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Europe
Chemicals Sectors

A Company and Industry Analysis

June 2008

CONTENTS

Current Environment — Key Points

- Despite growing import pressures on some chemicals segments such as polymers and specialty chemicals domestic demand in Europe remained strong. Exports to the US slowed somewhat although demand in Asia remained solid.
- From January to November 2007, chemical sales excluding pharmaceuticals picked up 5.5% compared to the same period in 2006. Over the same period, sales of petrochemicals grew 8.3% followed by consumer chemicals with an increase in sales of 6.5%, basic inorganics 5.6%, polymers 4.3% and pharmaceuticals 3.4%.
- Growth in 2007 was above the average of the past five years partly due to a recovery from technical problems at several petrochemical complexes in 2006. All chemical sectors gained from the relatively good macroeconomic environment in the EU.
- Even so, rising oil prices and raw materials prices over the last six months had an effect on chemicals producers' sales and profits.
- The chemicals industry continued to undergo major structural changes last year, with large companies that were well diversified increasingly concentrating on specialty and fine chemicals or life sciences.

Industry Profile — Key Points

- The European chemicals industry, once the world's largest chemicals producer, has now lost its top position to Asia, due to the rise of China and India as significant global chemicals producers. Even so, Europe has continued to enjoy buoyant sales levels over the last two years.
- Germany is the largest chemicals producer in the EU, followed by France, Italy and the UK. Intra-European trade has risen over the last ten years, with sales to EU trading partners more than doubling.
- The EU chemicals industry has a positive trade balance with all regions. In 2006, the region's external exports totaled approximately €121 billion (US$184 billion). Imports from outside the region totaled about €80 billion (US$121 billion), according to CEFIC.
- Employment levels in the industry continue to decline as companies strive for higher productivity and outsource to other parts of the world.
- Chemicals, the fifth largest spending sector, represented 8% of total EU manufacturing R&D spending of €98.5 billion (US$149.4 billion).

Market Trends and Outlook — Key Points

- Chemical manufacturers have for a few years now increasingly produced specialty chemicals for particular clients — and many of these custom manufacturers are becoming attractive to international acquirers.
- Many Indian companies are enjoying the advantage of low-cost production by globalizing their operations and are either buying or aligning with western businesses.
- The European chemicals industry is one of the largest consumers of oil, but high energy and raw materials costs are prompting chemicals producers to create more innovative materials.
- General cooling of the world economy in 2008 is expected to affect the output of the EU chemicals industry. Economic growth in the EU is expected to decline to 2.4% in 2008 down from 2.9% in 2007.

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Current Environment

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Sector Overview

In 2007, all chemical segments grew across the region, with the consumer chemicals sector posting the highest growth of 4.5%. Among other key segments, petrochemicals and polymers improved the most in 2007 after a modest 2006, despite rising imports. Sales of basic inorganics rose moderately despite high energy prices, according to the European Chemical Industry Council (CEFIC). Over the first 11 months, chemicals industry output was strong and the chemical business confidence index remained high, supported by major chemical users such as automobile and machinery makers. In fact, growth in 2007 was above the average of the past five years partly due to recovery from technical problems at several petrochemical complexes in 2006.

In addition, exports continued to grow despite the weakening the US dollar. Pharmaceuticals, the leading performer in the EU chemicals industry, were forecast to have severely decreased to 4% in 2007 from a growth of 8.1% in 2006 owing to the slower growth in specialty chemicals due to cooling demand from manufacturing industry customers in Europe. Nevertheless, the sector was still projected to show the highest growth in 2007 and into 2008.

Table 1: European Chemicals Production by Sector, 2006-2008
(in percentages)

	Annual Change		
	2006	**2007**	**2008**
Pharmaceuticals	8.1	4.0	3.5
Petrochemicals	1.3	3.8	2.0
Polymers	0.2	1.5	1.5
Consumer Chemicals	4.2	4.5	3.0
Specialty & Fine Chemicals	3.4	2.5	2.0
Basic Inorganics	1.7	0.5	1.0
Chemicals excluding Pharmaceuticals	**2.1**	**2.6**	**1.9**
Chemicals including Pharmaceuticals	**3.8**	**3.0**	**2.3**

Source: European Chemical Industry Council

Market Segments

The EU chemical sector showed significant growth in 2007 compared to the previous year. According to CEFIC, the chemicals industry grew by 2.7% owing to the strong growth rates in industry especially in important chemical downstream user industries such as automotive, metals, mechanical and electrical industries, textiles and clothing, and paper and printing products, together accounting for 25.1%. All sectors benefited from a modest economic environment for the EU. Despite growing import pressures on some chemicals segments such as polymers and specialty chemicals, domestic demand remained strong.

Production

According to data from the CEFIC, in 2007 European chemical production, excluding pharmaceuticals, rose 2.5% during the first 11 months compared to the same period in 2006, maintaining the growth pace of prior months. Consumer chemicals posted the highest growth with 4.8%, followed by petrochemicals with 4.1%, and pharmaceuticals with 3.8% from January to November 2007. Polymers, specialties and basic inorganics showed moderate growth during the first 11 months of 1.1% and 1.6% respectively compared to the same period in 2006. While most of the sectors benefited from the growth in 2006, basic inorganics have accelerated in recent months, despite the negative figures in certain sub groups, such as synthetic rubber and man-made fibers. The growth of specialty chemicals was slowed down by dyes and pigments and crop protection.

Prices

According to data published by the CEFIC, chemicals producer prices, excluding pharmaceuticals, rose 3% during the first 11 months of 2007 with petrochemicals showing the highest growth of 4.5% over the same period in 2006. During the first 11 months of 2007, petrochemicals, basics inorganic and polymers prices increased by 4.1%, 3.9% and 3.1% respectively. Prices for specialty chemicals and consumer chemicals showed very modest growth with 2% and 1.7% respectively. Pharmaceuticals and dyes and pigments both showed lower product prices, of 0.4 and 1.3% respectively.

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Table 2: European Chemicals Production Trend, 2007 (in percentages)

Production Growth (in volume)	November 2007	January-November 2007	November 2007	January-November 2007
Sectors	**Index (2000=100)***		**Year-on-year Change (%)**	
Petrochemicals	10.9.2	109.2	4.4	4.1
Polymers	96.9	99.6	(2.4)	1.1
Plastics	99.2	101.6	(1.4)	1.8
Synthetic Rubber	101.8	112.3	(16.0)	(4.8)
Man-made Fibers	74.4	76.0	(3.6)	(3.2)
Basic Inorganics	113.9	111.5	4.3	1.6
Other Inorganics	116.0	114.6	(0.5)	(1.1)
Industrial Gases	128.6	125.3	4.1	5.0
Fertilizers	100.2	96.7	12.9	4.2
Pharmaceuticals	158.7	153.4	7.9	3.8
Specialty Chemicals	102.7	103.6	(1.3)	1.6
Auxiliaries for Industry	104.9	104.5	0.9	2.7
Dyes and Pigments	96.9	97.6	(5.8)	(3.7)
Crop Protection	77.0	77.8	(2.4)	(1.7)
Paints and Inks	107.0	110.0	(3.1)	2.3
Consumer Chemicals	120.6	121.3	0.5	4.8
Overall Chemicals	121.0	120.1	3.2	3.0
Chemicals excluding Pharmaceuticals	106.4	107.2	0.7	2.5

Source: Eurostat
Note: * Seasonally adjusted data

Soaring oil prices which seemed to double between January (US$54.67 per barrel) and November 2007 (US$94.63 per barrel) reduced the profit margins of the petrochemicals, basic inorganics and polymers segments. Oil prices eased slightly at the beginning of December to US$91.74 per barrel. However, low inventories created the risk of further price increases.

Sales

From January to November 2007, chemical sales excluding pharmaceuticals picked up 5.5% compared to the same period in 2006. Over the same period, sales of petrochemicals grew 8.3% followed by consumer chemicals with an increase in sales of 6.5%, basic inorganics with 5.6%, polymers with 4.3% and pharmaceuticals by 3.4% compared to the same period in 2006. Specialty chemicals showed the lowest growth with 2.9%, according to the CEFIC.

Trade

According to data from the CEFIC, over the first ten months of 2007 the extra-EU chemical trade balance excluding pharmaceuticals dropped 13% compared to the same period of 2006 owing to a widening imports to exports ratio. Over the same period, extra-EU chemical imports excluding pharmaceuticals rose by 13.3% while exports rose by only 4.2%. Pharmaceuticals posted the best trade performance with a 12% increase in the trade surplus over the first ten months of 2007 to €31.9 million (US$48.4 million) from €28.6 million (US$43.4 million) from the same period in 2006 while consumers chemicals with only 5% to €11.4 million (US$17.3 million) from €10.8 million (US$16.4 million). All other segments showed a negative trend in the trade surplus balance, with petrochemicals recording the biggest drop of 47% to €3.9 million (US$5.92 million) over the period. The trade development was partly a result of the euro and dollar

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exchange rate and euro reaching an all-time record at US$1.48 per €1, on November 20, 2007.

Sector Performance

The share prices of most leading European chemical companies dropped by 19.6% over the six months from July 31, 2007 to January 28, 2008. Out of the ten companies surveyed by Mergent, only Bayer AG's (FSE: BAY) share price rose (by 6%), valuing it at €54.8 (US$83.1) per share over the period after the company revealed that multiple sclerosis drug Alemtuzumab could be a blockbuster with €750 million (US$1.14 billion) to €1 billion (US$1.52 billion) peak sales potential.

