

# CHEMManager

## EUROPE



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THE NEWSPAPER FOR THE  
CHEMICAL AND  
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### NEWSFLOW

#### Companies

Dow Chemical is mulling the sale of some \$1 billion worth of corporate assets over the next six months, CEO Andrew Liveris said. The asset sale is in line with the plan to deliver savings worth \$1 billion in cost and cash interventions in 2013.

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#### M&A News

U.S. chemical producer Grace has completed its acquisition of China's Noblestar Catalysts, a manufacturer of fluid catalytic cracking (FCC) catalysts, catalyst intermediates and related petroleum industry products.

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#### Investments

DSM has begun construction of a new research building for Materials Sciences at its "Chemelot" chemical park in Sittard-Geleen. The facility is part of a €100 million investment in R&D activities.

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#### People

Ton Büchner has resumed his duties as CEO of AkzoNobel following a full recovery after he took a medical leave mid-September.

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Cluster Initiative

## Science for a Better Life

### Bayer Fosters Growth in its three Subgroups by Living Up to its Slogan and Stimulating Innovation

**Success Factors** – With numerous new products, the Bayer Group aims to help improve people's lives while exploiting billions in potential sales. "Innovation is the only way to address the global challenges that exist at the beginning of the third millennium," says Dr. Marijn Dekkers, Chairman of Bayer's Management Board. This year alone, Bayer will therefore once again invest some €3 billion in research and development, which focuses on the life sciences businesses HealthCare and CropScience. However, the third subgroup – MaterialScience – does not lag behind; in terms of patent applications it is even the most innovative segment. With regard to the number of patent applications it is the leading segment. Dr. Michael Reubold spoke with Dr. Dekkers and asked him about his innovation strategy for Bayer's three businesses.

**CHEManager Europe: Dr. Dekkers, you just confirmed that Bayer is on track to reach its goals for the year 2012. Your confidence seems to be based particularly on the upward trend in Bayer's life science businesses that continued in the third quarter. This will once more draw the attention of analysts and shareholders – who keep questioning your 3-pillar strategy – to your diversified portfolio. Please share with us the arguments that support your diversification strategy.**

**M. Dekkers:** The decisive factor for us is that our three subgroups – HealthCare, CropScience and MaterialScience – have leading positions in financially attractive markets. And that is certainly the case.

At HealthCare, our pharmaceuticals business occupies leadership positions in major therapeutic areas and we are the global number two in non-prescription medicines. In our CropScience business, we are the global number three overall and

**“Our researchers are given the space they need to be creative.”**

the number two in crop protection. And in MaterialScience we are either the global market leader or the number two in all our main product groups.

There is no doubt that all of our businesses serve markets that will

continue to grow, because people are living longer and need a wider range of better drugs, the global population is increasing and must be properly fed, and we need greater resource efficiency. Bayer is making significant scientific and technological contributions in all of these areas.

**Your current portfolio composition in terms of revenues is split about 5:2:3 between HealthCare, CropScience and MaterialScience. Do you plan to change this ratio through investments or divestments? Your recent acquisitions have strengthened the life sciences businesses almost exclusively.**

**M. Dekkers:** We are clearly committed to augmenting our organic growth with strategic bolt-on acquisitions in the life sciences area. Take our numerous collaborations and acquisitions in the area of seeds and biotechnology as an example – most recently the acquisition of AgraQuest, a global supplier of biological pest management solutions. With this in mind, we are not targeting a specific sales ratio for our subgroups.

**Recently, you said that Bayer's current and future success and growth are based on new and innovative products in the life sciences. How well-stocked is your**

**innovation pipeline in the life science businesses?**

**M. Dekkers:** The famous pharmaceuticals patent cliff that many competitors are facing is something we don't have at Bayer, because none of our top products will be going off-patent in the next few years. On the contrary, four of our products that are currently in the launch phase or which we expect to be approved in the near future have peak sales

potentials of €1 billion or more each. Apart from our blood thinner Xarelto, which we believe could achieve peak sales of over €2 billion, there are the cancer drugs Stivarga, containing the active ingredient regorafenib, and the investigational compound radium-223 dichloride, or Alpharadin.

