Volume 8
November 2015

1

Regions & Locations Guide

For the Chemical and Life Science Industries

- Chemical Parks
- Life Science Clusters
- Economic Perspectives
- Europe – Americas – Asia
- Investment Opportunities

CHEManager

CHEManager INTERNATIONAL

WILEY

51° N 7° E

DO YOU KNOW YOUR FIT FACTOR?

Looking for a new location for your company? We're here to help.

Will your plant have a high energy demand? What raw materials are required? Do you need assistance throughout the permit process?

With our investment tool, it only takes a few minutes to see how well your company will fit in at CHEMPARK. Just enter the internet address and here we go!

Of course you can also give us a ring in case you have any questions. Contact us – we look forward to hearing from you!

investoren.chempark.de/en/

Powered by CURRENTA

Contact:
Currenta GmbH & Co. OHG
Dr. Regina Schade-Lehn
51368 Leverkusen

Phone: +49 214/30 72 41 5
Mail: regina.schade-lehn@currenta.de

CHEMPARK
Europe's Chemical Park
Leverkusen
Dormagen
Krefeld-Uerdingen

Hard Facts and Soft Skills

Dear Reader,

When looking for a location to invest in a production facility, a research center or an office building, companies need to consider numerous factors. There is an increasing competition among locations for investments but it is not just the growth perspectives of the market, the quality of infrastructure or the attractiveness of frame conditions that tip the scales in favor of one location. In times of growing geopolitical uncertainty and economic volatility, investors and entrepreneurs are also looking for a "safe haven" to put their money in.

Investors may compare locations not only by their "hard facts" but also — so to say — their "soft skills". As, for instance, the availability of workforce is becoming increasingly crucial, employers have to go the extra mile in order to attract highly qualified specialists. Therefore, choosing the ideal location will make staffing and operating easier. A region or country's quality of life, climate and landscape, its level of personal security, the efficiency of the health system, and the reliability of public transport may in the long run outweigh some shortfalls on the economic or financial side.

In this 2015 edition of 'Regions & Locations Guide' we are again focusing on investment and operating conditions in regional markets, countries, chemical and life-science clusters as well as industrial and chemical parks. With substantiated market reports and location profiles, our annual special issue of CHEManager International provides essential information for investors from the global process industry and assists strategic decision makers in facilitating investment decisions.

Take the time to read this issue, it will be time well invested.

Dr Michael Reubold

Dr Michael Reubold and the Regions & Locations Guide team

The Chemical Quotient

New Measure to Compare Locations for Chemical Investments

What should be the key criteria when searching for the best location for a chemical investment? One might do worse than to use the guiding principle of famous bank robber Willie Sutton. He reputedly once replied to a reporter's inquiry as to why he robbed banks by saying „because that's where the money is." For a chemical company, this would mean to locate the investment wherever the market is.

But then how to decide this? The GDP of a country may not be an ideal parameter as it includes many industries — particularly providing services — which make very limited use of inputs from the chemical industry. Alternatively, one may use the global chemical market share of different countries (fig. 1) in order to evaluate a country's attractiveness for a chemical investment.

Global market shares certainly give useful guidance, but the measure still has some weaknesses as will be explained later.

This article introduces a new measure to facilitate or support a location decision-making – the Chemical Quotient (CQ). The CQ compares the global share of a country's chemical market with the country's share of global GDP according to the equation:

Dr Kai Pflug,
Management Consulting – Chemicals

CQ = (global chemical market share) / (share of global nominal GDP)

A CQ value above 1 means that the chemical market of a country has a higher importance than its share of global GDP would suggest. Similarly, a CQ value below 1 means the chemical market of a country is below its expected value based on its share of global GDP of a country.

CQ Values for Selected Countries

Fig. 2 shows the CQ for the 30 countries with the biggest global chemical market share. Together, these countries with a global chemical market share of at least about 0.4% account for a total of about 90% of the global chemical market.

It is important to note that the CQ is a measure for the relative importance of the chemical industry within a country, i.e., the CQ gives an indication whether the chemical industry is an important one in that country compared to the other industries in the same country. A CQ above 1 means that the relative importance of the chemical industry in that country is higher than global average, while a CQ below 1 indicates that the importance of the chemical industry in that country is below the global average. The CQ does not directly indicate the size of the chemical market. For example, the CQ may be low if overall GDP of a country is very high and its chemical market size is quite large but not dominant, which is the case for Japan.

Market Conditions Related to CQ

For some investments, the CQ may be a more relevant indicator of the attractiveness of a location than the chemical market share – even though the chemical market share directly correlates to the size of the chemical market.

This is because a country with a high CQ (remember, this means the chemical industry is of comparatively high importance in this country) should have a comparatively good chemical industry infrastructure for a country at its GDP level. This may affect many different aspects including

- a larger pool of qualified and experienced employees,
- a broader range of suppliers to the chemical industry, e.g., with regard to equipment, water treatment, waste management,
- a larger portfolio of service offerings to the chemical industry, e.g., more chemical distributors, logistics providers,
- more experienced and potentially more sympathetic government authorities as they both deal with chemical companies more frequently and as those also represent a larger share of their tax income,
- a larger potential for cooperation with third parties, e.g., other chemical companies, downstream clients or research-oriented institutions such as universities,
- and stronger export orientation of the chemical segment or of its main customer industries.

In contrast, a country with a low CQ may indicate that the interests of the chemical industry in that country are regarded as less important (as, for example, the chemical industry provides only a limited number of jobs). In addition, there may be a smaller number of skilled employees, customers may be more widely dispersed, and service offerings to the chemical industry may be much more limited.

Examples

To illustrate the difference between chemical market share and CQ, let us look at some examples. At 50.8 billion € in 2013, the chemical market size and global market share of the Netherlands and Italy are almost identical. However, the CQ of the Netherlands is much higher (1.4 compared to 0.6) as

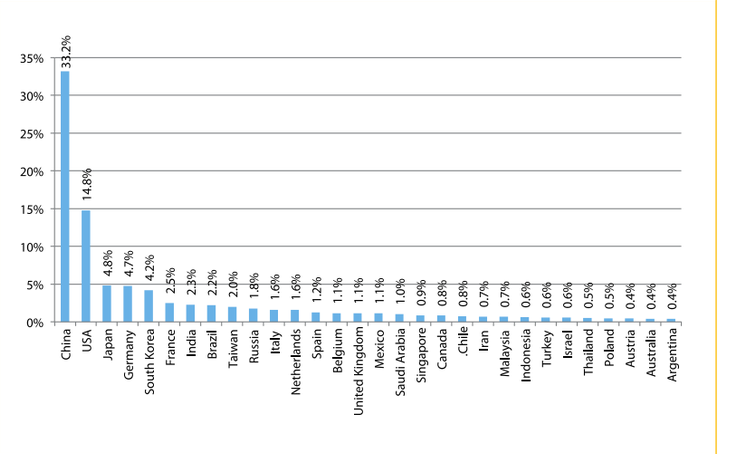
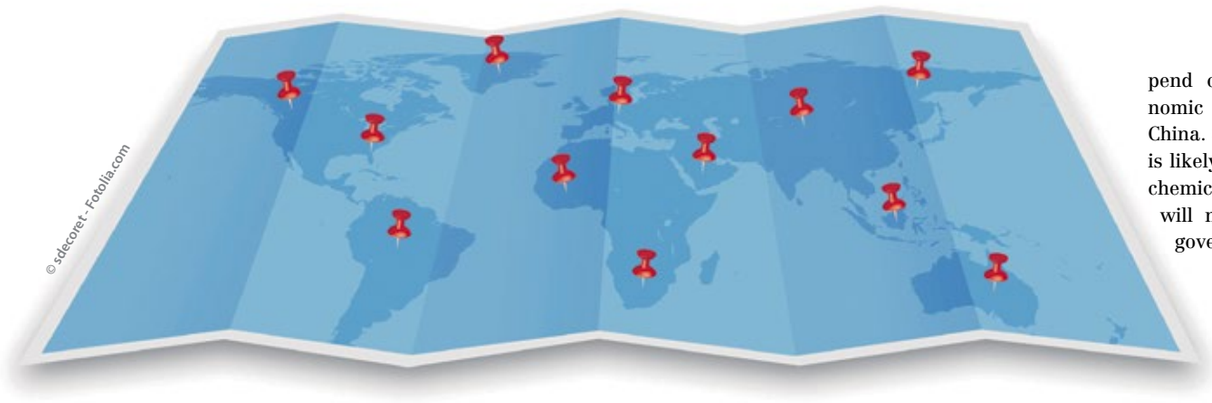


Fig. 1: Global chemical market share of the top 30 countries



the GDP of the Netherlands is smaller — or in other words, the chemical industry is relatively more important in the Netherlands than it is in Italy.

And indeed, when comparing the attractiveness of these two locations, many of the points made regarding the advantage of a higher CQ will apply to the Netherlands but not to Italy. As a consequence, the Netherlands as an investment location benefits both from lower costs (e.g., logistics) and qualitative advantages (e.g., higher proximity of other chemical companies as cooperation partners, suppliers, customers or source for employees). So the concept of the CQ suggests that an investment in the Netherlands may be superior to one in Italy (assuming other factors are equal).

Similarly, Singapore and Canada have similar-sized chemical markets (SGP 27.7 billion USD, CAN 26.6 billion USD) but hugely different CQs (SGP: 2.2; CAN: 0.3). Which of these two locations is likely to be more experienced in dealing with chemical investments? Which one will likely offer better synergies with existing businesses already established at the location? Which one is more likely to offer opportunities for exports?

In the case of a large country such as Canada, it may even be worth considering the CQ of particular provinces or regions within a country. For example, Ontario is Canada´s province with the highest concentration of chemical industry, and indeed the CQ of Ontario is 0.7 rather than the 0.3 calculated for the country as a whole. Consequently investing in chemicals in Ontario will have some advantages compared to doing the same in the rest of Canada.

Mature and Emerging Markets

A high-level analysis of the CQ by country confirms the status of the chemical industry as a fairly mature industry that is part of the overall manufacturing segment. With some exceptions, the CQ therefore is comparatively high for those countries which serve as global production centers (mostly China and its satellite economies). In contrast, the shift to the service sector in countries such as the US and particularly the UK leads to these countries having low CQs.

For Europe, the analysis also shows the comparatively high importance of the chemical industry for Germany — it is the only larger highly developed country with a CQ near 1. In addition, the CQs identify some smaller countries (Belgium, the Netherlands) as locations in which the chemical industry plays a larger than average role.

In addition, the CQ analysis shows the importance not only of China for chemicals, but also of chemicals for China. This latter importance even includes some economies (particularly Korea, Taiwan) which strongly depend on their proximity and economic exchange with mainland China. Given this high importance, it is likely that the requirements of the chemical industry in China as a whole will not easily be ignored by the government.

Conclusion

The newly defined Chemical Quotient (CQ) can be a valuable tool in comparing potential locations for chemical investments, as the relative importance of chemicals in a country´s economy surely provides some information on its attractiveness for chemical companies.

Author
Dr. Kai Pflug, CEO, Management Consulting – Chemicals, Shanghai, China

Contact
kai.pflug@mc-chemicals.com
www.mc-chemicals.com

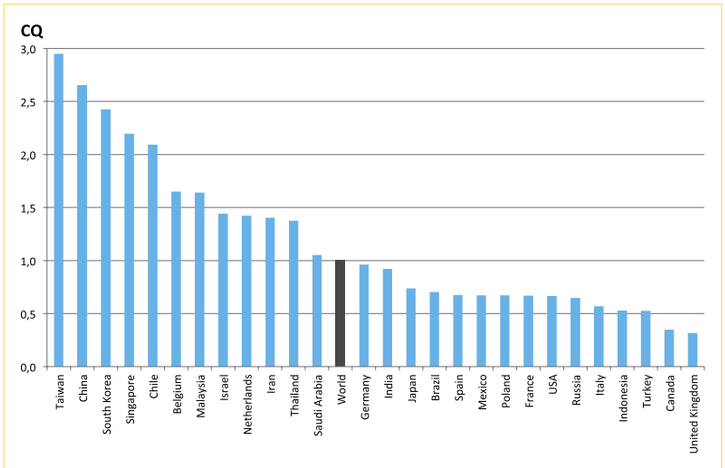


Fig: 2: Chemical Quotient (CQ) for the 30 countries with the biggest global chemical market share (down to 0.4%).