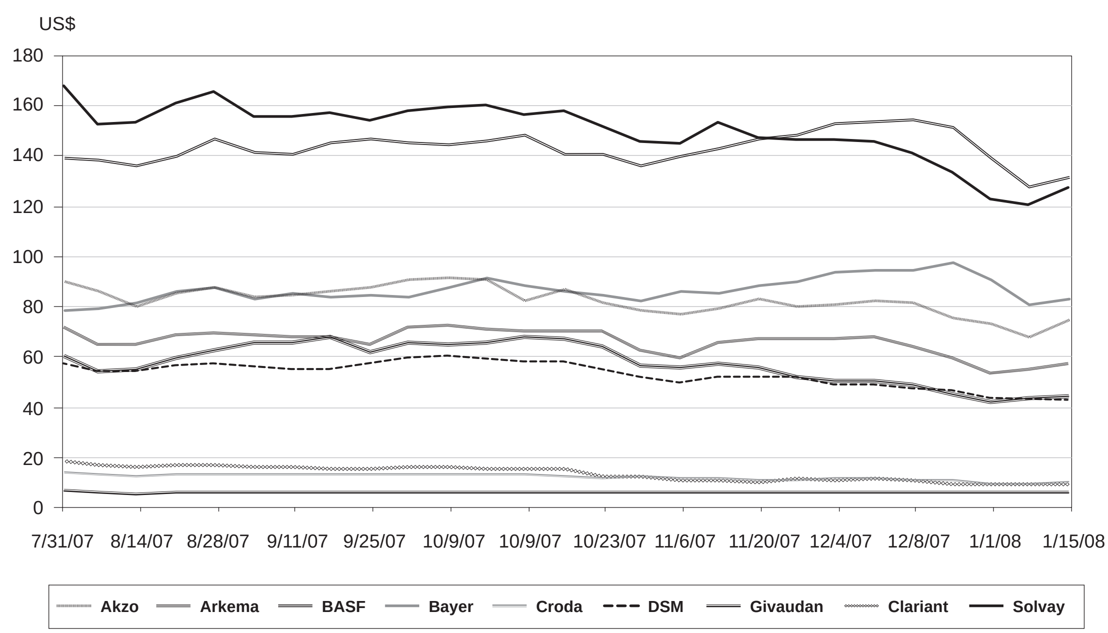
The largest percentage decline among the chemical stocks was recorded by Clariant SA (SWX: CLN), falling 50.8% during the period. Clariant experienced a drop in its share price of 43.9% in the middle of an upswing in the chemicals industry to US$10.3 on December 31, compared to US$18.4 on July 31, 2007, and in 2008, the decline has been another 4% to US$9.07 on February 28, 2008. The decline was due to disappointing fourth quarter results caused by high raw materials costs fueled by high oil prices.

Leading Companies

European chemical companies remained resilient against the rise of the euro against the US dollar. The strengthening of these currencies has not had much of an impact but it will if the appreciation against the dollar continues for a while. In fact, in Germany, exports of chemicals outside Europe grew by nearly 10% in the first nine months of 2007, according to the German Chemical Industry Association (VCI). However, the buoyancy of the euro began to hit the industry's major customers.

For the full year of 2007, BASF AG (FSE: BAS), the world's biggest chemicals producer, earned its highest ever premium of €2.9 billion (US$4.4 billion) on its cost of capital and grew profitably and faster than the market. Sales were up more than 10%. Sales in North America grew 13% in local currency terms although they dropped for the plastics segment and in the agricultural products segment as a result of currency effects. In Belgium,

Table 3: Leading Companies' Share Movements from July 31, 2007, to January 28, 2008



Source: Mergent Analysis

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sales of Solvay SA (BXS: SOLB) totaled €9.57 million (US$14.5 million) in 2007, an increase of 2% compared to 2006, despite the unfavorable impact of the exchange rate.

Despite substantial headwinds from unfavorable foreign exchange and escalating raw material and energy costs, Rhodia SA (PAR: RHA), posted full year operating profit of €448 million (US$679.7 million) compared with €359 million (US$544.7 million) in 2006 owing to strong demand from its chemical segment. Similarly, Croda International (LSE: CRDA) reported sales from continuing operations of £886.1 million (US$1.76 billion) against £480.1 million (US$954.4 million) in 2006. The company survived the currency headwind after raising prices of its products by 12.3%.

Trends in oil prices over the next several months could have major effects on sales and profits in the chemicals industry, especially in Europe. Oil prices are expected to rise after the Organization of the Petroleum Exporting Countries (OPEC), which controls over a third of world supplies, decided in early December not to raise output. If oil prices continue to rise, converters and other customers of the industry will buy more chemicals to stock up on inventory.

Divestments and Acquisitions

The chemicals industry has undergone major structural changes in recent years. All large companies had previously diversified over the whole range of chemical products. Now, many companies have shifted to concentrate on specialty and fine chemicals or life sciences. Several assets are known to be available for sale, including plants or operations owned by large pharmaceutical companies seeking to divest themselves of particular lines of business. There has also been a strengthening in the outlook among contract manufacturers of active pharmaceutical ingredients (APIs) and intermediates which has led to greater interest in acquisitions.

Bulk or commodity chemicals have already largely been sold or spun-off to investment groups. The bulk manufacturing component of the chemicals industry has also been having a difficult time of late, with most companies left in the business, especially in western Europe, running at low profits or at loss, or shifting to areas where the labor costs are cheaper and feedstock is more readily available.

For instance, in December 2007 Evonik Industries AG, one of Germany's largest private residential property companies, agreed to sell its subsidiary, the Rutgers Chemicals GmbH tar chemicals processing business, to private equity investor Triton in order to focus more on its core specialty chemicals business. The transaction is expected to be concluded by the end of March 2008.

Likewise, BASF AG is considering selling off its styrenics business, which has annual sales of €3.2 billion (US$4.9 billion). The company's specialty plastics and foam businesses will be shifted to its performance polymers division from the styrenics unit, making the remaining assets such as styrene monomer and polystyrene for sale. Within its performance products unit, BASF is also creating a new operating division — care chemicals — to focus on consumer goods and pharmaceutical customers.

Most large companies have transferred significant parts of their manufacturing activities to areas where overhead costs are lower. For instance, in December 2007 Evonik Industries formed a joint venture with Degussa Sanzheng (Yingkou) Fine Chemicals Co Ltd to build a cyanuric chloride plant, an intermediate used in agriculture applications and in the textile, paper and plastics industries in the Chongqing Industrial Park in western China. The new plant is scheduled for completion by the end of 2008. With the construction of the new plant, the existing capacity in China will be doubled to 60,000 metric tons.

Industry Profile

Industry Size and Value

The European chemicals industry, once the world's largest chemicals producer, has now lost its top position to Asia, due to the rise of China and India as significant global chemicals producers. Even so, Europe has continued to enjoy buoyant sales levels over the last two years. In 2006, world chemicals sales were estimated at €1,641 billion (US$2,489.7 billion), an increase of 9% compared to 2005, with the EU representing €476 billion (US$722.2 billion) of the total, according to CEFIC.

Germany is the largest chemicals producer in the EU, followed by France, Italy and the UK. In 2006, these four countries generated a combined total of €296 billion (US$449 billion), two thirds of the EU's chemicals sales. Mutually, Netherlands, Spain, Belgium and Ireland raised their share to 89%, or €422 billion (US$671 billion). Poland, the biggest new EU country, represents nearly 2% of total EU chemicals sales.

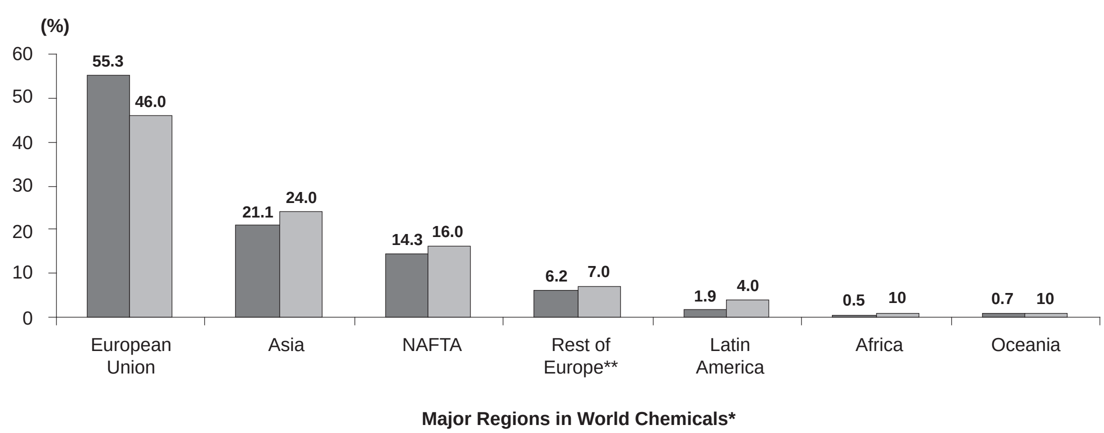
Intra-European trade has also risen over the last ten years, with sales to EU trading partners more than doubling. With the accession of the ten new member states in 2004, the domestic market was given a significant boost. By 2006, half of global sales were intra EU (excluding domestic sales). One quarter of chemicals sales were exports out of the EU with either NAFTA (North American Free Trade Agreement), neighboring EU countries and Asia.

In 2006, 14 of the 30 world chemicals leading companies namely BASF AG, Bayer AG, Royal Dutch Shell (AMS: RDS), Ineos Group Ltd, Total SA (PAR: TOT), Akzo Nobel (AMS: AKZA), Air Liquide SA (PAR: AI), Degussa AG (FSE: DGX), BP plc (LSE: BP), Basell NV, Solvay SA, DSM NV (AMS: DSM), Linde AG (FSE: LIN) had their headquarters in the EU — representing 16% of world chemicals sales. These 30 companies had combined sales revenues of €526 billion (US$798 billion) a significant increase compared to the previous year, according to CEFIC.

International Trade

The EU chemicals industry has a positive trade balance with all regions. In 2006, the region's external exports totaled approximately €121 billion (US$184 billion). Imports from outside the region totaled about €80 billion (US$121 billion), according to CEFIC. In 2006, the trade surplus was €40.6 billion (US$61.6 billion), back to 2002

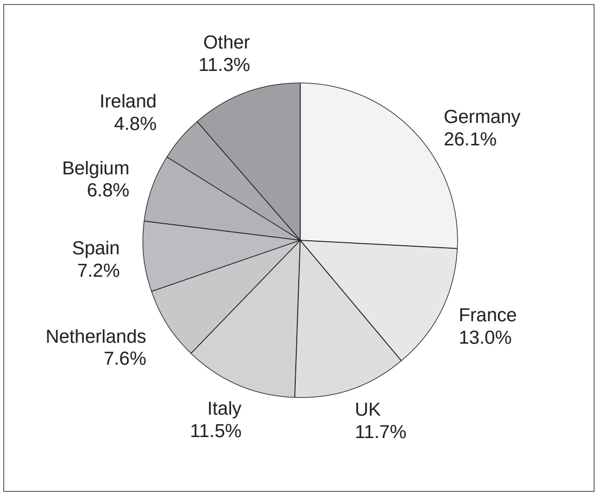
Table 4: World Network of Chemicals Trade Flows, 2006 (in percentages)



Sources: European Chemical Industry Council Chemdata International and Eurostat (intra EU trade)
Note: * Including Pharmaceuticals
** Rest of Europe including Switzerland, Norway and other Central & Eastern Europe

Industry Profile

Table 5: Geographic Breakdown of EU Chemical Industry Sales, 2006 (in percentages)



Source: European Chemical Industry Council Chemdata International

levels although imports rose at a higher pace than exports, signifying a sign of strengthening global competition. This was a result of new emerging competitors in the Middle East and the Asia-Pacific. The external EU chemicals trade surplus was mainly attributable to North and South America with 41%, Africa 11.7% and Asia-Pacific excluding Japan 8.7%, according to CEFIC.