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Dr. Marijn Dekkers,  
Management Board Chairman,  
Bayer

## Talent and Technology

### EPCA President Tom Crotty Discusses Drivers of Innovation in the Chemical Industry

**Enthusiasm** – The European Petrochemical Association (EPCA) represents over 650 producers of chemicals and their service providers from 55 different countries that stand for an aggregate turnover of over €3.6 trillion. Each year in October EPCA holds its annual meeting where more than 2,600 delegates discuss challenges the industry is confronted with. EPCA challenges the "business as usual" approaches and brings forward new and "out of the box" ways of thinking on key elements that can drive the chemical business community forward.

At the 46th Annual Meeting 2012 of EPCA in Budapest, Hungary attendees looked at talent and technology as drivers of innovation in the chemical industry. Tom Crotty, EPCA President and Group Director of Ineos outlined the main theme of the conference in his introductory speech. Crotty said the industry holds the key to resolving the twin challenges that face the world: how to meet the needs of a growing population while also reducing the impact of humankind on the ecology of

a fragile earth. "As we look further into the future, who knows what we could achieve as an industry if we can truly harness the twin powers of talent and technology", he said.

#### Keeping Pace with Change

"Industries that fail to keep up with change simply fail. In the chemical industry we have shown that not only can we keep pace with change, we can – sometimes – do a pretty good job of anticipating it and driving it. We need to continue to do that if we are to thrive through the 21st Century."

However, the industry will need to get two interlinked things right, Crotty urged: "We have to innovate and continue to thrive through those technological breakthroughs that meet the needs of an ever-changing world. To do that, we'll need great people. Our ability to innovate is entirely dependent on and limited by the talents of our people. The combination of talent and technology is essential to ensure the future of the chemical industry in Europe and around the world."

#### Enthusiasm about Science and Technology

In this context, Crotty took the opportunity to spotlight what he called "the great work going on with ingenious," an organization estab-



Tom Crotty, President,  
European Petrochemical Association (EPCA)

lished as a partnership between industry, national science platforms and ministries of education. "To ensure we have the right people for the future, we've got to enthuse young people throughout Europe about science and engineering." EPCA's outgoing President, whose term finishes on December 31, 2012, explained: "inGenious's mission is to reinforce young Europeans' interest in science and technology industry careers by influencing maths and science teaching. That starts with getting involved with about 1,000 schools

throughout Europe, to build strong links between young people, their schools and us – an industry that is a provider of what we believe are exciting and challenging careers.

#### Global Social Challenges

Moving on to the big issues that form the backdrop of today's chemicals industry, Crotty noted that the last three EPCA Annual Meetings have looked at the challenges of population growth, sustainability, and at the global financial meltdown: demographics, ecology and economy. "We're all aware of the challenges of a rising global population," Crotty said. "Population growth is inexorable. Our population is now growing by a billion every 12-23 years, which gets us to 7 billion today, and the projections are that there will be 9 billion people on the planet by 2050. The challenge for our planet and our people is not just through the absolute number of people, it's also about their distribution and aspirations." These extra 2 billion people by 2050, said Crotty, will be in the burgeoning economies of Africa and Asia and they will have aspirations the like of which we have never seen before. "We live on a shrinking planet in terms of communication, and technology has liberated people from isolation and freed their

minds to soar. Our new 2 billion will form part of a growing, aspirant global middle class. Why should their standard of living be any lower than someone living in New York or Hamburg?"

#### Population Growth

Crotty said he'd been struck by a picture that economist Jeffrey Sachs shared with EPCA in 2010,

**“Our ability to innovate is entirely dependent on the talents of our people.”**

showing the distribution of world GDP over the past 500 years. "Until the industrial revolution, GDP was determined by population: the more people you had, the more wealth you created. Clearly, the industrial revolution turned that on its head and the technological advances developed in the West meant that this region dominated world GDP. But we're now seeing signs of GDP reversing because technological advances are now being dispersed throughout the world.