Chemical Connections

How Liberalized Chemicals Trade Underpins Global Value Chains

Chemicals are vital to our wellbeing. They help us grow more abundant crops and preserve our food. In the form of plastics, rubber and foam, they help make our homes, factories and vehicles clean and comfortable. They enable us to make safer, lighter, cheaper, more durable goods and structures. And they help us to extract energy and use it efficiently. A recent CEFIC publication, entitled "Chemical Connections", notes that trading chemicals around the world stimulates competition, provides an incentive to develop new markets through innovation and stimulates production efficiency. But above all, it helps to improve the quality of human life.

Most chemical products are intermediates, used in the production of other goods. The chemical industry underpins virtually all sectors of the economy and its strategies impact directly on downstream chemicals users. The big industrial users of chemicals are rubber and plastics, construction, pulp and paper, and the automotive industry. Nearly two-thirds of EU chemicals are supplied to the EU industrial sector and more than one-third of chemicals go to other branches of the EU economy such as agriculture, services, and other business activities. The rise of global value chains gives all countries an interest in keeping chemical import duties low. Nowadays trade is no longer about "produced here, sold there" but "produced everywhere, sold there".

Servet Gören, CEFIC

Future Economic Growth Beyond Europe's Borders

Since 90% of GDP growth will take place outside Europe in the next decade, international trade should be a potential growth driver of the European chemical industry, bolstering sales and jobs. But barriers need to be stripped away. Despite some multilateral trade deals within the GATT framework and some bilateral agreements between the European Union and its partners, much remains to be done in opening markets. And our industry also needs better access to affordable energy and raw materials and greater harmonization of standards and regulations around the world. A more coherent policy framework would help the European chemical industry fulfil its vocation of ensuring that by the year 2050 more than 9 billion global citizens live well, within the resources of the planet.

Surging Population

Between 2014 and 2050 the world's population will surge from 7.2 billion to 9.5 billion, according to the United Nations. But over the same period, Europe's total population will decline to 709 million, just 7.4% of the total. Meantime Asia's population will grow

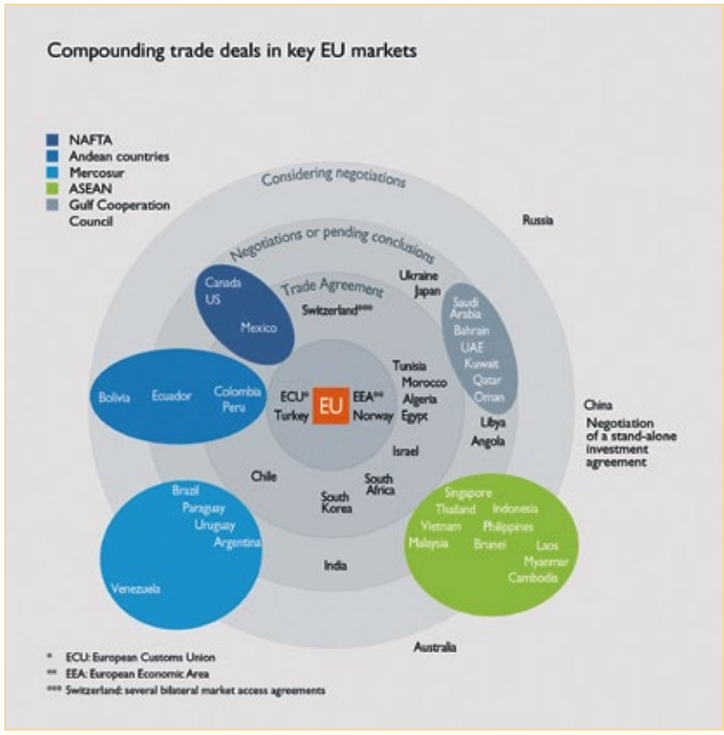


Fig. 1: Compounding trade deals in key EU markets

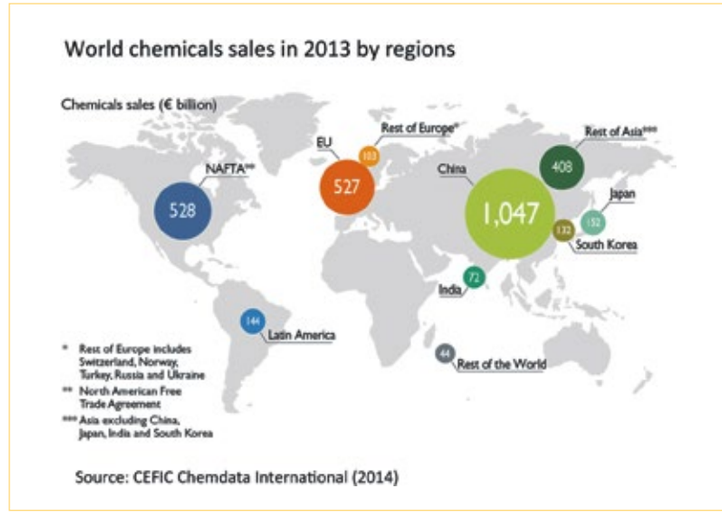


Fig. 2: World chemicals sales in 2013 by regions

> **Trade barriers need to be stripped away.**

to 5.1 billion, 54% of global citizens, and Africa will be home to 2.3 billion, twice as many as today, and a quarter of those on our planet. World chemicals production is set to almost double from €3.2 trillion in 2014 to €6.3 trillion in 2030. But most of this growth will be outside the EU: If Europe's industry is to grow and share in the rewards, Europe must reinforce its role as a chemical exporting region.

Why Liberalized Trade Needs to Happen

Growth in post-recession Europe remains low, hampered by mature markets and an ageing population. Domestic and international economic uncertainty aside, EU chemical industry exports did reach €138 billion in 2014, delivering an EU chemicals trade surplus of nearly €44 billion.

Given an appropriate domestic and international policy framework, the European chemical industry has strong potential to benefit from further forecasted growth in global chemicals demand. The industry firmly supports the European Commission's endeavors to underpin the internationalization of European companies and further liberalize trade — preferably at multilateral level through the World Trade Organization (WTO) or via bilateral or regional trade agreements such as the Transatlantic Trade and Investment Partnership (TTIP) or proposed EU-Japan Free Trade Agreement.

Multilateralism Is the Best Option

By its nature, the chemical industry benefits from liberalized trade. Its products are hugely diverse, innovative, widely used, and its plants and employees are located worldwide. Improving trading opportunities for chemicals can make the industry more competitive.

The successful Uruguay round of multilateral trade talks in 1994 achieved the Chemical Tariff Harmonization Agreement (CTHA) and Pharmaceutical Agreement, which harmonized chemical import duties at just 6.5%, 5.5% or 0%. CEFIC then started advocating a new, ambitious and pro-active agenda. The successive extensions of the CTHA to new members of the WTO and updates to the Pharmaceutical Agreement have delivered tangible benefits for the industry as well as for consumers worldwide. Consumption and production of chemicals is growing most strongly in emerging and developing economies and in global value chains. If the WTO lives up to the proclaimed importance of global value chains, the goal of the Doha round should be to substantially reduce or eliminate tariffs for intermediate products including chemicals to help the development of these economies.

The European chemical industry is being increasingly harmed by measures in other regions including double pricing, export restrictions and export taxes. The chemicals sector is especially concerned about discriminatory practices regarding ethylene feedstock, gas, palm oil and important minerals such as yellow phosphorous, fluorspar or rare earths. It therefore welcomed rulings by the WTO Dispute Settlement Body that export duties and export quotas applied by China to rare earths, tungsten and molybdenum breached its WTO obligations. CEFIC supports the strong stand the European Commission takes against breaches of WTO obligations and the Commission's pursuit of bilateral free trade negotiations. But ultimately we need improved rules governing access to raw materials at multilateral level.

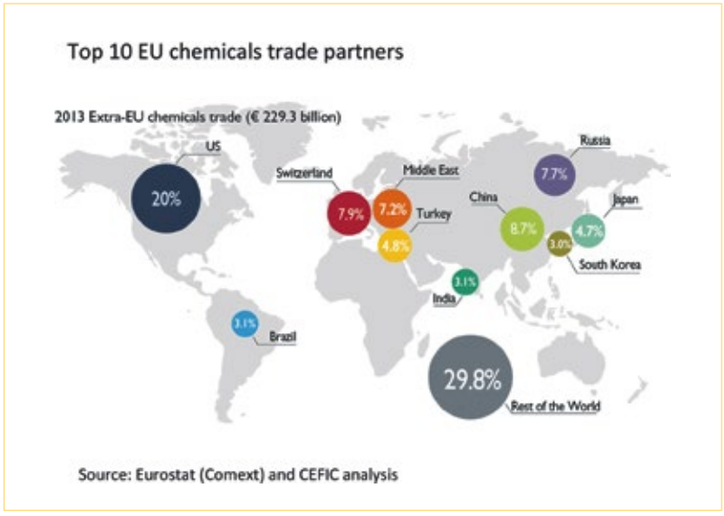


Fig. 3: Top 10 EU chemicals trade partner

> **TTIP would help companies compete more effectively in increasingly globalized chemicals markets.**

Doing Bilateral Deals

Because the Doha round has made such slow progress, the EU and other regions and countries have sought to liberalize world trade via bilateral Free Trade Agreements (FTAs, c.f. figure 1). CEFIC considers that FTAs complement the search for a multilateral deal and offer opportunities to achieve agreements in areas that are not yet or not sufficiently addressed by the WTO.

Negotiations on a radical, far-reaching trade agreement, known as the Transatlantic Trade and Investment Partnership (TTIP) began in July 2013 and are ongoing. TTIP can help reduce the cost of trading with the US in various ways. A deal would help companies to compete more effectively in increasingly globalized and competitive chemicals markets. On Japan, negotiations for an EU-Japan Free Trade Agreement were launched in March 2013, and are proceeding. An FTA with Japan not only has the potential to enhance market access and regulatory coherence between the EU and Japan, but it will also pave the way for other bilateral and multilateral negotiations with and between Asian economies. It can also contribute to broader acceptance of world standards by Japan, where many barriers stem from stricter Japanese standards. And thirdly, an agreement with Japan could reduce any handicaps suffered by European companies arising from the recently concluded negotiations on the Trans-Pacific Partnership (TPP) agreement to which the EU is not a party. For the same reason we welcome the announced negotiations with Australia and New Zealand and to start new ASEAN FTA negotiations — when appropriate — with the Philippines and Indonesia.

The EU chemical industry has also a lot to gain by increasing our chemical connections with regions as India, China, Gulf Cooperation Council (GCC) and Mercosur. In order to spur EU chemical industry growth in all these regions requires eliminating all chemical tariffs and removing all trade barriers including export restrictions and export duties on raw materials. Ensuring effective protection and enforcement of intellectual property rights is essential to give investors confidence and foster innovation. Non-tariff barriers such as double-testing of products and burdensome licensing and labelling requirements, and failure to comply with international standards prevent the EU and these regions achieving the full commercial potential of their chemical trade.

