacted so far by the federal government, the costs of information requirements under existing legislation are reduced by 25 percent, as compared with the year 2006. But this is not sufficient to noticeably ease the burdens on the economy. In the future, the 25 percent reduction target should also apply to compliance costs of regulation.

**USE THE POTENTIALS OF EUROPE**

Europe is of enormous importance to the German chemical-pharmaceutical industry. Not only is the region the by far largest sales market for chemical products “made in Germany”; also, those political decisions that lastingly impact the location Germany are taken in Brussels. For this reason, the future success of German industry also depends on maintaining political unity and the European single market. Especially in the debt crisis and after the Brexit, there was a decrease in the political stability of the EU. Quite often, the EU is no longer perceived as a community of shared values but more and more as a community of transfers, steered by bureaucrats. European politicians are called upon...
to counteract such "tiredness of Europe". What is too little in some aspects is too much in others. For some time now, a trend has been discernible in the EU towards stronger interventions in the product market. The European institutions no longer limit themselves to creating well-functioning framework conditions; they are also increasingly intervening in the markets. For example, in the Ecodesign Directive they prescribe exact product properties – with the goal of reducing energy consumption or to make product recycling easier. In this approach, the EU is losing sight of the fact that massive interventions in the product market involve the risk of undermining industry’s ability to solve problems. In the worst case, with such a policy the EU precludes product innovations or even product novelties.

Like in Germany, the issue of bureaucracy is high on the agenda in Europe. Here, the initiative “Better Regulation” includes good approaches at the European level: more transparency and possibilities for consultation on technical measures, more detailed impact assessments, better quality control and a more systematic and comprehensive evaluation of existing legislation. The cluster chemicals regulation undergoes a fitness check. Also, an independent body is to be set up for looking into the impacts of legislative proposals by the Commission. This promising path should be further pursued.

ACCESS TO OVERSEAS MARKETS

Compared with other regions, growth dynamics are moderate in Germany and in Europe. If the German chemical industry wants to participate in progress in other regions of the world or contribute to shaping it, German chemical companies need easy access to world markets. This includes the Transatlantic Trade and Investment Partnership (TTIP). This project is about an ambitious and comprehensive free trade agreement which is discussed controversially in the public. TTIP is intended to go far beyond the rules of the World Trade Organization (WTO). The goal of TTIP is to eliminate tariffs in the movement of goods as well as non-tariff trade barriers and to create mechanisms for regulatory cooperation. It is also intended to set high standards of investor protection and to reform investor-state arbitration.

The German chemical industry will benefit from tariff elimination. In fact, tariffs on chemicals only average 2.8 percent in transatlantic trading, but – given the huge trade volume – German chemical companies would save ca. 140 million euros annually in tariff payments. However, studies show that the greatest welfare potential lies in the facilitation of transatlantic trading through regulatory cooperation. Different legal requirements cause high costs. In the short term, this is only about better cooperation between both administrations and their regulatory agencies and about avoiding unnecessary duplication. For example, the chemical industry manufactures precursors for medicines; this is subject to strict controls by the monitoring agencies. Comparable test standards on both sides of the Atlantic would enable the parties to agree on a mutual recognition of inspections.

Existing standards in the protection of environment, health and consumers are not affected. The EU chemicals regulation REACH and the US TSCA cannot be mutually recognised, because these systems are too different. Regarding new legislations, the parties only undertake to cooperate – they do not commit themselves to achieve joint results. The regulatory autonomy of the countries is not affected, either. TTIP can be a blueprint. The agreement paves the way for better rules for the following: public procurement and access to energy, liberalisation of services, protection of intellectual property – or a prohibition of export taxes.

The free trade agreement reflects many points that the chemical industry generally calls for in the trade policy. Chemical tariffs should be eliminated in all countries with major chemical productions. This should not be limited to industrial nations – emerging countries should open their markets too. The best way for this is a multilateral agreement within WTO.
Annex: Definitions and Reporting

The German chemical industry association Verband der Chemischen Industrie e. V. (VCI) reports on the business situation of chemical undertakings located in Germany. Consequently, the “German chemical and pharmaceutical industry” also includes subsidiaries of foreign company groups (e.g. DOW Deutschland). However, VCI reporting does not include foreign subsidiaries of German company groups (e.g. Evonik USA). Decisive for this definition is invariably the location of the undertaking and not where the company group is headquartered.

Production is the most important indicator for business reporting. Production is calculated monthly by the German Federal Statistical Office (Destatis) in the form of an index, based on reports from the undertakings. An index is a dimensionless parameter; it refers to a given base year. The volumes produced in each product group are covered. These volumes – weighted by gross value added – are aggregated to the production index of the chemical industry. Thus the changes in the production index reflect the development of produced volumes, by approximation.

The VCI obtains information on price developments in chemistry from the Destatis producer price statistics. Destatis calculates the producer price index that measures the price development of all chemicals produced in Germany and sold domestically. The producer price index is compiled monthly.

Sales statistics provide information on sales by chemical undertakings located in Germany. Here, an undertaking is included in the chemical industry if the majority of staff are engaged in the production of chemical products. Measuring for these statistics covers the total sales of any one undertaking, including non-chemical sales and trading sales.

Where an undertaking sells to domestic customers, this is included in domestic sales. Where sales are made to customers located abroad, this is included in foreign sales. Currently, around 60 percent of sales are achieved in business with customers abroad.

Data on sales, domestic sales, foreign sales and staff are gathered monthly for undertakings with 50 or more staff. These key data are compiled only once annually for all chemical undertakings (> 20 staff).

Quite often, the “rule of thumb” (production growth plus price growth equals sales growth) does not apply. Beside statistical reasons and exchange rate effects, this is mainly due to the time difference between production, sale and reporting to Destatis. Stockpiling effects are greatly important in this connection.

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