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## DECISIVE INFORMATION

THE PORTAL AND NEWSPAPER FOR THE EUROPEAN CHEMICALS AND PHARMACEUTICAL MARKETS



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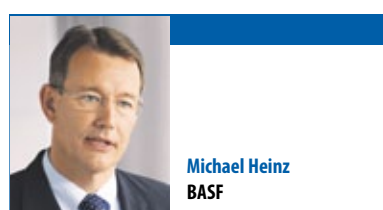
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## BASF Launches Cash Bid for Nutrition Specialist Pronova BioPharma

BASF has sealed a cash bid to acquire Norwegian nutrition specialist Pronova BioPharma, a pioneer in research, development and manufacture of omega-3 fatty acids for 12.50 Norwegian crowns per share.

According to the German chemical giant, the board of directors of the Lysaka-based company has unanimously endorsed the offer valued at 4.8 million crowns -- a 24% premium over the volume-weighted average share price of the prior six months.

The deal would include the 50% stake held by majority private equity shareholder Herkules as well as the stake of around 9% indirectly controlled by investors Kistefos and Kistefos Investment and the 0.3% held by Pronova's boards. At the time of announcing the planned acquisition, BASF said it had obtained "irrevocable pre-acceptance commitments" for about 60% of Pronova's share capital, successfully avoiding the trap that snared compatriot Bayer in its bid for Schiff Nutrition (see separate story).



Michael Heinz  
BASF

"We want to combine the global market reach and experience of BASF with the know-how of Pronova in omega-3 fatty acids," said Michael Heinz, Member of the Board of Executive Directors of BASF and responsible for the Performance Products segment, which includes the Nutrition & Health division.

Highly concentrated omega-3 fatty acids are a growing market, in which BASF would immediately attain a leading position. Pronova's active pharmaceutical ingredients are used to treat cardiovascular diseases. In nutritional applications, the German group pointed to "a strong body of evidence supporting a broad range of positive health benefits."

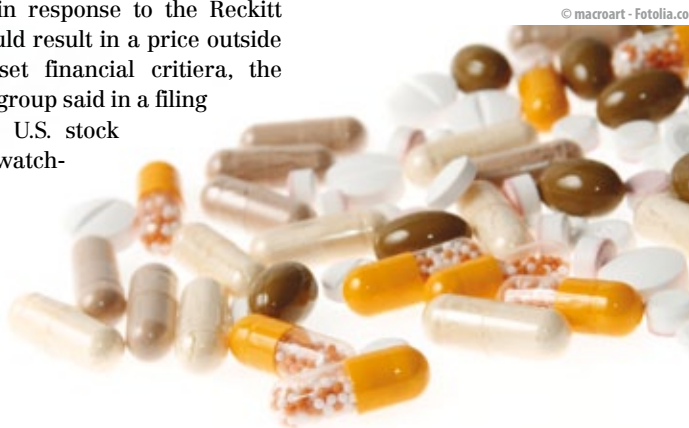
## Reckitt Benckiser to Buy Schiff Nutrition after Bayer Backs Away

German chemical and pharmaceuticals giant Bayer has backed away from plans to acquire U.S.-based dietary supplement manufacturer Schiff Nutrition for \$1.2 billion after being trumped by Reckitt-Benckiser. The UK consumer chemicals group bid \$1.4 billion, or 3.6 times the company's value.

Bayer had already been criticized by analysts for offering a multiple of 3.1. "Entering a competitive bidding process in response to the Reckitt offer would result in a price outside Bayer's set financial criteria, the German group said in a filing with the U.S. stock market watch-

dog Securites & Exchange Commission (SEC). At the same time, it said it would continue its drive to augment organic growth with strategic bolt-on acquisitions.