Broad-Based Tariff L iberalization Needed

Despite talks about the importance of global value chains, many countries have yet to draw logical conclusions that growth of all their economic sectors requires liberalization of not only end-products but especially of intermediates like chemicals. A narrowly focused environmental goods agreement presently being pursued by a group of countries therefore misses the point. The world economy needs broad-based tariff liberalization, including ambitious tariff reductions for chemicals. The plethora of regional and bilateral trade deals being struck may reinvigorate participants to agree international trade rules under the aegis of the WTO. If the WTO is to keep relevance for 21st century trade, it must include in its agenda more ambitious deals at regional level.

Author
Servet Gören, international trade manager, CEFIC, Brussels, Belgium

Contact
sgo@cefic.be
www.cefic.org

Poised For Growth

Chemistry is at the Heart of the US Economy

Chemistry: it's in everything and it's everywhere. In fact, nearly all manufactured goods are directly touched by chemistry, either as a material, in processing, or in some other value-added means. The US is a global leader in chemical production, providing over 15% of the world's chemicals and representing 14% of all US exports. It is also one of the US's largest manufacturing industries, an $801 billion enterprise providing 804,000 high-paying jobs.

Heather R. Rose-Glowacki, American Chemistry Council

The business of chemistry is a $5.4 trillion global industry. Over 96% of all manufactured goods — from permanent-press clothing to protective packaging materials to strong and light composite materials in aircraft — are directly touched by chemistry.

In 2014, the US produced 1.2 billion t of these essential chemicals and chemical products, valued at $801 billion (the value of the US chemical business is measured along the lines of the value of its shipments, as reported by the US Bureau of the Census). Generally speaking, the composition of chemical shipments by segment in the US mirrored global activity. Basic (or commodity) chemicals made up $334 billion (42%) in shipments; of those, more than half were bulk petrochemicals and intermediates, followed by plastic resins, and inorganic chemicals. The second largest segment was pharmaceuticals, including prescription and over-the-counter drugs and other pharmaceutical preparations for both human and veterinary use, with $178 billion (22%). Specialty (or performance) chemicals, like adhesives and sealants, catalysts, coatings, electronic chemicals, and plastic additives, accounted for $150 billion (19%), followed by consumer products ($91 billion, 11%) and agricultural chemicals ($46 billion, 6%).

Geographical Footprint of the US Chemical Industry

Chemicals (and chemical products) are produced in nearly every US state; however, most production of basic chemicals is concentrated in the Gulf Coast region, where petroleum and natural gas raw materials are more readily available than in other parts of the country. In fact, about 70% of all primary petrochemicals are produced in Texas and Louisiana. The business of converting these basic chemicals into plastics, synthetic fibers, rubber, and other chemical products is not as heavily concentrated on the Gulf Coast and tends to be more diffused. For example, the majority of synthetic fiber production occurs in the Southeast, while production of other chemical products is more widely dispersed among the states.

Jobs Generated by the Business of Chemistry

Although chemical production is relatively concentrated, geographically speaking, the industry's economic impact is not just about geography. Not only does it support nearly 25% of the US GDP, the chemical industry directly employs over 800,000 people in roles such as equipment operators, engineers, sales managers, scientists, and environmental protection professionals. An additional 2.6 million jobs are supported by the suppliers to the chemical industry, jobs such as equipment manufacturers, wholesalers, contractors, construction workers, and transportation operators. Moreover, another 2.5 million jobs are supported through the indirect purchases of the industry's suppliers and its employees. For every direct job created by the chemical industry, more than six additional jobs are generated elsewhere in the economy, totaling nearly 6 million jobs.

Investments in Plants and Equipment

The chemical industry's investment in its employees is significant. The complex nature of the business of chemistry often demands highly-trained, skilled and educated workers, and these workers are well compensated, both in terms of salary and benefits. In fact, the average annual pay in the chemical industry is 47% higher than the average in manufacturing industries as a whole.

Chemistry is a capital-intensive industry and employment is only part of the investment picture. The business of chemistry is consistently one of the largest US private-sector investors in new plants and equipment (P&E), to the tune of $33 billion in 2014. A majority of that investment went toward major process equipment.

The reasons for investing in P&E are numerous, and those reasons shift over time. Data collected by ACC from its members indicate that major motivations of capital spending were replacing worn-out plant and equipment, expanding capacity for existing products, and projects for improving efficiencies. In fact, in 2014 companies reported spending more on capacity expansions for new and existing products (as a percent of total

spending) than had ever been reported (since ACC started collecting data in 1992).

Investments in Research and Development

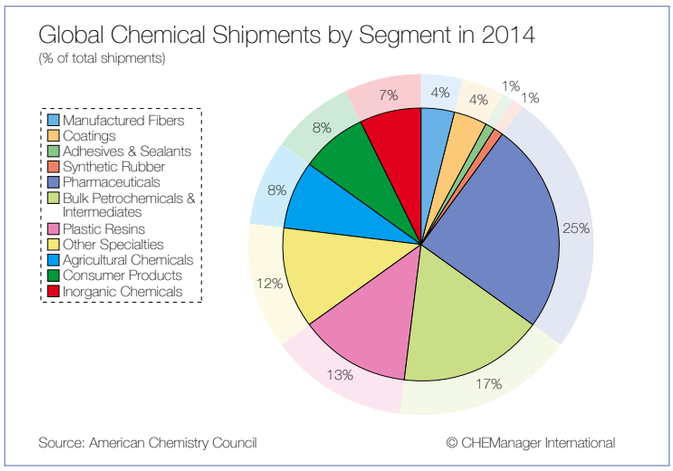
Indeed, spending on capacity for new products has doubled in the past decade. And these new products, which are key to the competitiveness and economic growth of the industry, are made possible through investments in research and development (R&D).

The chemical industry is constantly evolving, and it has to. R&D is a critical component of competitiveness; basic and specialty chemical companies typically allocate 2–3% of their annual sales toward R&D. In the pharmaceutical segment, that number can be as high as 25%. In 2014, the US chemical industry invested $59 billion in R&D, leading to improved process technologies, new chemical compounds and new applications, all of which are driving forces of the continued competitiveness of the US chemical industry, both domestically and internationally.

The chemical industry, like others, has become increasingly global in nature, particularly in recent history. World economic growth and the reduction of tariffs, as well as advances in technology, telecommunications and air transportation, continue to foster this globalization. During the past decade, world trade in chemicals, more than a third of which is intra-company in nature, grew faster than global output.

In the US, the chemical industry is the largest single exporting sector. Canada is the largest national market for US chemical exports, followed by Mexico; other large markets include Western Europe, Latin America, China and Japan. Imports also represent a significant portion of US chemical trade: more than half of US chemical imports are inputs used for domestic production. Canada is one of the largest exporters to the US, mostly plastic resins and commodity chemicals. With increasing pharmaceuticals trade (48% of chemical imports to the US are pharmaceuticals), Ireland has also become one of the largest exporters of chemicals to the US. On a regional basis, the US imports the largest amount of chemicals from Western Europe, a significant portion of which is trade between related parties.

The US chemical industry is vital to continued economic expansion, job creation, and the return of a strong domestic manufacturing sector and, right now, the US chemical industry is poised for growth.



Global Chemical Shipments by Segment in 2014 (% of total shipments)

Author
Heather R. Rose-Glowacki,
Director Chemical & Industry Dynamics,
American Chemistry Council, Washington, D.C., USA

Contact
heather_rose@americanchemistry.com
www.americanchemistry.com

© Ilyes Laszlo - Fotolia.com

Proméxico to Collaborate with Shell and BP

Earlier this year, ProMéxico, the Mexican government agency that drives foreign trade by promoting the export of Mexican products, the internationalization of national companies, and the attraction of foreign investment to the country, has signed two collaboration agreements, one with Royal Dutch Shell, and the other with British Petroleum (BP).

As part of the Mexico Energy Reform Summit, the head of ProMéxico, Francisco N. González Díaz, signed the two collaboration agreements under the Transnational Partnership (ACT) model to develop Mexican oil and gas supply chains. The main objective of the agreements is to support the Mexican government in the development of the national supply chain, in order to obtain more competitive inputs that meet the national content requirements provided for in the energy reform.

The agreements also seek to identify opportunities for Mexican companies to integrate global value chains in the oil and gas sector; as well as possible strategic partnerships or investment options between Mexican and foreign companies.

www.promexico.gob.mx

Shy Rebound Expected for Brazil's Manufacturing Sector

Brazil's recession is deepening, according to the most recently released statistics. Output of Brazil's manufacturing industry decreased by 8.4% year over year between January and April 2015. The weakness of the automotive industry continues to negatively affect activity in most intermediate industries. Thus, output of Brazil's chemical sector will probably decline by 6.5% in total this year compared with last year.

Brazil's poor economic performance has also tipped the scale for the latest manufacturing production index for Latin America released by the Manufacturers Alliance for Productivity and Innovation (MAPI) which is expected to decline 0.9% in 2015. MAPI said in July that although the regional picture masks sizable differences across countries the poor performance of the regional index is explained by the deeper than expected recession in Brazil.

For 2016, the MAPI Foundation's forecast for Brazil's manufacturing production shows a shy rebound. The index is expected to rise 0.7%.

www.mapi.net

© Ilyes Laszlo - Fotolia.com

Overcoming USA Sales Resistance

The European Corporation's Guide to USA Market Entry

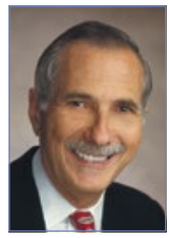
It is estimated that more than 60% of German companies attempting USA market penetration, subsequently fail and withdraw from the market. Europeans often incorrectly attribute this to differences in European versus American corporate cultures, or alternatively to American chauvinism (buy American). Neither of these are the root cause. Thus, Europeans address the wrong potential problems when planning for USA market entry.


© mshch - Fotolia.com

The cause for USA market resistance stems from the perceived lack of the Europeans' commitment to the USA market, as viewed, and sometimes experienced by the Americans. Thus, the Europeans are asking the Americans to take the related risks that the Europeans will be available long term to provide for after sales service, quick delivery times and availability of spare parts. Ultimately, if the European continues to make losses in his attempt to enter the USA, the European will indeed withdraw, thus abandoning the Americans. It is important to note that the decision regarding withdrawal is made totally by the European manufacturer. Thus, he is asking the American to take a risk on the European's USA longevity, notwithstanding that the American has no control over this decision.

Cultural Similarities and Differences

Admittedly the corporate cultures on the two sides of the Atlantic are not identical. However, the similarities are much greater than the differences. Both are hierarchical. Also, for European innovations where there are no American competitors, the "buy American" explanation cannot apply. How then can Europeans overcome the market resistance encountered when entering the USA?



Dr Marvin L. Baker,
High Technology Associates

To answer that question, it is first necessary to compare the demographies of Europe with that of the USA, e.g., the population density of western Europe is ca. 7–12 times that of the USA.

Notwithstanding the low population density of the USA, American customers prefer to purchase from local salesmen and this is impossible unless the European manufacturer sets up local offices throughout the USA. Not only does this require the huge unacceptable costs of doing so, but also, there is not enough business in each sales territory to support an office.


© Minerva Studio - Fotolia.com

Sales Representatives

Thus, to be competitive, US manufacturers make extensive use of selling through sales representatives, a structure which requires delegating sales responsibility to rep firms which sell other products as well. The reps may have 10 or more product lines. Europeans are uncomfortable with sharing their salesmen with other manufacturers, but need to do so in the USA. Managing sales representatives while sharing them with other companies may require a skill to be developed by the Europeans. It is difficult for European management to transition from selling directly through a company staff member to selling through sales representatives whose time and attention must be shared with other manufacturers. Please note also that strong sales representatives are approached ca. every two months to take on new

product lines, but accept new lines only about twice per year.

Europeans need to know that there are two types of sales representatives, namely (1) commission based and (2) buy/resell.