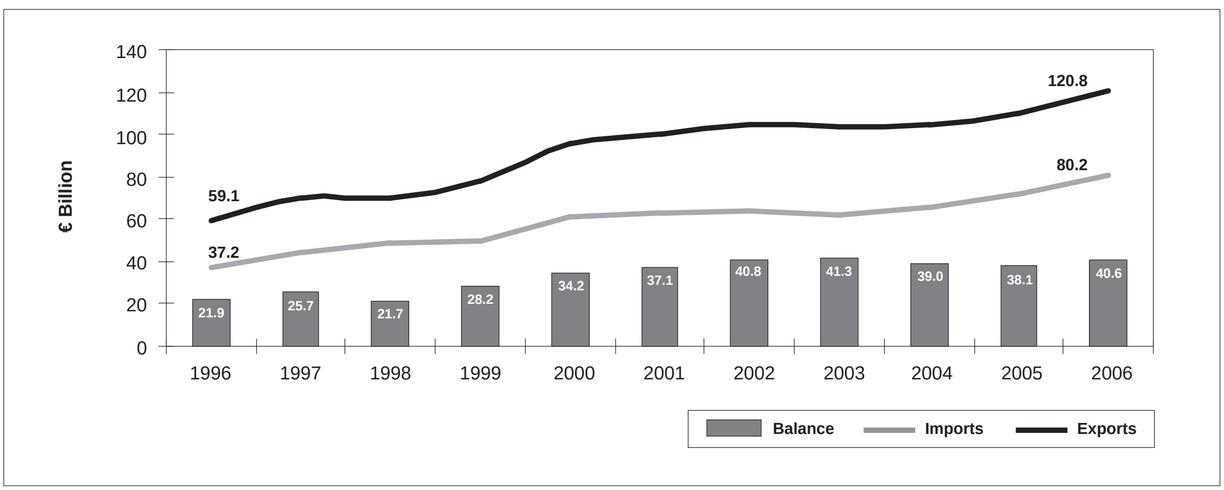
Specialty chemicals, the strongest sector in the world market, accounted for more than 37% of the EU chemicals trade surplus, at €15.3 billion (US$23.2 billion), in 2006. Consumer chemicals ranked second with €13.4 billion (US$20.3 billion), followed by petrochemicals with €7.7 billion (US$11.7 billion) and polymers with €6.9 billion (US$10.5 billion). Basic inorganics was the only sector which recorded a trade deficit of €2.7 billion (US$4.1 billion). With €34.8 billion (US$52.8 billion), pharmaceuticals added to the €40.6 billion (US$61.6 billion) total trade surplus in 2006.

Sector Employment

Employment levels in the industry continue to decline as companies strive for higher productivity and outsource to other parts of the world. Total employment in the chemicals industry was at 1.75 million at the beginning of the fourth quarter of 2007, compared with 1.8 million in 2006 and 1.96 million five years ago. The chemical sector has to compete with other industries for human resources with appropriate skills and qualifications, particularly from younger age groups. In Europe, where the population is getting older, chemical companies are finding that they have a disproportionate number of staff in older age groups resulting in higher number of people retiring than the number of new recruits. Employment also has been shrinking due to extensive restructuring following a shift in the chemicals industry from commodity to specialty products.

The chemical sector in some East European countries that joined in the EU in 2004 are likely to suffer the biggest job losses over the next few years because their industries

Table 6: External Trade in the EU Chemicals Industry, 1996-2006 (in € billion)



Source: European Chemical Industry Council and Eurostat

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have still not been entirely restructured following the collapse of the Communist bloc almost 20 years ago. For example, the chemical employment in Poland has been shrinking more than halved to around 65,000 since the mid-1990s, and its has still not finished the reorganization of its bulk chemical sector. Some state-controlled chemical companies in Poland have not yet fully privatized, after which there will inevitably be further job cuts, according to the European Mine, Chemical and Energy Workers' Federation (EMCEF). Unlike in Western Europe, most Eastern European countries have not been able to build up specialty chemical sectors to replace the loss of commodity operations.

Total employment in Germany rose just 0.2% for the first time in four years to 437,000 in the fourth quarter of 2007. Ironically the growth was partly due to an upswing in employment in the former Communist East Germany. There, specialty chemical clusters' major customers are often in neighboring East European countries.

The numbers of white-collar jobs in some segments has fallen, mainly because of the centralization of administration, particularly financial services, by multinational companies. BASF and DuPont (NYSE: DD) for instance, have set up European administrative centers in Berlin and southern Spain respectively. This year, Ciba Specialty Chemicals (SWX: CIBN) said some 900 jobs would be cut in Europe where it is trying to streamline its administrative activities from an old system.

Chemical companies will soon face problems in human resources due to population imbalances, with intense competition for qualified staff due to ageing populations. German chemical employment represents more than one fifth of all EU chemical employees. In recent years, trade union representatives have been pressing companies to provide more apprenticeships for young people. Yet there are signs that there will soon be more apprenticeships than applicants.

Total chemical employment in the UK fell by 24% between 1996 and 2006, with the industry facing tough competition from the North Sea oil and gas sector. Many specialist workers on North Sea rigs, such as maintenance staff, fitters and machine operators, have skills needed by chemical companies. Competition for staff could also raise labor costs. In Germany, trade unions have put in claims for a 6-7% rise in salaries — nearly triple the rate of inflation. Total chemical employment in the EU is likely to drop but the average wage is expected to rise significantly over the next several years.

Sector Investment

Chemicals, the fifth largest spending sector, represented 8% of total EU manufacturing spending in R&D of €98.5 billion (US$149.4 billion). R&D investment in the chemicals sector rose 17% in 2007 compared to the previous year. The chemicals industry invests approximately €230 billion (US$349 billion) every year in R&D and innovation in Europe alone. Some companies have boosted their investment, in part reflecting acquisitions and consolidation in the sector. For example, Bayer boosted spending by 30.3%, Solvay by 20.3% and BASF by 19.8%.

The EU is facing tremendous challenges, with low domestic growth, ageing populations, high labor costs and limited access to cheap raw materials and energy among some of the issues. Others include logistics and production restraints and high regulatory pressures which erode the industry's competitiveness. The future of the industry will depend on the ability of authorities and the industry itself to act on the drivers of their competitiveness and to build a framework which allows the European industry to compete worldwide.

Policy and Regulatory Environment

With growing customer demands and environmental regulations, chemical companies are facing challenges to maintain their competitive advantage. In June 2007, the EU's environmental testing law for the chemicals industry came into force. REACH is a new European system for regulating chemical safety to improve the protection of human health and the environment from chemical risks. June 1, 2008, marked the first significant deadline. Registration must now contain information on exposures and risks in downstream uses of substances and preparations. Formulators, manufacturers, and importers of chemicals in the EU and companies that market and sell their chemicals into the EU must electronically submit certain data to the European Chemicals Agency.

The main objective of pre-registration data is to start the sharing data between multiple registrants to minimize unnecessary testing and other costs for the industry. REACH requires a closed loop of information flow from customers back upstream to make sure that substances and preparations used in products are properly registered. The

Industry Profile

chemical companies that pre-register will gain fast-mover advantage by securing their suppliers and protecting client relationships. However, some companies have concerns about the regime. Intel Corp (NYSE: INTC), the world's largest semiconductor company, has expressed concerns that competitors will figure out what it uses and will gain closely guarded trade secrets by extracting data from the REACH archives. Intel uses about 275 different chemicals in its fabrications processes, including at least 400 different substances.

By June 2009, all companies must be on a pre-registration list or face fines or closure. By 2010, REACH requires the chemicals used in high volumes to be registered. REACH is estimated to cover about 30,000 substances and affect 30,000 companies. Intel, for example, is currently working to reduce the number of chemicals that can be strictly controlled. There may be as 20 chemicals that could be challenged unsafe. Since Intel has its European manufacturing base in Ireland, the country could argue for exposure scenarios that might aid Intel's ability to meet the REACH deadlines and shorten the list of restricted and banned chemicals.

Market Trends & Outlook

Custom Chemical Manufacturers Become Attractive to Acquirers

Chemical manufacturers have for a few years now increasingly produced specialty chemicals for particular clients. Many of these companies make active ingredients for pharmaceutical companies, although customized services are available to clients in a range of industries. The separation of manufacturing operations from large, diversified sales and marketing companies is often viewed as an advantage due to the different business dynamics. Small- and medium-sized companies that focus on the fine chemicals market are often better positioned to provide specific services to specific clients.

Some of these companies have been the targets of acquirers of late, with investors seeing the potential in this niche market. Since its launch in late 2004, Sigma-Aldrich (NASDAQ: SIAL), a leading producer and supplier of research biochemicals, organic chemicals and fine chemicals has been finding similar companies to add to its nearly US$500 million-a-year business. For example, in August 2006 Sigma Aldrich's SAFC fine chemicals group acquired Pharmorphix Ltd, a privately-owned firm based in Cambridge, UK, in August 2006, making it part of the SAFC Pharma unit of its fine chemical business. The new company, SAFC Pharmorphix specializes in research services to the global pharmaceutical and biotech markets.

There has also been a wave of Indian companies, riding high on their recent history of strong growth, acquiring custom chemical operations in the west. For example, Nicholas Piramal India Ltd (NPIL) (BSE: 500302) acquired Avecia Holdings Plc, a leading British private biotechnology firm in October 2005 for £9.5 million (US$14.4 million). The acquisition was NPIL's second M&A transaction in the UK after its acquisition of Rhodia's Inhalation Anesthetics business in December 2004. In June 2006, NPIL Pharma took another major step toward becoming a global player when it purchased Pfizer Inc's (NYSE: PFE) Morpeth, England, site. The deal included a potential US$350 million, five-year agreement with Pfizer to supply APIs. Another example is by India's Dishman Pharmaceuticals and Chemicals (BSE: 532526) which bought Solutia Inc's (NYSE: SOA) pharmaceutical services business consisting of the Swiss operation CarboGen Amcis for US$74.5 million in August 2006.