For the commission based, the representative is assigned an exclusive sales territory, for which he is solely responsible for all customers including end users, dealers, OEM customers, etc. By contract the rep is allowed only to sell in his territory, thus avoiding the possibility of two reps competing with each other. Pricing is set by the European manufacture and credit is extended to final customer. The rep is paid only when the European manufacturer is paid.

In the buy/resell case, the European manufacturer sells to the representative who then sets the final price, i.e., the European loses pricing authority. Also, the creditworthiness lies with the rep firm which is often only a 2-4 person operation and does not have the financial stability of large end users. In the USA, the commission sales rep is preferred; in Canada the buy/resell structure is used.

Sales Development versus Sales

Sales representatives are paid a sales commission as a percentage of sales. However, in the early stages of USA market entry, the European is asking the US sales rep to manage the Sales Development process, strikingly different from that of sales, per se. For example, sales development involves displacing an existing competitor and e.g., includes getting on "Approved Vendors" lists, or their equivalent. There is no compensation for sales development other than the sales commissions occurring when and if sales eventually take place. The European must therefore provide extensive support to the sales rep in the form of sales leads, e.g., references from participation in international trade fairs, presentation of papers are professional conferences, references to the US subsidiaries of the European's existing international customers, etc.

Furthermore, the European manufacturer must recognize that the American sales rep has product knowledge sufficient only to open the customers' doors for European experts, but that his knowledge is often insufficient to close sales.

An alternative approach for managing sales development is to pay the sales representative a monthly retainer for a specified period to open the market. We recommend against this.

Thus, the European manufacturer should be prepared to send a product expert to the USA to provide product knowledge support to the American reps as needed, e.g., 4–8 times per year. It is even better to post a European product manager to the USA for one year, if the workload justifies it. In addition, the Managing Director of the European company should visit the USA at least two times per year in the first few years.

"Fast Buck" Strategy

A strategy sometimes followed by European manufacturers is to identify an American manufacturer, which already has contacts with the European's US target customer base, and which sells non-competing products. The European arranges with the US manufacturer that the American sell the European's products through the American's existing sales network in parallel with the American's products. Thus, the European hopes to gain immediate access to the entire USA market. This strategy for the European is high risk and has a high failure rate.

There are several reasons for failure with this approach:

- The American has a substantial investment in manufacturing his own products but no investment in manufacturing the European's products. He must give top priority to selling his own products, and has limited time for the time consuming sales development process for the European newcomer.
- The American but not the European has personal relationships and trust of his customers and may eventually decide to copy and manufacture the European product.
- In the unlikely event that this strategy does work well, the European will have to pay double commissions in the USA, i.e., to the American manufacturer and also to his sales rep network.

Staffing

If the European opts to establish a one man office in the USA for sales development reasons, the question emerges as to whether that individual should be European or American. Intuitively, Europeans assume that he should be American to address so-called "cultural" differences. This is also a mistake. Penetrating the USA market is a challenging task and the person responsible will experience much rejection. What is needed is a person deeply committed and loyal to his company's European headquarters. He must also have credibility there. He may also experience delays in responses from the European headquarters, for e.g., quotation inquiries, noting that large volume inquiries from key European customers take priority over small inquiries from potential new US customers.

Summary

To summarize, sales resistance experienced by Europeans in the USA is due to a lack of empathy for the Americans who are per se being asked to take risks by dealing with Europeans who may not stay in the USA if the Europeans make continuing losses. The Americans have no control over the European's decision to stay or withdraw. Close communication between the European and his US sales representatives is required.

Author
Dr. Marvin L. Baker, Founder and Managing Director,
High Technology Associates,
Houston, Texas, USA

Contact
htahouston@sbcglobal.net
www.hta-usa.com

Houston: a Regional Economic Powerhouse

The Houston – Woodlands – Sugar Land Metropolitan Statistical Area (MSA), Texas, USA, consists of 9 counties including Austin, Chambers, Galveston, Liberty, Harris, and Montgomery. From energy to health care, nanotechnology, aerospace and information technology, the region offers a strong infrastructure to support these growing industries.

Ranking fifth among US metropolitan statistical areas with a population of 6.3 million, the Houston region has a gross domestic product of $449.4 billion, fourth largest in the nation. Houston has a favorable business climate. The region benefits from a skilled workforce, modern infrastructure and transportation system, and a pro-business environment that stimulates business growth.

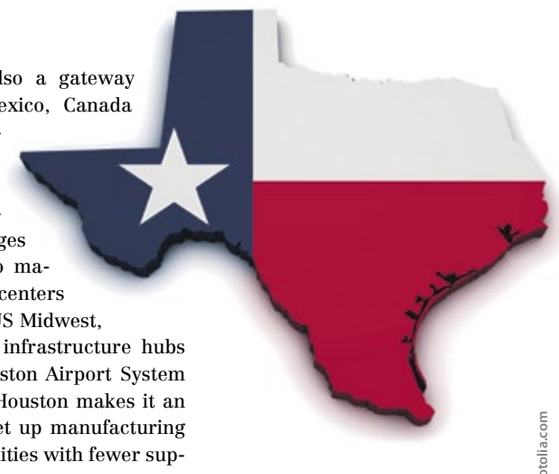
KPMG's 2014 Guide to International Business Location Costs shows Houston's business cost is below the US average and lower than many major global cities.

The Houston MSA is home to more than 3,700 energy-related establishments and employs 31.6% of the nation's jobs in oil and gas extraction. More than one in five jobs created since 2010 have been in energy.

In life sciences, Houston has more than 190 pharma, medtech and biotech companies as well as academic partnerships; 132 cutting edge hospitals and health clinics, and the country's top research facilities.

Houston is also a gateway for trade to Mexico, Canada and the expanding markets of Latin America. The area's geographic advantages and proximity to major metropolitan centers throughout the US Midwest, and its efficient infrastructure hubs such as the Houston Airport System and the Port of Houston makes it an ideal venue to set up manufacturing and logistics facilities with fewer supply chain costs.

www.houston.org



Biohybrid Chemistry Cluster

Ontario's Sarnia-Lambton Region Develops from Petchem Pioneer to Biotech Hub

Since the discovery of large oil reserves in the late 1850s, Ontario's chemical industry has steadily grown, turning the province into a global hub for the petrochemical industry. Today, the region around Sarnia-Lambton in the south-west of the province hosts Canada's largest chemical and biochemical manufacturing cluster with extensive talent, experience and supply chain.

Sarnia-Lambton is home to global players from the oil, gas and petrochemical industry such as Shell, ExxonMobil, Lanxess, Nova Chemicals and CF Industries. The presence of large companies can provide synergies for newcomers. German specialty chemicals company Lanxess, for example, owns and operates the Bio-Industrial Park Sarnia. The park provides the ability to co-locate within an existing plant site and utilize existing infrastructure, including a world-class industrial wastewater treatment facility.

Building on this strong foundation, Ontario's chemical industry is today developing new, sustainable production solutions. With an increasing emphasis on researching and commercializing biotechnology in addition to its strengths in classic petro-technology, Sarnia-Lambton has become a unique biohybrid chemistry cluster and is at the center of a burgeoning industrial biotech sector. Key to this success are a strong government — industry collaboration and a nurturing business environment.

Dr Terrie Romano, Canadian Consulate

Government and Industry Collaboration

The Government of Ontario is working with the industry to create the right business environment and facilitate investment. Committed to bringing together private and public bodies and helping companies connect with each other, the Government of Ontario regularly collaborates with Sarnia-Lambton's economic development organization, the Sarnia-Lambton Economic Partnership. Established in 1994, the Partnership serves as a key point of contact for companies that want to do business in the region and provides market information as well as strategic and administrative support.

Link between Concept and Commerce

The Western Sarnia-Lambton Research Park offers both multinational companies and start-ups alike an attractive location for research, development and commercialization of innovative technologies. Associated with Western University and Lambton College, the Research Park is a key contributor to successful translation of ideas or discoveries from the lab bench to the marketplace. The Research Park is home to the Bowman Centre for Technology Commercialization, Canada's largest clean-tech incubator. Western University's Research Parks, including its Sarnia-Lambton Research Park, were ranked among the global top 25 University Business Incubators and 7th in North America.

As a government-funded catalyst, Bioindustrial Innovation Canada (BIC) helps position the Sarnia-Lambton region as a world-scale hybrid chemistry cluster. BIC manages an investment fund to provide essential capital to early start-ups that do not yet qualify for regular venture capital. Early stage funding is essential for young firms and enables them to refine their business models and attract larger-scale follow-up investments. To date, four Sarnia-Lambton-based companies that received early BIC funding have successfully raised more capital through initial public offerings.

Greenfield Specialty Alcohols' Chatham facility, located in southwestern Ontario, is in the process of completing a $40-million investment to upgrade the corn-based industrial alcohol production, bringing to $300 million the total investment in the Chatham plant since it opened in 1998.

BioAmber – a Success Story

BioAmber, the world's largest producer of succinic acid, is a prominent example of the innovative biochemical industry in Ontario. At its new plant in Sarnia-Lambton, BioAmber uses cutting-edge biotechnology to produce succinic acid sustainably from glucose instead of fossil fuels – thereby reducing the company's local greenhouse emissions by 100% and bringing down energy costs by 60%. These savings allow for competitive


© Speedfighter - Fotolia.com

product pricing even in a low oil price environment. Major customers of Bio-Amber include Mitsui, DuPont, Xuchuan Chemical, Covestro and Mitsubishi Chemicals. Bio Amber's success has led to expansion plans: due to the high demand for their sustainable chemicals, the company is currently exploring options for second and third facilities.

Key factors that influenced Bio-Amber's decision to pick Sarnia-Lambton as the location for the construction of its state-of-the art, $140 million plant include geographic location and market access. Sarnia-Lambton's access to resources, such as affordable energy and regional agricultural produce as raw material for its production are also key. Another main point in favor of Ontario as a business location are the low operating costs and potential government support such as an affordable loan from the Ontario Ministry of Economic Development, Employment and Infrastructure (MEDEI).

Industry Snapshot

Ontario is home to Canada's largest chemical manufacturing cluster. The province's chemical industry employs 27.000 people, making it the fifth-largest in North America. The industry's annual output is $16 billion (2013), ranking it ninth in North America. Chemical products produced in Ontario range from industrial chemicals to synthetic resins, and from fertilizers and formulated products to petroleum refining.

Compelling Business Case

There are various reasons for investors and site selectors to choose Ontario.

- **Market**: Ontario is located in the middle of North America's industrial heartland that grants companies easy access to the vast $19 trillion NAFTA market. Thanks to an extensive transportation infrastructure, a market of 141 million consumers can be reached within a single day's drive.
- **Talent**: The region offers a highly skilled labor market: 65% of adults have completed post-secondary education, more than in any other OECD country. 27 colleges and universities offer a variety of degrees in chemical and biochemical related programs, including Chemical Engineering, Applied Chemistry and Chemical Process and Production.
- **Innovation**: Companies in Ontario enjoy generous R&D tax credits. They offer a 14% cost advantage over the US and apply to a broader range of eligible costs than in the US and many other countries.
- **Business costs**: The combined manufacturing income tax rate in Ontario is 11 percentage points below the US average, labor costs are among the lowest in the G7.
- **Resources**: Ontario is directly connected to an extensive pipeline system bringing oil and gas from all over North America, including the nearby Marcellus and Utica basins, to the province. Moreover, the region is rich in agricultural and wood biomass feedstock, giving reliable access to raw materials.
- **Quality of life**: Canada ranks third in the OECD's 'Better Life Index' with Ontario being no exception. Universal healthcare and a variety of renowned universities and colleges make the province an attractive destination for newcomers.

Author
Dr Terrie Romano, Consul (Economic Affairs – Ontario)
Ontario International Marketing Centre
Canadian Consulate, Munich, Germany

Contact
terrie.romano@international.gc.ca
www.investinontario.com

Louisiana: a Location for Process Industries

Louisiana is a leading supplier of organic and petrochemicals to the United States with more than 300 petrochemical manufacturers that directly employ 27,000 skilled workers. As a premier location for process and chemical engineering industries, Louisiana remains a top destination for foreign direct investment with more than $38.5 billion in announced projects since 2008.

Located in south central Louisiana along the Mississippi River, Louisiana's Gulf Coast Super Region incorporates the metro areas of Baton Rouge, the state capital; and the City of New Orleans, an international trade center. The region offers a unique combination of economic development assets that make the area attractive to international companies. For instance, as the nation's second largest producer, Louisiana offers stable, low-cost natural gas with an established infrastructure for cost-effective delivery. And the state offers a broad range of site options from existing assets to certified industries sites, which expedite site selection and the development process.

www.brac.org

Untapped Potential

Market Entry into India Requires a Long-term Strategy

© Felix Pergande - Fotolia.com

As attractive chemical market India has not yet established itself in the minds of European entrepreneurs. "Too difficult" some argue. Nevertheless, experts know that the work is worthwhile because India has a lot of untapped potential. The chances thereby offered for European companies are big, especially now, since the government in Mumbai offers the needed support and is quite open towards foreign investors.

India counts as one of the most attractive markets worldwide. Although the growth rate has reduced in the past few years to 5,5% per year, India has not lost its attractiveness, insiders know. It is a country of high dynamic: with a population of 1,3 billion people India is after China the most populated country. The growth can be seen through the growing middle-class, which includes 25 million households. According to McKinsey the middle-class will grow to 500 million people by 2025. Concerning consumption, for example motorcycles, tractors, trucks and mobile connections etc. India is part of the top 3 of these markets worldwide. In contrast the per-capita consumption of cars, synthetics and agrochemicals even in comparison to other developing countries is low. In these categories India is still a sleeping giant.

Dr Joerg Strassburger, Go East Advisors

India: on the Fast Lane of Asia

The Government and the business community have realized the need to act and are letting experts show them important fields of action. At a conference, organized by the Indian Chemical Council together with the Department of Chemicals and Petrochemicals, Government of India, in India with the motto "Mission Make in India" the consultants of Go East Advisors were important discussion partners and speaker. With great interest the participants followed the presentation, which puts salt in the wound of the Indian economy. Politicians and business representatives agree: there is work to be done, and it will be worth the effort. The focus on the economical growth in India is already monitored internationally with high interest. IMF and Worldbank are predicting for the coming years a rising economical growth of up to 7%. Already in 2016, according to prediction, the Indian growth will have surpassed China. The positive development will have an impact on the private consumption. The demand for cars, refrigerators, but also consumption goods of the daily need will rise. Experts think, it is not too optimistic to think about a two-digit growth rate — in many sectors.

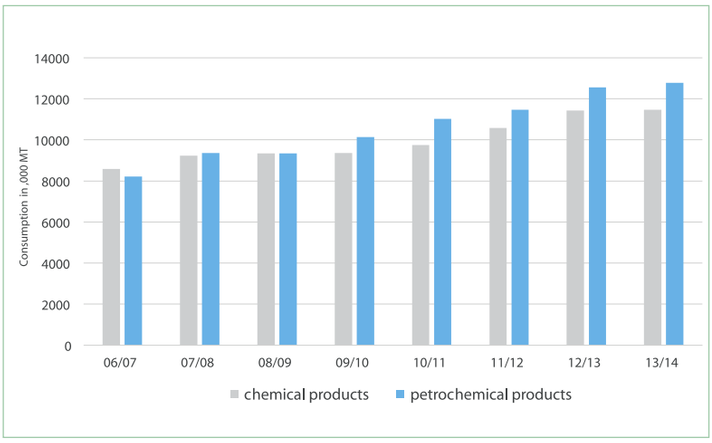
What's missing is a solid raw- and intermediate product base for these products. And that is exactly where the chances for the chemical market lie, which will have to play a bigger role in India. The time of investors has come. This development, which is reinforced through the focus of the government, has been visible for some time. In these past few years the imports- not only in the chemical sectors- have noticeably grown, more than national production. Today one knows, that national production will not only have to replace imports; it is desperately needed, to keep the growth motor going. European companies can be a part of this development. The earlier they will start with their onsite activities, the larger the chances are of gaining an incredible market position not only in India, but additionally in the Middle East and in Africa. India can become the key to these markets; if one acts now.

Chances to a Strong Market Presence

India's chemical industry is defined through few large and many small companies. It is missing a large middle-class with business size of over 50 million Euros. While large Indian concerns focus on the mass chemicals and the petro chemistry, the focus of the smaller and medium large companies lies with the special chemistry and agro chemical and pharmaceutical semi-finished and finished goods.

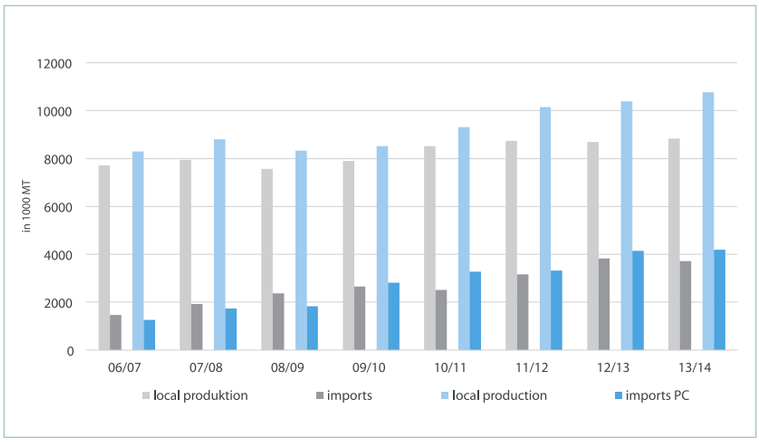
Not only in India it is known: After purely importing, the investment in the own production is the only logical consequent step in order to gain a stronger and consequently growing market presence. Whereas in other more protectionist oriented countries, foreign companies in India may invest independently without an In-

Consumption Growth of Indian Chemical Products between FY 2006/07 and 2013/14



Source: Indian Ministry of Chemicals & Fertilizers

Development of Local Production vs. Imports between FY 2006/07 and 2013/14



Source: Indian Ministry of Chemicals & Fertilizers

dian partner in the chemical industry. That SMEs can have success has been demonstrated by German and European companies.

With all the prospects of success there are many aspects to be considered. Who, for example, expects a high efficiency in the administration, will be proven wrong. Furthermore for some registration processes there aren't many defined procedures (there isn't e.g. a Biocide guideline). Not everything can be improvised and some things may be hindered by corruption. If one is prepared for that, it will be easier.

Own Company or Partnership?

For some investors a partnership with an in India established company or even an acquisition is more reasonable than setting up an own local company. The market offers great possibilities, as long as the European investors are well prepared. Before anything else, they should be asking themselves these questions:

- Why am I looking for a partner, instead of investing by myself?
- Does the acquired partner provide the wanted competence and/or the financial support?
- Should I look at and evaluate further possible partners?
- Do the partners have the same ideals and agendas about how the joint venture should the managed?

Furthermore there are many more topics to be questioned, starting with the amount of shares of each partner, the legal form, the management as well as the rights and responsibilities of the partners. Experience shows, that it is important, that the Top Management from both partners is striving for the Joint Ventures success and will engage itself fully in the process. When only partners from one side are pushing, the project is most likely to fail.

Whichever strategy is chosen, one should be aware of the fact that India is a developing market. The processes and procedures especially with the public authorities and administration differ massively from those of a mature market in Europe or North America. As investor one will always end up in a situation, where one will wonder if the decision to invest in India was the right one. Nevertheless set-backs should not be a discouragement. Especially in India achievements will set in long-term. Who gives up too easily, will miss to see the success of his investment.

Conclusion

As European chemical company it is not an option nowadays, to ignore the chances of the Indian market. For a middle and long-term success a clear and long-term strategy is needed, which allows for set-backs or delays. A team of experienced India experts helps to avoid risks and ensures a long-term success.

Author
Dr Joerg Strassburger, CEO, Go East Advisors GmbH, Gau-Algesheim, Germany

Contact
joerg.strassburger@go-east-advisors.com
www.go-east-advisors.com

The Heat Is On

Europe's Chemical Industry Pushes for ETS Improvements While Investment Suffers

The European chemical industry has warned that doubts about proposed changes to the European Union's carbon emissions trading system (ETS) could hold back investment in petrochemicals and bulk polymer plants as well as other energy intensive installations into the next decade.

© daboost - Fotolia.com

The warning comes after downstream polymer users have fiercely protested about raw material shortages as a result of a high number of force majeure declarations triggered by abrupt shut-downs mainly of ageing bulk polymer plants in need of upgrading.

The European Plastic Converters Association (EuPC) announced this summer the creation of an Alliance for Polymers for Europe to assist downstream companies hit by polymer shortages and to press for the easing of duties on polymer imports.

"Uncertainties about the way the ETS will operate beyond 2020 will impact investment decisions," said Jean-Pierre Clamadieu, president of the European Chemical Industry Council (CEFIC) at a press conference at the association's general assembly in Brussels in early October.

"Any investment decision has to take into account the payback period which will extend into the 2020s," he explained. "Proposed changes to the ETS have created a situation in which companies are less inclined to make investments. Lack of clarity in the proposals has become an obstacle to the making of investment decisions."

In the European chemical industry as a whole total investment had remained static or even declined in real terms in recent years. In 2013 it amounted to $19 billion against $18 billion in 2003, according to Clamadieu, who is also Solvay's chief executive.

By contrast investment in chemicals in China had soared from $7 billion in 2003 to $67 billion in 2013 while chemicals investment in the US had gone up from $6 billion to $24 billion in the same period, he said.

The squeeze on investment in petrochemicals and bulk polymers as well as energy intensive sectors like chlor-alkali has stemmed from high energy costs in Europe and climate change measures by both national governments and the EU.

Combating Global Warming

The ETS, which was introduced in 2005 and comprises the pricing and trading of emission allowances for each tonne of CO_2, is one of the EU's main legal instruments for combating global warming.

In the current phase 3 of the system in 2013-2020, over 40% of emission allowances are distributed for free to industrial installations, including chemical plants. The primary aims of the free allocations is to preserve the international competiveness of European energy intensive industries like petrochemicals and to prevent 'carbon leakage' — the relocation of carbon-based production to areas outside Europe with fewer restrictions on carbon emissions.

Under the current allocation of allowances, a benchmark of relatively low carbon intensity is used to determine how many free allowances are allocated. In petrochemicals and bulk polymers the benchmark covers around 5-10% of plants.

The European Commission's proposals, published in the summer, will apply to phase 4 of the ETS from 2020-2030 and will help the EU meet its target of a 40% reduction in greenhouse gas emissions by the end of the next decade. Among the sectors covered by the ETS there will have to be a cut of 43% by 2030 compared with emission levels in 2005.

The Commission wants the availability of free allowances to be decreased by tightening the benchmark values by 1% a year. Allocations will also be reset in 2025 to reflect changes in output levels of individual plants.

The share of allowances which will be auctioned will remain at 57% during phase 4, according to the Commission. But the proportion will be lower among Eastern European member states.

A block of unallocated allowances, expected by analysts to number around 550-700 million, will remain in a Market Stability Reserve (MSR) to balance supply and demand in the trading of allowances.

An excess of allowances due to the post-2008 recession and slow growth in Europe drove the ETS price to as low as €3 per tonne in 2013. It has since been rising slowly so that in July it exceeded €8 per tonne. But with the manipulation of the MSR its price could be raised to much higher levels.