Acquirers are not just buying business assets but also gaining important access to intellectual patents, blue-chip clients and to some of the largest markets for fine chemicals. For instance, India's Shasun Chemicals and Drugs (BSE: 524552) bought Rhodia's UK-based pharmaceutical chemicals business in April 2006.

Western Chemicals Companies Align with India

The term "Asian tigers" refers to the fast-growing countries in the Pacific Rim, namely Taiwan, China, South Korea and Singapore. Today, India ranks among the world's largest economies and is growing faster that many of the original tigers. India has been regarded by many economists and analysts as a "tiger in the cage", with the "cage" referring to excessive bureaucracy, corruption and protectionism. Now that India has joined the World Trade Organization and reformed its intellectual property laws, although it suffers from basic infrastructure problems, India has advanced far technologically. Many Indian companies are enjoying the advantage of low-cost production economics by globalizing their operations and either buying or aligning with western businesses.

As part of this evolution, the past few years has also seen the transition of several chemical companies to the pharmaceuticals sector. These include Jubilant Organosys Ltd (BSE: 530019), Hikal Ltd (BSE: 524735), Mangalam Drugs and Organics Ltd (BSE: 532637), Dishman Pharmaceuticals and Chemicals, Shasun Chemicals and Drugs Ltd, Ajanta Pharma Ltd (BSE: 532331) and Atul Ltd (BSE: 500027) — all of which have successfully moved into the pharmaceuticals area for better margins. Both industries are closely related in terms of materials, products and processes.

European manufacturing chemical companies that have long depended on advantages in technology, IP protection, and regulatory compliance are now diversifying their operations to leverage lower cost production — and many are doing so with Indian companies. For example, Evonik Industries' chemical business, formerly Degussa, agreed on a partnership with Hikal Ltd to manufacture pharmaceutical intermediates and APIs. Under the agreement, Degussa will provide certain projects to Hikal and, in turn, Hikal

Market Trends & Outlook

will provide manufacturing of respective advanced intermediates and APIs for Degussa on a favorable cost basis. With Degussa's R&D and manufacturing facilities in Europe and North America, Evonik can now offer its customers tailor-made services.

In June, DSM announced that the company's intention was to improve the profitability of its anti-infectives business through partial divestments, restructuring measures, and a partnering strategy for lower-cost production. In December 2007, DSM's anti-infectives business agreed to make generic APIs with Arch Pharmalabs. Arch will make bulk drugs that DSM will sell to global and Indian customers in early 2008. DSM will contribute technologies and market access, while Arch will apply its Indian asset base and chemical conversion expertise. This agreement is estimated to add US$100 million to Arch's current annual revenues of US$125 million. Although there are many opportunities in India, there are also many uncertainties related to inflation, employment, and government actions.

High Oil Prices a Catalyst for Innovation

The European chemicals industry is one of the largest consumers of oil, but high energy and raw materials costs are prompting chemicals producers to create more innovative materials. As consumers also look for alternative energy sources and more energy efficient products, the industry is developing new products that insulate buildings, reduce the weight of cars and help biofuel crops grow. High oil prices are a boon for the chemicals industry, with innovation the key to boosting energy efficiency and tapping alternative energy sources. Many chemicals producers have tried to move up the value chain to more sophisticated and higher-margin products, intensifying their efforts to benefit from the trends such as the drive for more energy efficiency, lower pollution and more recycling for far-end products.

The greater the pressure from higher energy costs, the more effort is put into the innovation process. However, demand for innovative chemicals and plastics growth will only accelerate if soaring energy costs do not drag the world into recession. But so far, examples of innovations have flourished. In January 2008, Bayer AG, Daimler AG (FSE: DAI) and Archer Daniels Midland Co (NYSE: ADM) agreed to jointly develop the production of biofuel diesel from the tropical Jatropha plant that grows even on barren land. Fuels derived from Jatropha have properties similar to those of fuels from rapeseed oil. Bayer is also using the plastics as a basis for fashioning side- and roof windows for cars, offering the advantage of lighter weight than glass and making them more fuel-efficient.

But the lead time of such innovations can be some time, with oil and gas derivatives forming the basis of 85% of all substances produced in the chemicals industry. Company costs are rising in a far shorter time span. So, companies that have a hard time passing on higher costs to customers, particularly some specialty chemicals producers, have little to gain from expensive oil and gas. Only those chemicals producers that manage to pass along higher raw materials costs to customers in the near term stand to benefit from longer-term positive product demand trends related to high energy prices.

Chemical producers may also find the implementation of the REACH legislation and other new regulations will affect their efforts to innovate, diverting much needed funding and time. The bottom line is that, high energy costs are a burden on the chemicals industry but at the same time they can lead to trends that have the potential to at least partially compensate for the negative effects.

Market Outlook

General cooling of the world economy in 2008 is expected to affect output growth in the EU chemicals industry. Economic growth in the EU is expected to decline to 2.4% in 2008 down from 2.9% in 2007. Fears about general economic conditions are widely shared in the financial community. Credit Suisse Group (SWX: CSGN), for example, has expressed its concern about inflation. The rise of raw materials costs, oil prices and other energy supplies poses threats to the chemicals industry. Output growth of chemicals, including pharmaceuticals output growth, is expected to drop to 2.3%, down from 3% in 2007, according to CEFIC.

Oil prices jumped to an inflation adjusted record high of US$103.95 on March 3, 2008, according to New York Mercantile Exchange. The chemicals industry, which is energy intensive and uses oil derivatives and petrochemicals as inputs, will continue to be hard hit by high raw materials costs and competition. High oil prices will lead to higher production costs and lower consumer and business confidence, squeezing producers' profit margins. Companies are trying to pass the burden onto customers but this is not always possible with consumption falling as well.

Market Trends & Outlook

Even so, over the last few tears, many petrochemical companies have enjoyed strong pricing power, enabling them to pass on higher raw materials costs to their customers. The first quarter contract increased €78 (US$118.3) per tonne at €1,023 (US$1,552) per tonne free delivered northwest Europe. Record high upstream oil and naphtha pricing pushed European ethylene contract levels up between mid-November and mid-February. Specialty chemicals producers are struggling to cope with significant competition and they often have to swallow raw material price increases.

Standard & Poor's expects specialty chemicals producers to remain vulnerable to inflation of raw materials costs in 2008. Specialty chemicals producers will be more sensitive to the weakening US dollar than petrochemical companies, as the sector relies heavily on exports. However, favorable sales levels moving into 2008, internal cost restructuring and an expected easing of petrochemical prices in 2009 suggest that the industry may not struggle as well much as anticipated in the coming years.

Consolidation in European chemicals industry is forecast to continue and will provide further opportunities among chemical-related companies. Specialty and fine chemicals will offer opportunities, with overcapacity restructuring needs, and price pressures from the Asia-Pacific. M&A is expected to be focused on smaller deal values.

Country Profile

Belgium

MERGENT

Sector Overview

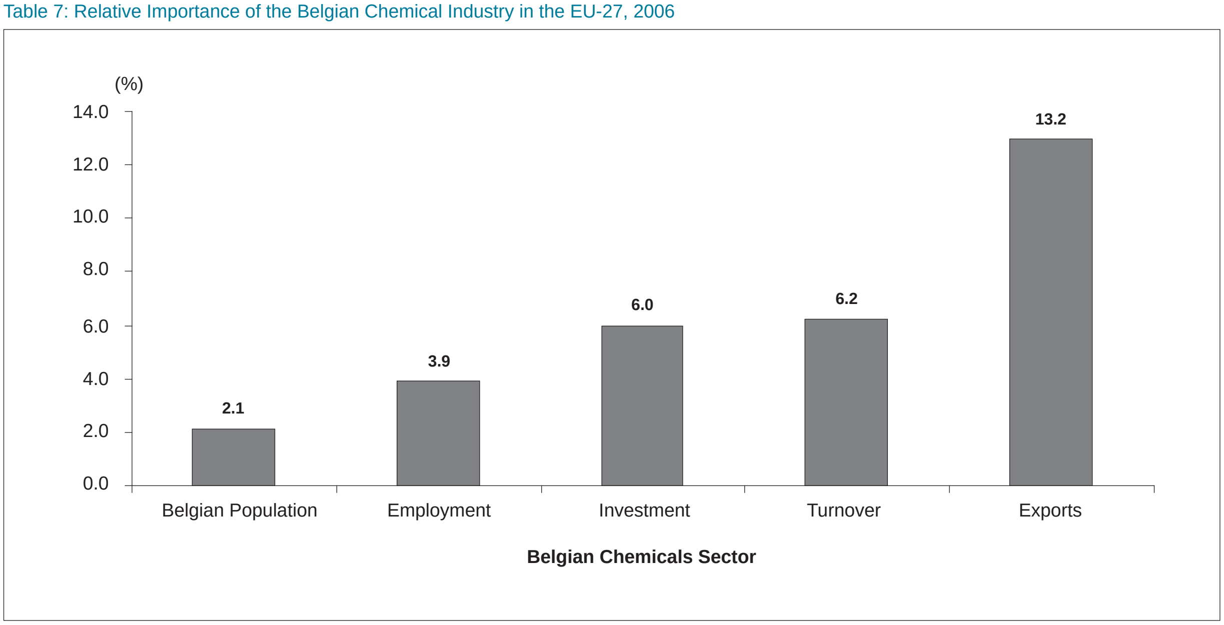
Belgium is one of the largest chemical-producing countries in Europe, accounting for more than 6% of the total European turnover in this sector. The country accounts for less than 13% of the EU's total extra-European exports of chemical products although Belgium's share of the total EU population is only 2.1%. The industry's turnover exceeded €51 billion (US$77.4 billion) in 2006. Generally, exports are one of the Belgian chemicals industry's main strengths. The Belgian Federation for Chemistry and Life Sciences (ESSENSCIA) estimates that the country exports, on average, more than 80% of the chemicals it produces. Belgian exports to the US have fallen since the start of the US slowdown in early 2006. This drop might become even more pronounced in the next few months with the euro appreciating further against the dollar. Nevertheless, the robust growth in exports to the other economic regions largely offsets for the fall in exports to the US.

Belgium's top three import partners are the Netherlands, Germany and France. A quarter of all exports go to Germany, while other immediate neighboring countries import nearly 30%. Belgium has virtually no natural resources. The country imports raw materials and semi-finished goods that are further processed and re-exported. The country mainly imports mineral fuels and oils, chemicals and pharmaceuticals products, vehicles and machinery.

Industry Size and Value

The chemicals industry employs about 95,000 people, or 16% of all employment in the whole manufacturing sector. The chemicals industry covers a wide range of activities, with differing growth rates. According to figures from the National Institute of Statistics, basic chemicals, the largest segment accounting for 44% of total turnover of the Belgian chemical sector, recorded growth of 4.5% in 2006 compared to 2005. Downstream segments such as plastics processing and paint and varnishes grew 9.1% and 8.4% respectively following growth in the European construction market, a chemical-intensive industry. The less cyclical pharmaceutical industry also had a strong year, growing 9.5% in 2006 compared to the previous year.

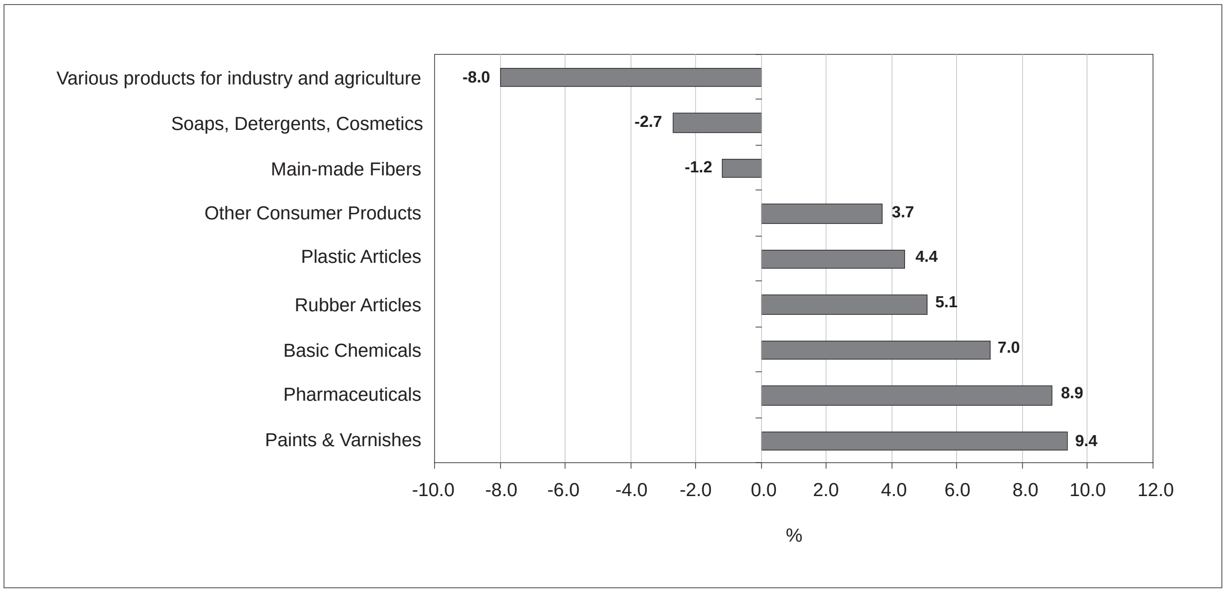
Table 7: Relative Importance of the Belgian Chemical Industry in the EU-27, 2006



Sources: European Chemical Industry Council, Belgian Federation for Chemistry and Life Sciences Industries, Eurostat
Calculations: Belgian Federation for Chemistry and Life Sciences
Note: Chemical industry excluding the rubber and plastics processing

Country Profile - Belgium

Table 8: Yearly Average Turnover Growth by Segment, 1996-2006 (in percentages)



Source: National Institute of Statistics

Leading Companies

There was strong and sustained demand from European markets and improved prices for chemical products in the third quarter of 2007, leading to positive financial performances by Belgian chemical companies.

Solvay SA

Belgian chemical and pharmaceutical group Solvay reported a rise in its third quarter 2007 results. The group's net profit rose to €218 million (US$330.7 million) from €181 million (US$275 million) in the same period a year earlier which beat market expectations of €149-179 million (US$226-272 million). Sales improved by 4% for the third quarter of 2007 to €2.4 billion (US$3.64 billion) from €2.3 billion (US$3.5 billion) in the same period of 2006. The results showed continued growth in its chemicals and plastics divisions. Sales of chemicals rose to €761 million (US$1.15 billion) from €746 million (US$1.13 billion), while plastics rose to €954 million (US$1.45 billion) from €944 million (US$1.43 billion). Pharmaceuticals sales grew to €683 million (US$1.04 billion) from €614 million (US$932 million) in the corresponding period of 2006, despite negative effects from the US dollar and the seasonality of flu vaccine sales, which affected the group's pharmaceutical business unit.

Tessenderlo Group (BXS: TESB)

Tessenderlo reported a rise in net profit following a good performance in its specialties and chemicals segments. The group registered net profit of €29.4 million (US$44.6 million) for the third quarter of 2007, up from a loss of €12.5 million (US$19 million) in the same period of 2006. The company posted net sales of €587.9 million (US$892 million), an increase of 8% from €543.9 million (US$825.2 million).

Sector Employment

In 2006, chemicals performed better than most industries in Belgium. Employment grew by 0.2% from 2005 levels. The pharmaceutical sector was the main contributor to this increase. Blue-collar workers represented almost 50% of the total employees in the sector. Apart from direct employment in the sector, the Belgian chemicals industry generates indirect employment in other sectors through its activities such as accountancy, information and communications technology, wholesale and transport. On average, each direct job generates approximately 1.5 indirect jobs in the Belgian economy, according to ESSENCIA.

Country Profile - Belgium

Sector Investment

The Belgian chemicals industry has benefited from the economy's openness and has enjoyed consistent growth over the past few years. More than 75% of total investment in the chemicals industry has originated from foreign-based parent companies, for example, Lanxess AG (FSE: LXS). Due to a sluggish economy in 2002 and 2003, many investment projects were delayed or totally abandoned. In 2005, investments even reached the lowest level of the last ten years. After three years of declines, total chemical investment went up again in 2006 to €1.73 billion (US$2.62 billion), an increase of 10.1% compared to the year earlier. A number of major investment projects started in the port of Antwerp.

Market Outlook

Continuous global economic growth and manufacturing activities over the last two years, sustained by an improving domestic environment, is expected to benefit the Belgian chemicals industry in the next year. Exports are forecast to be the most powerful driver for the industry, with more deals with foreign companies expected to result in trading partnerships and business restructuring to maintain competitiveness and profitability. To stay competitive, Belgium's chemicals industry must expand globally and the Asia-Pacific is regarded as the solution. Asia-Pacific opportunities are expanding, making it the most promising region for Belgian chemicals producers to establish new plants, enabling them to profit from low operating costs, especially in India and China. Furthermore, chemical exports to Asia are likely to rise significantly in the coming years, with China becoming one of the largest importers of Belgium's chemical products.

Country Profile

France

MERGENT

Sector Overview

In 2006, the French chemicals industry suffered from weak demand from France's manufacturing industry, particularly from the automotive sector, higher energy and raw materials costs and several maintenance stoppages. There were also a number of structural perspectives such as closures of production units following restructuring. Following a year of stagnation, the French chemicals industry was back on track in 2007 owing to a healthy, developing global economy despite the imminence of a downturn in the US. The continued strengthening of the euro against the dollar has reduced the value of business transacted outside the EU. The strong euro has boosted the level of competition from imports, forcing French producers to cut their margins. Even so, Europe remains the most dynamic market for exports for the French chemicals industry.

Industry Size and Value

In 2007, production levels in the French chemicals industry excluding pharmaceuticals experienced a dynamic boost. Sales volumes increased by 3.3% compared to 2006, according to the French Chemical Industry Association (UIC). The inorganic chemicals sector bounced back to record a year-on-year improvement for 2007 owing to recovery in production levels for basic inorganic chemicals and fertilizers following a 2006 restructuring program. Sustained demand from the construction industry and production of fertilizers at full capacity due to strong demand from agriculture also helped. Production levels for soaps, perfumes and household products were fueled by continued high household consumption of staple products in France and by rapidly rising orders from export markets. During the first quarter of 2007, total chemical exports were approximately €17 billion (US$25.8 billion), progressing by only 2.6% compared to 2006, and dropping by 14% towards the US and by 4% towards the Asia-Pacific excluding Japan. The strength of European demand, particularly from EU-12 eastern countries offset the poor performances of the major exports. Chemical imports reached €13.9 billion (US$21.1 billion) during the first quarter of 2007, an increase of 7.3% compared to the first quarter of 2006.

Leading Companies

Rhodia SA

Rhodia, the second largest manufacturer of polyamides in the world, posted net sales of €5.08 billion (US$7.7 billion) in 2007, an increase of 5.6% from the previous year's results. It followed a 7.1% rise in sales volumes and a 3.9% positive impact from price increases. The company's operating profit was up 25% to €448 million (US$680 million), compared to €359 million (US$544.7 million) in 2006. Recurring EBITDA rose significantly by 17% to €799 million (US$1.21 billion), profiting from the good volume trends but was hampered by the negative impact of foreign exchange.

Arkema SA (PAR: AKE)

Arkema was spun off from Total SA on May 12, 2006, and now an independent leading chemicals producer of vinyl products, industrial chemicals and performance products. Arkema's full year 2007 sales stood at €5.68 billion (US$8.62 billion) against €5.66 billion (US$8.6 billion) a

Table 9: French Chemical Industry Annual Growth by Sector (in percentages)

	Actual 2006	Forecast 2007	Forecast 2008
Inorganics Chemicals	(1.9)	1.9	1.9
Organic Chemicals	0.7	2.3	2.8
Specialty Chemicals	(5.7)	1.3*	2.1*
Soap, perfumes and household products	4.4	4.4	5.3
Chemicals excluding pharmaceuticals	**0**	**2.5**	**3.1**

Source: French Chemical Industry Association
Note: *Excluding chemicals used for photography

Country Profile - France

year earlier owing to a 2.3% increase in organic volumes and an ongoing selective policy, across the group's three business segments to increase sales prices in order to offset the impact of rising raw materials and energy costs. The company also continued to reduce its fixed costs through restructuring plants and a strict control of expenditure to improve its competitiveness. The company's net income almost tripled to €124 million (US$188 million) against €47 million (US$71.3 million) in 2006. The results include a tax charge of €104 million (US$158 million).

Market Outlook

UIC forecasts the growth of the chemicals industry excluding pharmaceuticals to increase by 3.1% in 2008. The weak demand from the automotive industry somewhat forced performance of many chemical sectors across the chemicals industry to weaken. The main factor driving sector growth is expected to be the construction industry, with demand growing from renovation and the construction of non-residential buildings such as commercial premises. However, business in this sector has suffered due to the over-inflated strength of the euro which put pressure on the price of exports. French chemicals producers have had difficulty passing on raw material, energy and transport costs, thus discouraging exports to the rest of Europe. The combination of slower US growth and euro strength could create turbulence for the European economy, which would affect the French chemicals industry.