Investing In Carbon Efficiency

Money from the auctioning of allowances will be channeled into a modernization fund to help lower-income member states to invest in plant improvements to reduce greenhouse gas emissions. Cash from auctions will also be put into an innovation fund to support development throughout Europe of new low-carbon technologies, such as renewables and carbon capture and storage.

CEFIC supports the purpose behind the Commission's proposals – to meet the EU's target for carbon emissions reduction cost-effectively by encouraging investment in carbon efficiency and to keep carbon-efficient production and jobs in Europe.

However it points out that some of the key proposals are inconsistent with principles laid down last year by the European Council, representing EU member states. These included an undertaking that the best performers or those operating at the benchmark level should not be subject to additional carbon costs, particularly the need to purchase allowances in order to expand output.

In addition the Commission has contradicted its own objective of having benchmarks which "reflect technological progress" and having allowances allocations which are in "alignment with production data", according to CEFIC. Instead CEFIC accuses the Commission of putting forward arbitrary thresholds and incompatible means of implementing them.

"First it has introduced the arbitrary figure of a 1% annual decrease in benchmark levels which will be applied automatically without any links to technological progress or best available technologies (BAT)," explained Chris Scott-Wilson, CEFIC's director of advocacy and public policy, in an interview at the general assembly.

"This lack of a relationship between benchmark levels and what is technologically achievable is asking companies to do the impossible," he added.

Furthermore the gradual shrinkage in the numbers of free allowances will compel the best performing producers to purchase emission allowances in order to increase their output. On the other hand producers wanting to cut output will be able to offset lower revenue by selling their excess allowances.

"The system being proposed by the Commission is fundamentally flawed," said Scott-Wilson. "Reductions in production would be subsidized through the ETS while increases in output would be discouraged by the need to buy allowances."

As an alternative to the Commission's plan CEFIC is backing a system, called 'dynamic allocation' which has been put forward by the Dutch government. It would ensure that allowances are allocated fairly on the basis of actual output.

Under the Commission's reforms the amount of allocated allowances would be recalibrated after five years to match output, as long as it had grown or decreased above a threshold of 50%.

"With a system of dynamic allocation carbon-efficient growth in production would be entitled to a commensurate increase in free allocations while reduced output would mean a reduced allocation of allowances," said Scott-Wilson. "The adjustment in allowances would be made a year after the increase or decrease in output and would not be limited to a 50% threshold."

The implementation of dynamic allocation requires the creation of an additional reserve of allowances. This will provide free allowances to those best performers increasing production while it would take back allowances from producers which have been cutting output.

CEFIC also wants benchmarks to be reviewed and updated by reference to proven technological advances so that producers are encouraged to reduce emissions by using innovations to upgrade their plants.

Establishing a Low-carbon Economy

The long-term vision behind the EU's initiatives is that innovations will ultimately make possible the transition to a low-carbon economy sometime beyond 2030.

"As a result of the level of the carbon prices fossil-derived electricity will be the most expensive source of energy," explained Scott-Wilson. "The key to the future will be greater resource efficiency which will be achieved through initiatives like the circular economy. But the only way we can get where we want to be is through innovation."

The Commission's proposals for phase 4 of ETS will have to be approved — and inevitably modified — by the European Parliament and the European Council. This process could take at least 1-2 years before the Parliament and Council can agree on what will become an EU directive on cost-effective emission reductions and low-carbon investments.

Even after the approval of the directive there will still be uncertainties, including the likelihood of a hefty rise in the ETS carbon price. "In 2020-2025 the Commission seems to be envisaging a fairly rapid increase in the price," said Scott-Wilson. "Companies are asking themselves how they can decide on investments without knowing what the carbon price will be."

Plastic converters and other downstream customers of energy-intensive chemical businesses can be hardly optimistic about a wave of investment in bulk chemical facilities much before 2025.

Instead they are likely to be seeking security of raw materials through imports. Some of these will probably be coming from areas there are few or no restrictions on carbon emissions. This is equivalent to carbon leakage which, ironically, is exactly what the ETS is trying to avoid.

Author

Sean Milmo, freelance science and business journalist, Essex, United Kingdom

Quality and Reliability

Switzerland Remains an Attractive Location for Chemical and Pharmaceutical Companies

The Swiss chemical industry has been dominated by worry and uncertainty in 2015. In 2011, the industry was severely affected by the downturn in the global economy and the revaluation of the Swiss franc. At the beginning of 2015 there was a further major revaluation, whose effects are still unforeseeable. This may cause imports to suffer as Swiss chemical and pharmaceutical companies import almost all of their raw materials. In 2014, about 25% of all Swiss imports were industry products from Germany.

In the opinion of the bank Credit Suisse, the Swiss pharmaceutical and chemical industries are highly competitive and many companies in the sector are world market leaders. Due to its high productivity, leading global position in research, geographically diversified exports and demographic development, the sector has excellent potential for growth in Switzerland.

Market Development

The medium-term outlook is very good. However, because the sector is heavily dependent on exports, the state of the international economy and resultant export prospects are of primary importance for short-term market development.

During the past four years, the sector has been greatly influenced by the interventions around the value of the Swiss franc (CHF). Above all in 2011, nominal production and exports were considerably reduced. The floating of the exchange rate in 2015 again presented the sector with major challenges. At mid-2015, it is not yet clear how the de facto devaluation of the Euro by 15 to 20% will affect turnover and foreign trade.

Industry Structure

The latest surveys by the Federal Statistics Office in 2012 show that in Switzerland, there are:

- 14 petrochemical companies with 944 employees,
- 710 chemical companies with 31,900 employees,
- 247 pharmaceutical companies with 40,000 employees, and
- 787 companies with 23,000 employees that produce rubber and plastic products.

One of the fastest-growing areas of Swiss industry is the chemical and pharmaceutical sector, where the share of the pharmaceutical industry has increased over the past few years. In the period from 1995 to 2011, production in the chemical industry showed an average annual growth of 12.4%, whereas industry as a whole grew by only 2.8% per year. According to Credit Suisse, in 2013 the gross domestic added value of the chemicals segment was €5.3 billion ($5.8 billion). The pharmaceutical sector accounted for €19.4 billion ($21.3 billion) and the plastics industry for €2.3 billion ($2.5 billion).

The Swiss chemical industry is strongly oriented toward foreign trade and its leading companies are among the largest global players. In 2014, the segment was responsible for more than 40% of the total Swiss income from exports. However, nearly all raw materials have to be imported, and more than 80% of these materials come from the EU. Domestic companies concentrate on the production of life-science products. These include pharmaceuticals, vitamins, agrochemicals and diagnostic products.

Foreign Trade

Imports of chemical products have increased considerably in recent years, and in 2014 – calculated in € – these imports grew strongly (+3.9%) in comparison with 2013. Especially strong growth was noted for inorganic chemicals (+9%) as well as medical and pharmaceutical products (almost +6%). With a share of approx. 52%, the latter was once again by far the most important import category.

Almost of a quarter of Swiss chemical imports originated from Germany in 2014. As in previous years, Germany occupied first place among the most important supplier countries, ahead of Ireland, Italy and the USA. The German share was especially high in the "Plastics in forms other than primary forms" (SITC 58; 54%) and in "Dyes, tannins and paints" (SITC 53; 48%) segments. However, as has been the tradition, the majority of German goods supplied were pharmaceutical products.

Swiss chemical exports greatly exceed the imports by the sector. Over 2014 as a whole, exports amounted to €70 billion ($77 billion). Nominally and in Euro, this was 7% more than in 2013. Medical and pharmaceutical products accounted for more than 70% of exports.

Pharmaceutical Sector

One of the most important drivers of growth and the largest market segment of the Swiss chemical sector is the pharmaceutical industry. Health services have a stabilizing role in Switzerland, particularly in times of crisis, as is shown by developments over recent years. In 2013, total costs amounted to €60 billion ($66 billion). According to calculations by the economic research center KOF, health expenditures increased by 2.1% in 2014. For 2015 the institute estimates growth of 2.8% and expects further growth of 3.7% for 2016.

Accordingly, the sale of medicines will probably increase, at least in terms of quantity. Demand is being driven by the continued aging of the population and increasing life expectancy. In contrast, prices are under great pressure, as many previously patented preparations are now coming onto the market as cheaper generics.

Nominal medicine sales at manufacturers' selling prices rose by only 0.1% to €4.1 billion ($4.5 billion) in 2013; the growth in quantity was 1.0% (to 210 million packages). For 2014 and 2015 the trade association Interpharma expects a stagnating market as a result of price reductions, in spite of the introduction of a large number of new medicines.

Two segments show a positive development: In 2013 the market for prescription-free medications (OTC/over the counter) accounted for approximately €610 million ($671 million) or 14.8% of total medicine sales in Switzerland. In comparison with

ucts are booming. Overall, goods with natural ingredients are in demand. Nutriceuticals (functional foods enriched with supplements) are popular in Switzerland.

In 2014, the Swiss market for soaps, detergents and cleaning agents was similarly tight. Only liquid detergents showed increasing sales figures, as one of six market segments. Overall, turnover fell by about 1% to approx. €627 million ($690 million). According to the SKW, environmental properties are becoming increasingly important for cleaning agents. Organic, biodegradable products and detergents that clean efficiently at lower temperatures are becoming increasingly popular.

Author
Axel Simer, Germany Trade & Invest, Bonn, Germany

Contact
axel.simer@gtai.com
www.gtai.com

© Cherkas - Fotolia.com

the previous year, sales of OTC preparations increased by 3.6%. In 2013 the quantity of prescription-free medicines increased by 3.4% to 87.5 million packages.

Generics covered by health insurance achieved a volume of €475 million ($523 million) in 2013. Therefore, in comparison with the previous year, the increase in sales amounted to 6.7%. In terms of quantity, generics increased by 8.1%. Since 2003, the value of this segment has more than quadrupled.

Cleaning Agents and Toiletries Segment

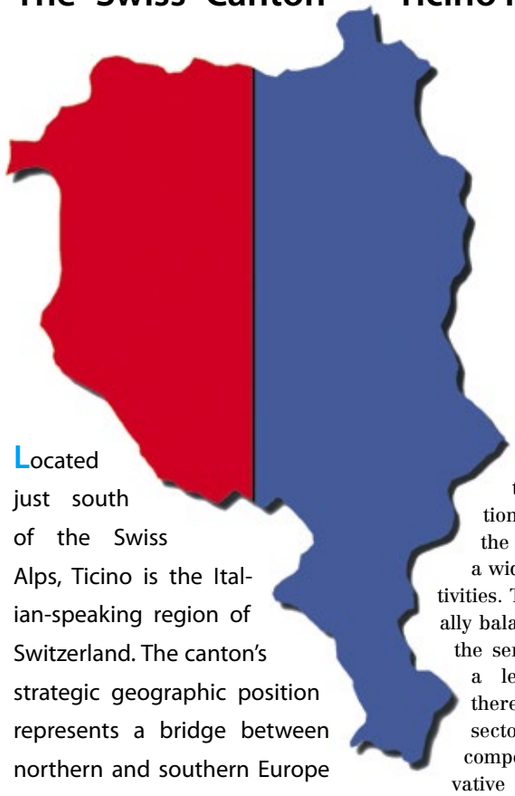
According to estimates by consumer goods consultants Nielsen, toiletries and cosmetics with a value of approx. €1.8 billion ($2 billion) were sold in Switzerland in 2014 (nominal change in comparison with the previous year: -1.1%). The slight reduction in demand has now continued for four years in succession. According to the Swiss Cosmetics and Detergents Association (SKW), the only segments which showed slight growth were oral hygiene and baby-care products.

Natural cosmetics and cosmetics oriented to target groups continue to be a trend. Specially tailored prod-

© alexandre zveiger - Fotolia.com

Life Science Valley in the Heart of Europe

The Swiss Canton Ticino is an Ideal Platform for International Business



© Sven Knie - Fotolia.com

Located just south of the Swiss Alps, Ticino is the Italian-speaking region of Switzerland. The canton's strategic geographic position represents a bridge between northern and southern Europe and between two of the strongest and most dynamic economic areas in Europe: Lombardy in Italy – with Milan at its heart – and the Basle-Zurich area in Switzerland.

Ticino is one of the furthermost touristic locations in Switzerland, but at the same time it showcases a wide array of business activities. The local economy ideally balances the industrial and the service sectors. Alongside a leading tertiary sector there is a solid industrial sector with internationally competitive and highly innovative companies. The backbone of the industrial sector, composed by a number of SMEs in the fields of life sciences, mechanics and electronics, has recently been complemented by rising new sectors like renewable energies and advanced logistics.

The Life Sciences Sector

Ticino's industry sector, especially in the electrical engineering and chemical-pharmaceutical areas, is heavily export-oriented. In the life sciences field the pharma industry plays an important role, and top-quality niche producers located in Ticino cover the entire pharma supply chain.

The Farma Industria Ticino (FIT) association of chemical and pharmaceutical industries, founded in 1980, is a private organization that currently counts 27 member companies, with a combined workforce of 2,500 employees and a total annual turnover of approximately 2.3 billion Swiss Francs (ca. €2.1 billion and $2.4 billion), more than 80% of which being derived from export.

Quality, technology, innovation and sustainable growth represent the core assets of the pharma industry. Several FIT member companies have been certified, in addition to Swissmedic, by many foreign authorities such as US-FDA, and participate in programs such as OSHA, ISO, responsible care and certified sustainability.

Investments in R&D and industrial assets accounted on average for CHF 190 million per year in the last 10 years. Activities of the associates range from preclinical and clinical drug development to chemical and formulation process development to industrial manufacturing of different classes of APIs and of a great variety of drug products forms. The vast majority of FIT companies also offer services such as contract research and manufacturing.

Representing the vast majority of the companies active in this Italian-speaking part of Switzerland, FIT has a great network of know-how and access to skilled and qualified, multilingual human resources. In Ticino, the presence of world-class high schools and research institutes integrated into the enterprise system and the proximity to the Swiss and Northern Italy universities and pharmaceutical expertise provide a significant technical, scientific, logistic and cultural asset.

A main area of focus to which Farma Industria Ticino contributes with its own expertise is vocational training. A commitment also based on the constant need to discover and train future co-workers. The Association's activity in this specific area hinges on the promotion of all training opportunities which are tied to

careers in the sector, and targeted at new generations of technicians, organizing introductory courses aimed at young people who are serving apprenticeships in the professions of chemical laboratory technician, biology laboratory technician and manufacturing operators. For the middle management teams, mini-MBA training courses in pharmaceutical management are organized in collaboration with a local university school (SUPSI).

Business Advice and Support

The success of the local industrial companies is based, on one hand, on the advantages offered by the "Swiss system" in terms of political and institutional stability, a flexible labor market, and a mild taxation. On the other hand, the availability of highly skilled labor force with exceptional multilingual skills and the opportunity for companies to collaborate with top-notch research institutes stimulates the local enterprises to constantly invest in innovation and remain competitive.

The local authorities are equipped to advise and support business ventures at their various stages. Particular attention is paid to the general framework conditions, in order to provide a business-friendly and unbureaucratic environment.

With the marketing initiative called Copernico, the local business development agency informs foreign companies about the business opportunities in our region and simplifies their settlement by providing practical and direct support.

Start-up companies and innovative entrepreneurial projects are supported by the AGIRE Foundation through coaching, technology advisory, networking and financial support. The foundation promotes and fosters the transfer of technology between companies and the academic or research centers. AGIRE also manages the network of technology parks (Tecnopolo Ticino) which offer office spaces and support to innovative companies targeting international markets from Ticino. The main hub located in the proximity of Lugano consists of 2700 m^2 of offices and conference rooms, and, so far, 16 companies have settled there. Additional locations, dedicated to specific business sectors, including biotech and medtech, are in preparation.

Existing companies and newly settled enterprises active in manufacturing and innovative fields are also offered various direct incentives and support mainly aimed at fostering R&D, innovation and export.

High Competitiveness

Ticino's socio-economic elements offer an attractive and highly competitive environment. Attention to quality of life is of paramount importance in Ticino and is reflected in the personal security provided to citizens, the quality of the health system, the efficiency of public transport and of financial services. These distinguishing social factors, together with a mild Mediterranean climate and a spectacular natural landscape, represent great assets for investors and entrepreneurs in the heart of Europe.

Contact

Farma Industria Ticino, Lugano, Switzerland
www.farmaindustriaticino.ch
info@farmaindustriaticino.ch

photo: InfraServ Wiesbaden

Kalle-Albert Industrial Park has its origins in the chemistry sector, but it also provides an ideal environment for companies in other sectors.

In The Right Place

Hesse's Industrial Parks Focus on Competitive Position

The chemical and pharmaceuticals industry of the state of Hesse in Germany has been true to its traditions. The locations that witnessed the development of this sector have evolved today into industrial parks for enterprises active in a diversity of fields.

The chemical and pharmaceuticals industry has long been a presence in Hesse. Now industrial parks have sprung up on the sites of globally prominent firms like the former Hoechst in Frankfurt or Behringwerke in Marburg. These industrial parks provide the companies that settle within them with state-of-the-art infrastructure and services geared to each firm's particular needs. They free the firms to focus on securing their competitive position in an era of globalization.

The industrial parks in the Hanau-Wiesbaden-Marburg triangle surrounding Frankfurt profit from the natural benefits of this particular location.

"This central location within Germany and Europe, with Frankfurt Airport as the international hub, argues conclusively for Hessen as an economically pivotal location," said Dr. Rainer Waldschmidt, CEO of Hessen Trade & Invest, the economic development organization of the state of Hesse.

Optimal access to all of Hesse's industrial parks, most of which have their own ports and rail connections, facilitates international cooperation and ensures maximum efficiency of the worldwide transport of goods.

"Hesse's industrial parks maintain their competitive position through clear profiles and a variety of specializations," Waldschmidt said. "The parks supply research and manufacturing companies — small operations and global players alike — a comprehensive service package that nevertheless meets each firm's individual requirements."

Non-stop Growth: Höchst Industrial Park in Frankfurt

Höchst Industrial Park is one of the largest chemical and pharmaceutical sites in Europe. It occupies 460 hectares and is home to 90 individual companies with 22,000 employees. Its roots are in the parent plant, the former Hoechst; Infraserv Höchst has operated the park since 1998.

Despite its considerable size — its road network alone runs more than 70 kilometers — Höchst Industrial Park continues to grow. Since 2000 its resident firms have invested more than €6.3 billion in production and research centers on the site.

One example is Bayer CropScience, which in July laid the cornerstone of a new manufacturing facility for the plant protection product Basta. In December 2013, the Swiss company Clariant consolidated its worldwide research efforts in Frankfurt with the opening of the €100 million Clariant Innovation Center. Sanofi, the largest company on the site, recently expanded its cell culture facility to include the production of antibodies, thus spotlighting the importance of Höchst Industrial Park as a prime location for biotechnology.

Höchst Industrial Park can draw on excellent technical infrastructure, including an ultra-modern facility for the treatment and disposal of wastes. The park enjoys an extremely convenient location only 6 kilometers from Frankfurt Airport. It has its own trimodal port facility on the Main River, which flows right through the park. Even university-level studies are offered on-site. Provadis, the largest provider of education and training in Hessen, offers dual courses of study for 1,000 students at the Höchst branch of its polytechnic. One indica-

© josef grimschitz - Fotolia.com

photo: infraserv Höchst

Höchst Industrial Park, with 460 hectares, is the largest industrial park in Hessen.

tion of the park's national significance is that Deutsche Post has granted it its own postal code: 65926.

An Ideal Address: Griesheim Industrial Park in Frankfurt

In terms of transport access, Griesheim Industrial Park is hard to beat. It has its own port right on the Main River, a rail link only one stop from Frankfurt's main station, and is five minutes by car from Frankfurt Airport. The 30 companies in this park, which lies in the immediate vicinity of downtown Frankfurt, employ 750 people. Among the largest firms are WeylChem Griesheim, Allessa-Produktion, SGL Carbon and Infraserv Logistics. The chemical and related manufacturing operations are to be found at the core of the 60-hectare park, surrounded by an open area for office and storage buildings to the west and another open commercial area to the east. Parking — with shuttle service to the airport — is to the north; to the south flows the Main River.

Infrasite Griesheim, a daughter company of Infraserv Höchst Group, has been in charge of the site since 2009. Infrasite takes care of all services to do with chemical and other industrial processes as well as seeing to the provision of electricity, water, compressed air and gases, the site's fire department, and information and network technology. Through Infraserv Höchst, operator of the nearby Höchst Industrial Park, Infrasite Griesheim can draw on the expertise of specialists in authorization management, work safety and medical care, logistics, and training and upgrading programs. This puts Griesheim in a position to offer a variety of quality services.

In 2014 alone, €10 million was invested in Griesheim Industrial Park. Newcomer companies are currently building, among other projects, a chemical-physical waste treatment plant and a reusable materials sorting facility. A back-up power station independent of the public power grid is in the planning.

A Fresh Breeze: Cassella Industrial Park in Frankfurt

Cassella Industrial Park in the Fechenheim section of Frankfurt is only a stone's throw from the brand new European Central Bank. With 42 hectares, 12 companies, and around 650 employees, it is comparatively small, but it still competes on eye level with the larger parks. It meets all corporate needs. Its infrastructure covers everything from media links to biodynamic waste treatment, its own fire department, rail connections and a port on the Main River. Its small size constitutes a perfect environment for small and medium-sized enterprises.

The chemical company Allessa, the largest firm on the site, manages Cassella Industrial Park. "Cassella" recalls the aniline factory of the wholesale paints company Leopold Cassella & Co., which was founded in 1870 and grew to be the world's largest azo dyes and pigments factory before merging with Hoechst. In Fechenheim, Allessa still produces dyes and pigments today, in addition to pharmaceuticals and other fine chemicals. Since 2013, when Allessa was taken over by the International Chemical Investors Group (ICIG), the winds of change have been felt in Fechenheim. Other corporate members of the ICIG, such as Corden Pharma, have been quick to follow Allessa's example and settle on the Cassella site.

Thanks as well to its situation in Frankfurt's booming east end, Cassella Industrial Park specifically appeals to innovative companies. One example is the biotech firm BioSpring, which produces gene fragments by means of chemical processes and then distributes them worldwide. A number of other firms on site have only tangentially to do with chemistry, if at all. Boels, for instance, which leases construction machinery, has found an ideal location in the park, since two large-scale hardware and building supplies stores for do-it-yourselfers are in the area.

The operator of Cassella Industry Park is breathing new life into the park with structural improvements and modernization. In spring 2016 more than 17,000 square meters of ready-to-build and serviced land in the heart of the site will be made available.

Strong Suit R&D: Wolfgang Industrial Park in Hanau

The infrastructure of the 82-hectare Wolfgang Industrial Park in Hanau
is designed to meet the needs of the chemistry sector and related industries. The park is operated by Evonik Technology & Infrastructure, a daughter company of Evonik Industries. With 3,300 employees, Evonik Industries is the largest company in

the area, followed by the materials technology corporation Umicore, with 1,000 employees. In all, 5,300 people work at 12 companies within Wolfgang Industrial Park. Reactive resin for road surface markings is just one of the products manufactured by Evonik at Wolfgang Park. A diversity of primary ingredients for medicines and catalyzers are manufactured here as well. But Wolfgang Industrial Park is not a manufacturing site in the usual sense of the word. The companies here focus primarily on research, the development of new products and the adaptation of laboratory procedures to large-scale production.