Country Profile
Germany

MERGENT

Sector Overview

In Germany, exports of chemicals outside Europe rose by about 10% in the first nine months of 2007 against the previous year. They dropped by around 5% in the US and by 2% in Japan, although these decreases were caused by manufacturing trends in the two countries as well as currency effects, according to VCI. However, the buoyancy of the euro began to hit the German chemicals industry's major customers. Growth in German manufacturing is expected to be halved from 6% in 2007 to 3% in 2008. Trends in oil prices over the next several months could have major ramifications for sales and profits, especially in Europe. If oil prices continue to rise, buyers in the industry will stock up their inventories and, if oil prices start to fall, they will halt their purchases and use inventory instead.

Industry Size and Value

The favorable economic conditions and the strong demand on the world market bolstered the chemicals industry in Germany during the third quarter of 2007. Sales and production improved significantly due to high product prices. Compared to the third quarter of 2006, chemical production grew 5.5% thanks to the good business environment in Germany and Europe and the growing demand for pharmaceuticals, according to VCI.

Total sales for the German chemicals industry rose 9% to €42.1 billion (US$63.9 billion) against the same period of 2006 owing to solid domestic and international sales growth. In the third quarter, domestic sales improved 8.5% to €19 billion (US$28.8 billion) compared to the corresponding period of 2006. Although domestic consumption dropped 0.5% in the third quarter compared to the second quarter, due to the holiday season, domestic consumption was still 14.5% higher than it was the previous year. Foreign sales reached a new record of €23.1 billion (US$35 billion), up by 9.5% compared to the corresponding period in 2006. Chemical exports to the 15 EU member states rose about 10%, with exports to the new member states up 20%.

Leading Companies

BASF AG

The largest chemicals producer in Europe, BASF, reported another record year in 2007. Thanks to organic growth and the positive development of the acquired businesses, BASF posted sales of almost €58 billion (US$88 billion), an increase of 10.2% compared to the corresponding period of 2006 at €52.6 billion (US$79.8 billion). The highest growth in the period was seen in the chemicals segment, a 22.4% increase to €14.2 billion (US$21.5 million). Its net income rose significantly from €3.22 billion (US$4.89 billion) to €4.07 billion (US$6.2 billion). The earnings reflected results of operations plus a lower tax rate.

Bayer AG

Bayer, the second largest company in Germany in terms of sales, posted higher net sales of 4.5% in the third quarter of 2007 to €7.8 billion (US$11.8 billion) compared to €7.5 billion (US$11.4 billion) with all of the subgroups contributing to the increases. Despite adverse shifts in high raw material prices and in exchange rates, EBITDA and before special items increased by 6.9% to €1.6 billion (US$2.4 billion) in the third quarter of 2007 compared to €1.5 billion (US$2.3 billion) in the corresponding period in 2006. Bayer has now recorded year-on-year increases in underlying earning before interest and taxes in 19 consecutive quarters since the beginning of 2003.

Market Outlook

Chemical producers in Germany are generally optimistic about the business environment in the months to come, with exports strong despite a drop-off in exports to the US, and with the markets in Asia still growing strong. Demand for chemicals is expected to remain strong in most other foreign markets especially the rest of Europe, Asia and South Africa. However, high oil prices are threatening to undermine the profitability of the sector and affect the economy of Europe as a whole. Although the strong euro is a cushion against higher oil prices to some degree, it impairs the competitiveness of European producers.

Country Profile
The Netherlands

MERGENT

Sector Overview

The Dutch and European economies expanded positively in 2007 and benefited the chemicals industry firmly. According to the Dutch Association of the Chemical Industry (VNCI), the turnover of the Dutch chemicals industry was expected to increase by 6.5% to about €50 billion (US$75.9 billion), due to a 3.5% increase in production volumes — above the overall EU average of 3% — and with a steady rise in output prices of 3%. The growth momentum of the preceding quarters continued in the second half of 2007, as reflected in chemicals sales which were up by 6.5%, VNCI reports. The Dutch chemicals industry, like its counterparts throughout the rest of western Europe, nevertheless faces tough challenges. Rising oil and raw materials prices are putting pressure on companies to raise prices and undermine their competitive position. Rapid chemicals industry growth in the Middle East and the Asia-Pacific has bolstered competition in those markets. Because of its relatively small size and population, and the location of the port of Rotterdam, the Netherlands exports 75%-80% of its output to EU countries, according to the Netherlands Foreign Investment Agency, making it vulnerable to a drop in export volumes.

Industry Size and Value

The chemicals industry plays an important role in the Dutch economy. It has Europe's most productive chemicals workforce. With more than 75,000 employees, the industry indirectly contributes 10% of the country's GDP and is a global leader in sectors such as basic chemicals, food ingredients, coatings and high-performance materials. The industry represents nearly 20% of total Dutch exports, 25% of investments and 30% of R&D spending in the Dutch industrial sector, according to CEFIC.

Leading Companies

DSM NV

DSM, one of the world's leading players in life sciences products, performance materials and industrial chemicals, reported an increase of 5% to €8.76 billion (US$13.3 billion) in net sales from continuing operations for the full year 2007. The operating profit for 2007 was €823 million, a drop of 1% compared to the record €834 million (US$1.27 billion) last year. DSM suffered serious headwinds in 2007 as a result of a weak US dollar and high feedstock and energy prices as well as the return to lower prices in the anti-infectives markets. On top of this, the expiration of Roche Vitamins contracts in 2007 had to be absorbed and innovation costs rose because of strategic development. Its net profit before exceptional items was up 1% to €558 million (US$847 million) in 2007, against €551 million (US$836 million) in 2006.

Akzo Nobel NV

Akzo Nobel, the world's largest coatings and decorative paints and performance coatings manufacturer, reported a decline of 10% in net profit to €281 million (US$426 million) during the third quarter of 2007, down from €313 million (US$475 million) in 2006 due to restructuring and impairment charges of €31 million (US$47 million) and because it had gains of €64 million (US$97 million) in the third quarter of 2006. However, sales and operating profits improved during the third quarter of 2007, with sales up 1.8% to €2.6 billion (US$3.9 billion) compared to the same period a year ago, with notable contributions from emerging markets. In November, Akzo completed the sale of its pharmaceuticals division, Organon BioSciences NV, to Schering-Plough Corp (NYSE: SGP) for €11 billion (US$16.7 billion) and used the proceeds to buy the paint operations of Britain's Imperial Chemical Industries for €11.8 billion (US$17.9 billion).

Sector Investment

The specialty chemicals industry, encompassing fragrances, coatings and biopharmaceutical products, represents about 40% of the Dutch chemicals industry. This robust segment has led growth in the country. Many US-based specialty chemical companies entering or expanding in the European specialty chemical marketplace are choosing the Netherlands as their location to base their facilities. Most petrochemical facilities are located at Pernis, Rotterdam, South Holland, with Hexion Specialty Chemicals Inc (NYSE: HXN) an example.

Country Profile - The Netherlands

Research and Development

The Dutch chemicals industry spends about 2.5% of its turnover or about €900 million (US$1.37 billion) on in-house R&D and an additional €200 million (US$303 million) on outsourced R&D. The expenditure on both innovation and R&D amount to about 25% of the total industrial budget for these segments. The chemicals industry is currently collaborating with the Government to develop plans to take the sector into an even higher level. VNCI expects the chemical sector to double its contribution to the Dutch economy within ten years.

Market Outlook

The Dutch chemicals industry growth is forecast to grow into 2008 but at a slightly lower rate, reflecting high end-of-the-year producer confidence and well-filled order books. The industry is also expected to be bolstered by record-level capital spending, up 7% from 2006, according to VNCI. Sluggish economic growth in the US in 2008 could further affect the exchange rate between the US dollar and the euro. While remaining at very high levels, raw materials and energy prices are expected to ease slightly, but are expected to stay volatile this year. As Dutch chemical companies are challenged with greater difficulties in passing on higher raw materials prices to customers, the high natural gas price in the Netherlands and exchange rate sensitivities will affect the operating profits for some companies this year. Nonetheless, rising exports, increased investment and strong demand should help maintain the industry's buoyancy.

Country Profile

Switzerland

MERGENT

Sector Overview

The Swiss economy was strong in 2007, although it too was hit by the global credit crisis in late 2007 and early 2008 that arose from the US subprime mortgage fallout. The economy in 2007 was buoyed by steady private consumption with further dynamic contributions from investment in plant and equipment and from foreign trade. The rapid opening up of many Eastern European and Asian markets, together with technological developments in genetic engineering, biotechnology, IT and telecommunications, generated solid revenues for Swiss companies, with several leading Swiss chemical companies taking advantage of the environment. Some considered relocating existing manufacturing locations to Asia to gain competitive advantages, while formulating new corporate objectives and restructuring.

Industry Size and Value

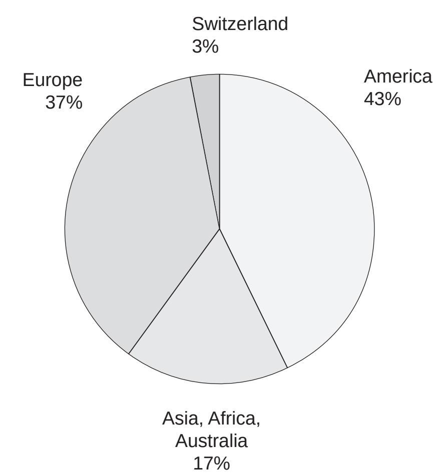
The chemicals industry is the second largest manufacturing industry in Switzerland. The Swiss chemical and pharmaceutical sector operates almost exclusively in the field of specialties, accounting for 90% of the country's total product portfolio. It supplies luxury items such as fragrances and bases for perfumes and medicines, as well as pharmaceuticals and biotechnology products.

A study conducted by the Swiss Society of Chemical Industry (SSCI) shows the sector dominates the Swiss export market, with chemical and pharmaceutical products representing more than 35% of total exports. The international range of the Swiss chemical and pharmaceutical industry is clearly demonstrated by the geographical breakdown of its sales. Worldwide sales in 2006 totaled CHF132.1 billion 125.4 billion), with the US taking the largest share, 43%, or CHF57.1 billion (US$54.2 billion), while Europe with 37% or CHF49 billion (US$46.5 billion), Asia, 17% or CHF22.3 billion (US$21.2 billion), and Switzerland a mere 3% or CHF3.7 billion (US$3.5 billion).