A major focus is on materials and energy research, with particular stress on catalyzers and fuel cells. This is what makes Wolfgang Industrial Park the top address in Hessen for hydrogen technology applications. With the participation of the on-site membrane producer SolviCore, a demonstration model for storing regeneratively produced electricity in the form of hydrogen has already been created.

The Fraunhofer Project Group Materials Recycling and Resource Strategies (IWKS) has established itself on the outer border of the park. IWKS cooperates closely with Umicore and is now being expanded into a full-fledged Fraunhofer Institute, thus underlining the attraction of this park as a first-rate address for the research and development of sustainable processes and products.

photo: Allessa

This historical building in Cassella Industrial Park in Frankfurt houses Allessa's head office and the offices of its managing directors.

Ideal for SMEs: Kalle-Albert Industrial Park in Wiesbaden

On the outskirts of Wiesbaden lies Kalle-Albert Industrial Park, an ideal research and manufacturing site for small and medium-sized enterprises (SMEs). Seventy-five companies with a total of 5,600 employees have established themselves on the 96 hectares of this park, which emerged from Hoechst's Kalle-Albert works in 1997. For historical reasons, the emphasis here is on chemistry; but sausage skins, offset printing plates and special foodstuffs foils are produced here as well. Both start-ups and global companies like Merck Performance Materials, which produces basic chemicals for its global semiconductor business, are represented at Kalle-Albert.

In terms of turnover, SE Tylose is the largest company on site. A member of the Japanese Shin-Etsu Group, SE Tylose has 500 employees. However, aside from six other large and medium-sized enterprises, small-scale companies with fewer than 50 employees predominate. Especially these smaller firms find the Kalle-Albert business environment optimal. The pilot plant stations make increasing production easy, and companies can count on support in gaining authorization for new manufacturing facilities.

InfraServ Wiesbaden, the operator of Kalle-Albert Industrial Park, is also active in ensuring continuity through a new generation of professionals. InfraServ Wiesbaden sponsors the youth science competition "Jugend forscht" and supports "Joblinge," which helps under-qualified young persons get a start in the working world. Over 240 young people are being trained at Kalle-Albert in more than 20 professions.

Health management is particularly popular in Kalle-Albert. Three doctors and a health studio make employee health their particular business. InfraServ Wiesbaden ensures the site's sustainability in this way as well.

Pharma and Biotech: Behringwerke Industrial Park in Marburg

Behringwerke Industrial Park in Marburg is one of Europe's highest performance centers for pharmaceuticals and biotechnology. The 19 companies on its 67 hectares employ 5,300 persons. The site goes back 100 years to Emil von Behring, Nobel Prize laureate and creator of the serum for diphtheria, who founded Behringwerke (Behring Works) here in 1904. Behringwerke has remained true to its origins by distributing throughout the world serums and vaccines against diphtheria, influenza, early summer meningoencephalitis (ESME), tetanus, rabies and many other diseases. Medicines and medical diagnostics are manufactured here as well, as are, as a notable product within the Behringwerke portfolio, organometallic substances for the semiconductor industry.

Three globally active corporations predominate on this site: the pharmaceuticals firm CSL Behring (with more than 2,000 employees the largest company here), GlaxoSmithKline, and the Siemens daughter company Siemens Healthcare Diagnostics Products.

Pharmaserv, the operator of Behringwerke Industrial Park, emerged in 1997 from Hoechst and belongs today to the operator group Infrareal. Pharmaserv, a medium-sized enterprise with around 400 employees, focuses on the life sciences sector. It offers its clients not only infrastructure that conforms to their needs but also services such as specialized packaging for medicines, refrigerated transport and technical services geared to pharmaceuticals and biotechnology. Such services ease the burden on the firms in the park, allowing them to focus their efforts on the main thrust of their businesses.

Centralized Support for Companies Interested in Hesse

Moreover, companies interested in Hesse — and to start business from there in all Germany — do not need to address all sites separately. They get all necessary support by coming directly to Hessen Trade & Invest.

"With our website www.invest-in-hessen.com we offer easy access to information to get a first overview. However, much more important are the people behind. Our employees provide tailor-made information and help finding the right spot for your business. Just ask us and we will help you," Waldschmidt said.

Contact
Dr David Eckensberger,
Project Manager,
Hessen Trade & Invest,
Wiesbaden, Germany
david.eckensberger@htai.de
www.htai.de

Bavaria's "Region of Renewable Raw Materials"

Straubing is the Region of Renewable Raw Materials. Here, the Free State of Bavaria is clustering its activities and expertise regarding research, education, innovation, application and marketing in the field of renewable raw materials. By doing so, Straubing aims to become a leading flagship region in the rapidly growing field of bioeconomy. The bio-based resources needed lie directly at the door step. Resources that cannot be sourced from the fertile Gäuboden-area or the Bavarian Forest can be acquired via the modern inland port in Straubing-Sand — mainly from Eastern European markets.

The Danube Port Straubing-Sand specializes in biomass handling and logistics. By integrating resource supply and processing, it brands itself as "Green Chemisty Port". On its "BioCampus" premises, it offers a business center, the "BioCubator" and ready-to-build-on industrial sites. Here, companies working along the biomass value chains, both transnational companies (TNCs) and start-ups, can benefit from attractive state-of-the-art laboratories, offices and business areas. Additionally, sites for growing tests and greenhouses for all kinds of plant-based resources are offered. The goal: developing a bio- and knowledge-based economy that can rely on sustainable, bio-based feedstock supply from indigenous sources as well as via waterway transport from the fertile alluvial banks of the Danube macro-region.

Distances between the Straubing Centre of Excellence for Renewable Resources including research departments by Technical University of Munich and the Fraunhofer IGB-branch BioCat and the BioCampus, the dedicated area for industrial upscaling and demonstration of research results right next to the Port are short, both in terms of proximity and cooperation. The "Renewable Raw Materials" cluster management supplements Straubing's competences as a model region by supporting project development, networking and innovation processes.

This triple helix combination of sustainable resource availability, specialized infrastructure and scientific and entrepreneurial expertise depicts an ideal source for innovation and start-ups and, thus, a competitive advantage in Europe. Bioeconomy's big players, such as ADM and Clariant, take advantage of this unique setting. ADM is converting thousands of tons of rapeseed into oil for first-generation biodiesel production on a daily basis. In its one-of-a-kind lignocellulosic ethanol demo plant, Clariant is testing different feedstocks and applications for its biotechnological Sunliquid process that converts agri-residues into bio-based fuels and chemicals. Just recently, the Bavarian Ministry for Economy has announced a strategic investment of €20 million to build a multi-purpose, multi-user biotech demo plant at the BioCampus premises — an investment that will further strengthen Straubing's top position on the European bioeconomy and renewable raw materials stage.

BioCubator building at the BioCampus Straubing.

Contact

BioCampus Straubing GmbH, Straubing, Germany
info@biocampus-straubing.de
www.biocampus-straubing.de
www.straubing-sand.de

Life Sciences Sector Grows in Austria

Austria's life science industry as well as its research institutions have established a fast growing sector. The latest Life Science Report Austria shows the sustained attractiveness of Austria as a life science location based on the close links between solid academic research and innovative companies as well as the broad offering of tailor-made financial aids.

© Maksym Yemelyanov - Fotolia.com

The development of the sector between 2012 and 2014 is remarkable: compared to the last report, the number of companies active in biotechnology, pharma or in the medical device business has increased by 13.8%. Together, life science companies generated a total turnover of over €19.1 billion (+7.8% compared to 2012).

In 2014, a total of 55 institutions were active in the field of academic life science research and education in Austria. About 20,000 people were working in universities, universities of applied sciences and non-university research institutes. In 2014, Austria's life science budget amounted to €1.44 billion. About 73% of the budget stems from institutional funding, whereas 27% represent third-party funds.

www.lifescienceaustria.at

The Centre-Val de Loire Region is a Magnet for Foreign Investors

In 2014, 25 projects of foreign companies in the Centre-Val de Loire region were listed and a total of 2.115 jobs were created/maintained. These numbers exceeded the previous average of the 2010-2014 period considerably. Regarding the type of investments made, site extensions and company takeovers are now more common than start-ups from scratch.

Europe is still the leading supplier of investment projects and jobs for the Centre-Val de Loire region (40%), followed by North America with 28% of projects. But both of these regions are steadily losing ground to the emerging economies, from which 6 out of 25 projects came in 2014.

© Fredex - Fotolia.com

In 2014 two-thirds of investment projects and 80% of the jobs created/maintained in the Centre-Val de Loire region involving foreign companies concerned production roles. The region is now the leader for new production jobs in mainland France (1,769 announced in 2014). The projects listed reflect the region's top industrial activities: over the 2010-2014 period, almost a third of projects and jobs created/maintained concerned the pharmaceuticals, mechanical equipment, plastics processing and household equipment sectors.

Logistics has also been well represented with the region's prime geographical location and outstanding transport infrastructure having a positive impact.

www.investinloirevalley.com

Index

Imprint

Publisher:
Wiley-VCH Verlag GmbH & Co. KGaA
A Company of John Wiley & Sons, Inc
GIT VERLAG
Boschstr. 12, 69469 Weinheim, Germany
Tel.: +49 6201 606 0

Publishing Director
Dr. Heiko Baumgartner

Product Management + Managing Editor
Dr. Michael Reubold
Tel.: +49 6201 606 745
michael.reubold@wiley.com

Editor in Chief
Ralf Kempf
Tel.: +49 6201 606 755
ralf.kempf@wiley.com

Media Consultants
Thorsten Kritzer
Tel.: +49 6201 606 730
thorsten.kritzer@wiley.com

Corinna Matz-Grund
Tel.: +49 6201 606 735
corinna.matz-grund@wiley.com

Jan Käppler
Tel.: +49 6201 606 522
jan.kaeppler@wiley.com

Team Assistant
Bettina Wagenhals
Tel.: +49 6201 606 764
bettina.wagenhals@wiley.com

Jörg Stenger
Tel.: +49 6201 606 742
joerg.stenger@wiley.com

Freelancer
Miranda Kennedy, Sean Milmo

Wiley Reader Service:
65341 Eltville
Tel.: +49 6123 9238 246
Fax: +49 6123 9238 244
E-Mail: WileyGIT@vuservice.de

Production Managers
Christiane Potthast
Melanie Horn (Advertising)
Oliver Haja (Layout)
Ramona Kreimes (Litho)

Original Articles:
Specially identified contributions are the responsibility of the author. Manuscripts should be addressed to the editorial office. Instructions for authors may be requested from the publishing company. We assume no liability for unsolicited, submitted manuscripts. Reproduction, including excerpts, is permitted only with the permission of the editorial office and with citation of the source. The publishing company is granted the exclusive, space and content restricted right to arbitrarily use the unmodified work/editorial contribution for all purposes for itself and for businesses that have an interest in the publishing company as defined by company law as well as to transfer the right of use to third parties. This right of use applies to both print and electronic media including the internet and data banks/data media of all types.
All names, designation, or signs in this issue, whether referred to and/or shown, could be trade names of the respective owner.

Druck: DSW GmbH,
Flomersheimer Straße 2–4,
67071 Ludwigshafen
Printed in Germany

Title – Copyright
© Victoria, totojang1977, Gerry Thoenen, angellodeco, Giuseppe Porzani - Fotolia

GIT VERLAG
A Wiley Brand

SITE OPERATION. SITE SERVICES. UTILITIES. WASTE MANAGEMENT. LOGISTICS.

>> ENABLING EXCELLENCE: **OUR SITE OPERATION.**

infraserv höchst

SITE. EXCELLENCE.

From site services and utilities to waste management and logistics to end-to-end site operation – leverage our expertise as a pioneering site operator for the chemical, pharmaceutical and related process industries. Discover what it means to be “infraserviced”. www.infraserv.com