The sector is a producer of specialties, with an emphasis on life sciences products. Of total sales, in 2006 pharmaceuticals had the largest share, 64% or CHF84.3 billion (US$80 billion), followed by fine and specialty chemicals, with 17% or CHF22 billion (US20.9 billion), crop protection 8% or CHF10.2 billion (US$9.7 billion), diagnostics with 7% or CHF8.7 billion (US$8.3 billion) and vitamins, flavors and fragrance with 5% or CHF6.8 billion (US$6.5 billion), according to SSCI figures. Pharmaceuticals have increased their share and importance during the past two decades; from 1980 to 2006 their share of total industry exports rose from 40% to 74%.

The industry has grown twice as fast as the overall Swiss economy in the past decade. According to SSCI, the industry now employs nearly 70,000 people, with another 130,000 positions indirectly dependent on its productivity. Switzerland is an important location for research and manufacturing, and the ten largest global chemical companies have about 14%, or 38,066 of their employees in Switzerland. The ten companies have about 271,900 employees outside Switzerland.

Table 10: Worldwide Sales of the Top Ten Swiss Chemical and Pharmaceutical Companies



Source: Swiss Society of Chemical Industries

Leading Companies

Clariant SA

Clariant SA, a world leader in specialty chemicals, posted sales growth of 5% to CHF8.53 billion (US$8.1 billion) in

Country Profile - Switzerland

2007 compared to CHF8.1 billion (US$7.7 billion) in the previous year. Although sales in the second half of the year were not as strong as in the first half, sales in the fourth quarter recovered after a slower third quarter. The company was able to raise its prices by more than 1% in 2007 with momentum towards the year end. However, higher selling prices were not sufficient to offset a 5% increase in raw materials costs. As a result, its gross margin dropped to 29.2% compared to 30.7% in 2006. In addition, unfavorable currency effects adversely affected the company's profitability by CHF68 million (US$64.6 million), which led to an operating income before exceptionals of CHF539 million (US$512 million) compared to CHF592 million (US$562 million) in the previous year. Its net income after exceptional items rose to CHF5 million (US$4.75 million) from a loss of CHF78 million (US$74 million) in 2006 due to lower taxes and improved financial results.

Givaudan SA (SWX: GIVN)

For the first nine months of 2007, Givaudan, the leading company in the flavors and fragrances industry, posted net sales of CHF3.1 billion (US$2.9 billion), an increase of 41.1% from CHF2.2 billion (US$2.1 billion) during the corresponding period of 2006, attributable to the inclusion of Quest sales as of March 2007 and the organic growth of its combined business. The flavor division recorded the largest sales with CHF1.67 billion (US$1.6 billion), which represents growth of 2% against high prior year comparables. The European and the developing markets of the Asia Pacific and Latin America remained strong, reflecting steady growth.

Market Outlook

Following a lengthy and broad-based boom, 2008 is set to see the economy decelerate somewhat. The chemicals and pharmaceuticals sectors are likely to be fairly resilient although face slower growth. Private consumption is expected to compensate for a slowdown in exports to some degree, which has started to have a negative impact on growth. Rising competition from emerging markets is putting more pressure on already high raw materials and energy costs.

Country Profile
United Kingdom

Sector Overview

The chemicals industry has been vulnerable to slowdowns in the wider economy and has been affected by the slowing performance of the international economy and on rising prices for raw materials and oil. Growth in the UK chemicals industry over the last year would have been faster but for the impact of the global economic slowdown, along with intense competition within the industry itself, which has affected UK suppliers' sales and held back price increases. However, the UK chemicals sector still managed to grow by 2.6% in 2006 compared to 1.1% in 2005, and again in 2007, mainly driven by a rebound in agrochemicals.

Industry Size and Value

The chemicals industry is the largest in the UK and accounts for an annual turnover of US$92 billion and a trade surplus of US$2.5 billion. The chemicals industry employs about 300,000 people nationally and West Yorkshire is home to more than 230 manufacturing plants and R&D centers, according to the Department of Trade and Industry. With a long tradition of chemical manufacturing, the region offers a mature and extensive industry with highly skilled workforce, comprehensive facilities and well-developed supply chain infrastructure. Yorkshire and Humber is home to one of the largest concentrations of chemical related activity in the UK and generates an annual turnover of over £8 billion (US$15.9 billion) and employs about 24,000 people. Many of the world's industry giants, including BP, Novartis (SWX: NVS) and Syngenta (SWX: SYT), as well as a high proportion of start-ups, with 14% of all new chemical businesses are based in Yorkshire and Humber.

The specialty chemicals sector has a strong presence in West Yorkshire particularly in paints, dyes and pesticides which are among the strongest sectors in the UK. In 2006, Croda International based in Goole, East Riding of Yorkshire, became the world's largest oleochemicals company with the acquisition of Uniqema for a £410 million (US$815 million).

Leading Companies

Croda International

Croda, a global leader in specialty chemicals, performed well despite a strong currency and further rises in raw materials costs in 2007. Preliminary fiscal year 2007 figures showed a rise in profits, reflecting a £41 million (US$81.5 million) gain on the disposal of non-core business and the positive impact of the acquisition in June 2006 of Uniqema, a division of Imperial Chemical Industries Plc (LSE: ICI). The company's pre-tax profit from continuing operations for the year was £66.5 million (US$132.2 million), compared to £52.5 million (US$104.4 million) in 2006. The subdued US market had limited impact on the company's results in 2007, with the company's sales up to £886.1 million (US$1.76 billion) in 2007 compared from £480.1 million (US$954.2 million) in 2006. Demand remained strong in Asia, South America and certain parts of Europe for the company's products, which are mainly used as additives for personal and health care goods manufactured by cosmetics makers like Estee Lauder Co Inc (NYSE: EL), L' Oreal (PAR: OR) and Avon Products Inc (NYSE: AVP). The ageing population and people's desire to look younger drove that demand.

Ineos Group

Ineos is the world's third largest chemicals company, with sales approaching US$45 billion. This private company is an example of using acquisitions to build a giant company. On 1 February 2008, Ineos completed the purchase of the hydro polymers businesses in Norway, Sweden and the UK from Norsk Hydro ASA. The acquisition also included the remaining 50% interest in the Noretyl ethylene cracker at Rafnes, following the acquisition by Ineos in 2007 of a 50% share held by Borealis AS for €290 million (US$576.5 million), debt free. The newly acquired chlor-alkali, polyvinyl chloride and compounds businesses have synergies with Ineos' existing portfolio. The acquisition made Ineos the clear market leader in Europe in the chlor-vinyls segment. Following the acquisition, Ineos had 16,600 employees worldwide and its production network now spans 76 manufacturing facilities in 20 countries.

Yet in the same month, Ineos also acquired the vinyl acetate monomer and ethyl acetate businesses from BP. The deal comprised 500 kilotonnes per annum (ktpa) of production capacity at the Saltend manufacturing site near Hull, along with the Teesside to Saltend Ethylene Pipeline. This acquisition complimented the company's portfolio, technologies and expertise and advanced the development

Country Profile - United Kingdom

of Ineos in Europe. The deal was expected to close in the first quarter 2008.

Sector Investment

Investment in the UK chemicals sector bounced back in 2007 to 5% following a decline of 7% in 2006 and of 6% in 2005, as global demand prospects remained high. In 2008, capital spending is expected to grow by 2%, however. Although investment spending is expected to increase, this is unlikely to have any significant effect on output capacity. Continued under-investment is likely to restrict future output growth in the UK chemicals sector. The strong pound will also reduce the industry's competitiveness.

Market Outlook

The sale of chemicals and chemical products is expected to rise at a healthy but moderate pace in 2008 reflecting the economic slowdown that began in 2007 and the extra capacity expected to come on stream. Nevertheless, global economic growth could begin to accelerate again in 2009 and 2010. Overall, the long-term outlook for the UK chemicals industry is positive, although there are likely to be significant changes within the industry over the next five years, with production moving to emerging economies such as India and China. The production of relatively simple chemicals is expected to weaken in the UK as these activities continue to be shifted to lower-cost bases in the developing world. Even though, at the hi-tech, high value-added end of the market, the UK has a significant competitive advantage and this should help it remain somewhat buoyant over the next several years.

Currency Conversion Table

Currency exchange rates as of February 28, 2008

Currency Unit	US$ per Unit	Units per US$
European Monetary Union (€)	1	1.5172
UK Pounds (£)	1	1.9879
Switzerland Franc (CHF)	1.0533	1

Source: Federal Reserve Bank of New York

The Scope Of This Report

This report examines the chemicals industries across Europe, with a focus on Belgium, France, Germany, the Netherlands, Switzerland and the UK. The report aims to paint a picture of the current environment and industry development using available data and examination of key public companies in each country.

Research analysts draw on a range of credible industry and company data sources as well as news and information services to research and analyze the current trading environment, industry landscape and market trends and outlook for a particular sector. Primary sources are used, unless otherwise indicated, and include company data, e.g. annual reports and company financial results; macroeconomic and trade data; data and information from global and country regulatory; industry and government bodies; and reports from industry organization and private research organizations.

Industries covered by the industry reports are defined by standard industry classification systems and leading companies identified on this basis. The following SIC codes are relevant to the industry: 2812 (Alkalis and Chlorine); 2813 (Gases); 2816 (Inorganic Pigments); 2819 (Industrial Inorganic Chemicals); 2820 (Plastics Materials And Synthetics); 2821 (Plastics Materials and Resins); 2822 (Synthetic Rubber); 2830 (Drugs); 2833 (Medicinals and Botanicals); (Pharmaceutical Preparations); 2835 (Diagnostic Substances); 2840 (Soap, Cleaners, and Toilet Goods); 2841 (Other Detergents); 2842 (Polishes and Sanitation Goods); 2843 (Surface and Active Agents); 2844 (Toilets Preparations); 2851 (Paints and Allied Products); 2869 (Industrial Organic Chemicals); 2870 (Agricultural Chemicals); 2891 (Adhesives and Sealants); 2893 (Printing Ink); 2895 (Carbon Black); and 2899 (Chemical Preparations).

Key References

Global

The Society of Chemical Industry (SCI)
An international association of individual members from more than 70 countries which aims to further the application of chemistry and related sciences for public benefit.
http://www.soci.org

International Council of Chemical Associations (ICCA)
An international organization representing chemicals producers and manufacturers all over the world.
http://www.icca-chem.org

Organization for Economic Cooperation and Development (OECD)
The OECD group of 30 member countries share a commitment to democratic government and the market economy. The OECD plays a prominent role in fostering good governance in the public service and corporate activity.
http://www.oecd.org

Europe

European Chemical Industry Council (CEFIC)
A Brussels-based organization representing national chemical federations and chemical companies of Europe.
http://www.cefic.be

European Mine, Chemical and Energy Workers' Federation (EMCEF)
The organization represents 2.5 million workers in 35 countries and 128 national trade unions. EMCEF affiliates represent both blue and white-collar workers.
www.emcef.org

France

Union des Industries Chimiques (UIC)
A professional body federating all the chemical companies in France. It provides them with exchange and meeting structures, and encourages their development. It represents and defends companies in its various fields of activities, such as social, economic, technical, fiscal and legal affairs.
http://www.uic.fr

The French National Institute of Statistics and Economic Studies (INSEE)
A government institution that collects and produces information on the French economy and society. The information is made available to the Government, business, researchers, educators, media and individuals for study, forecasting and decision-making purposes.
http://www.insee.fr

Germany

German Chemical Industry Association (VCI)
An association that represents the political and economic interests of 1,600 German chemical companies and subsidiaries of foreign enterprises in contact with politicians, public authorities, other industries, scientific society and the media in Germany.
http://www.vci.de

Federation of German Industries (BDI)
An umbrella organization for industrial businesses and industry-related service providers. BDI supplies support for businesses to keep pace with the intensive competition resulting from globalization.
http://www.bdi-online.de

Italy

Italian Federation of the Chemical Industry (FEDERCHIMICA)
An association of 1,500 chemical companies, whose main objectives are to coordinate and protect the role of the Italian chemicals industry as well as to promote its development.
http://www.federchimica.it

The Italian National Institute of Statistics (ISTAT)
An Italian national statistical institute that provides statistical information about the country's social and economic data to the Italian Government and the public.
http://www.istat.it

Switzerland

Swiss Chemical Society
An association that represents the chemistry professional in Switzerland and to international organizations and that provides information, discussion and education in all fields of pure and applied chemistry including economical, ecological and social perspectives.
http://www.swiss-chemistry.ch

Swiss Society of Chemical Industries (SGCI)
An organization that represents the chemical and pharmaceutical industries in Switzerland to authorities, politicians and international organizations.
http://www.sgci.ch

The Netherlands

Association of the Dutch Chemical Industry (VNCI)
An association that represents the collective interests of about 95% of chemical companies in the Netherlands. The VCNI also has member associations whose affiliates operate in various segments of the industry.
http://www.vnci.nl

Netherlands Foreign Investment Agency (NFIA)
A government agency that encourages foreign investments in the Netherlands and assists foreign companies to set up operations in the Netherlands.
http://nfia.com

United Kingdom

Chemical Industries Association Ltd (CIA)
A leading trade association and employers' organization that represents UK chemical and allied industries both nationally and internationally.
http://www.cia.org.uk

Confederation of British Industry (CBI)
A lobbying organization representing public and private sector companies, as well as trade, employer and commercial organizations.
http://www.cbi.org.uk

Company	Country	Ticker	Exchange	Primary SIC	Other SICs				
BASF AG	Germany	BAS	FSE	2833	2879	2816	2851	2865	2819
Bayer AG	Germany	BAY	FSE	2821	2823	2869	2816	2899	2879
Akzo Nobel	Netherlands	AKZA	AMS	2834	2851	2843	2821	5169	6719
Linde AG	Germany	LIN	FSE	3563	3569	1629	2813	3599	
L'Air Liquide SA	France	AI	PAR	2813	8711	2834	3845	3841	2899
Solvay SA	Belgium	SOLB	BXS	2869	2819	2812	2821	3081	2834
Royal DSM NV	Netherlands	DSM	AMS	5169	2899	2821	2879	2873	3085
Lanxess AG	Germany	LXS	FSE	5169					
Clariant AG	Switzerland	CLN	SWX	2819	2899	2834	2879		
Syngenta AG	Switzerland	SYNN	SWX	2879	721				

Company	Total Revenue - FYE - 1	Total Revenue - FYE - 2	Total Revenue - FYE - 3	EBITDA - FYE - 1	EBITDA - FYE - 2	EBITDA - FYE - 3
BASF AG	$70,653,638,325	$51,322,808,307	$52,217,440,353	$12,958,625,558	$9,678,669,553	$10,441,809,867
Bayer AG	$39,172,115,302	$30,164,882,868	$32,505,721,020	$5,169,990,829	$4,179,699,974	$4,305,133,590
Akzo Nobel	$18,376,031,722	$15,700,516,048	$17,479,031,850	$2,511,100,701	$2,248,512,819	$2,636,403,720
Linde AG	$16,779,378,097	$11,508,975,564	$13,089,988,080	$4,648,769,191	$1,847,119,535	$2,086,927,380
L'Air Liquide SA	$14,447,340,120	$12,355,335,208	$12,733,234,476	$3,130,496,744	$2,555,063,618	$2,543,967,183
Solvay SA	$12,402,435,886	$10,137,844,525	$9,840,498,690	$1,842,089,637	$1,105,903,619	$1,399,405,260
Royal DSM NV	$11,485,349,713	$10,092,850,588	$10,921,857,300	$1,665,270,145	$1,606,757,185	$1,223,464,560
Lanxess AG	$9,483,594,714	$8,649,492,438	$9,311,323,200	$745,544,875	$273,515,777	$419,550,900
Clariant AG	$6,648,881,592	$5,878,600,512	$7,547,634,899	$423,558,383	$464,780,656	$597,225,548
Syngenta AG	$8,046,000,000	$8,104,000,000	$7,269,000,000	$862,000,000	$830,000,000	$1,219,000,000

Company	Net Income - FYE - 1	Net Income - FYE - 2	Net Income - FYE - 3	EPS - FYE - 1	EPS - FYE - 2	EPS - FYE - 3
BASF AG	$4,242,612,178	$3,560,086,094	$2,712,599,577	$8.41	$6.78	$4.94
Bayer AG	$2,236,634,624	$1,888,561,319	$923,011,980	$2.64	$2.23	$1.39
Akzo Nobel	$1,521,439,363	$1,137,872,996	$1,278,953,550	$5.30	$3.98	$4.48
Linde AG	$2,425,330,052	$608,602,206	$372,182,250	$17.55	$5.09	$3.07
L'Air Liquide SA	$1,322,583,412	$1,105,193,188	$1,055,779,539	$5.51	$4.25	$4.25
Solvay SA	$1,043,762,824	$934,216,226	$661,807,710	$12.63	$11.26	$8.01
Royal DSM NV	$721,793,002	$623,994,869	$396,543,270	$3.73	$3.17	$1.91
Lanxess AG	$266,548,787	($63,938,753)	($9,473,730)	$3.07	($0.89)	($0.22)
Clariant AG	($69,772,214)	$139,966,679	$131,354,593	N/A	N/A	$0.62
Syngenta AG	$634,000,000	$622,000,000	$428,000,000	$6.46	$6.22	$4.37

Company	Total Current Assets - FYE - 1	Total Current Assets - FYE - 2	Total Current Assets - FYE - 3	Long-Term Debt - FYE - 1	Long-Term Debt - FYE - 2	Long-Term Debt - FYE - 3
BASF AG	$24,269,794,876	$17,911,849,666	$20,205,436,005	N/A	N/A	N/A
Bayer AG	$26,383,051,720	$19,645,773,927	$28,054,421,310	N/A	N/A	$9,507,564,750
Akzo Nobel	$9,304,136,125	$7,939,061,848	$8,864,704,500	$3,366,168,097	$3,199,305,759	$3,237,308,880
Linde AG	$8,628,527,318	$4,749,228,497	$4,832,955,690	$12,540,988,474	$2,364,549,815	N/A
L'Air Liquide SA	$5,947,864,641	$4,991,603,733	$5,521,966,539	$4,849,208,601	$4,710,628,435	$5,849,351,580
Solvay SA	$5,047,272,823	$4,959,989,572	$6,845,446,620	$1,983,281,321	$1,165,106,168	$2,502,418,110
Royal DSM NV	$5,130,404,376	$4,825,007,760	$5,975,216,850	$1,196,830,445	$1,635,174,409	$2,026,024,830
Lanxess AG	$3,265,882,415	$2,967,231,766	$3,503,926,710	N/A	N/A	N/A
Clariant AG	$3,122,511,800	$2,772,709,480	$3,817,164,465	$1,129,489,021	$455,652,395	$1,508,826,422
Syngenta AG	$5,546,000,000	$5,212,000,000	$5,409,000,000	N/A	N/A	N/A

Company	Return on Equity (Most Recent Yr)	Profit Margin (Most Recent Yr)	Date FYE - 1	Date FYE - 2	Date FYE - 3
BASF AG	17.82	6.00	31-Dec-06	31-Dec-05	31-Dec-04
Bayer AG	13.28	5.71	31-Dec-06	31-Dec-05	31-Dec-04
Akzo Nobel	27.82	8.28	31-Dec-06	31-Dec-05	31-Dec-04
Linde AG	22.98	14.45	31-Dec-06	31-Dec-05	31-Dec-04
L'Air Liquide SA	15.95	9.15	31-Dec-06	31-Dec-05	31-Dec-04
Solvay SA	18.77	8.42	31-Dec-06	31-Dec-05	31-Dec-04
Royal DSM NV	9.34	6.28	31-Dec-06	31-Dec-05	31-Dec-04
Lanxess AG	14.40	2.81	31-Dec-06	31-Dec-05	31-Dec-04
Clariant AG	-3.58	-1.05	31-Dec-06	31-Dec-05	31-Dec-04
Syngenta AG	11.19	7.88	31-Dec-06	31-Dec-05	31-Dec-04

Notes to Comparative Data

- All figures are in United States dollars.
- All figures are as reported by the company.
- N/A = Data Not Available.
- Companies ranked by total revenue for the full year most recently reported.

Definitions

- Total Revenue = All revenues, including net sales, operating revenues, interest income, royalties, excise taxes etc.
- EBITDA = Earnings before interest, taxes, depreciation and amortization.
- EPS Cont Operations = Earnings Per Share as reported by company excluding extraordinary items.
- Total Current Assets = All assets expected to be realized within the next year, includes cash, accounts receivable and inventories.
- Long Term Debt = Debt due to be paid at a date more than one year in the future.
- Return on Equity = The company's earnings divided by its equity (book value).
- Profit Margin = The company's net income as a percent of revenues.

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