Under the terms of the initial agreement, Schiff was allowed to consider higher bids and in the case of acceptance pay a \$22 million breakup fee to Bayer.



## Abbott Board Approves Spin-off of Branded Drugs Business

The board of Abbott Laboratories has approved the planned spin-off of the company's branded drugs business into a separate entity called AbbVie. In a New York stock market listing scheduled for 2 January 2013, investors are to be offered one share of the new company's common stock for every share of Abbott stock they hold. Richard Gonzales, a long-time Ab-

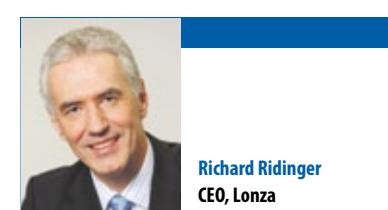
bott senior executive, has been named CEO.

The existing company, based near Chicago, Illinois, will keep its medical devices, diagnostics and nutrition businesses, as well as drugs that have lost patent protection, while AbbVie will take ownership of Abbott's array of experimental drugs, including promising new hepatitis C treatments.

## Lonza to Sell U.S. Urethanes and Organics Business to Monument

In a deal set to close by the end of 2012, Lonza has agreed to sell "substantially all" of its U.S.-based Performance Urethanes and Organics business for an undisclosed sum to Monument Chemical. CEO Richard Ridinger said the company is "pleased to have found a strategic owner" for the production activities at Brandenburg, Kentucky, picked up in the Swiss group's October 2011 acquisition of Arch Chemicals.

Noting that performance urethanes are "not core to the Lonza portfolio," Ridinger said the divestiture provides the Kentucky business with the foundation for continued growth and expansion while allowing Lonza to further shape and move forward its strategic activities. Formal divestment proceedings were initiated in July of this year.



Richard Ridinger  
CEO, Lonza

The former Arch business centers around applications in coatings, adhesives, sealants and elastomers, and the product slate includes flexible and rigid foams, coolants and solvents, as well as polyols, glycols and glycol ethers.

Family-owned Monument Chemical, with production facilities in Europe (Kallo, Belgium) as well as the U.S. (Houston, Texas), also trades as Johann Haltermann Ltd. and Advanced Aromatics LLC. Its activities includes specialty products and solvents, as well as specialty fuels and custom manufacturing.

## Air Liquide Completes Acquisition of Russia's Lentech Gas

French industrial gases producer Air Liquide has completed its acquisition of Russia's Lentech, based at St. Petersburg. The Russian firm is a market leader in the northwestern part of the country, with what is described as a significant market share in bulk and packaged industrial gases as well as a position in healthcare gases. With sales of €10 million in 2011, it employed 200 people.

Air Liquide, which already has a cylinder business at St. Petersburg,

plans to invest in a new €40 million air separation unit with capacity of 200 metric tons per day of liquid oxygen and nitrogen.

Russia's northwest region is the country's second largest in terms of industrial production, a key area for the automotive, shipyard and food industries, as well as the medical sector, which require an increasing volume of gases.

## GSK to Lift Stake in Indian Consumer Drug Company

Glaxo Smithkline, the UK's largest pharmaceutical producer, will pay \$940 million to acquire an additional stake of up to 31.8% in its Indian consumer products arm. The offer period is expected to begin in January 2013, and the move would lift GSK's stake in the Indian company to 75% from 43.2%.

Tough operating conditions in Europe are dogging the British drug maker, although its business in emerging markets and non-prescription consumer health is growing. In India, for example, the company's flagship Horlicks brand generated sales of 270 million pounds up to the end of 2011.

## EU Chemicals Sector YTD Output Drops 2.2 Percent Through August

EU chemicals production fell by 2.2% in the first eight months of 2012 compared with the same period in 2011, presented in the latest Cefic Chemicals Trends Report. Monthly data for August 2012 showed a 2.2% drop compared with the reading for the same month in 2011. Data for the first eight months of the year point to EU chemicals production remaining 5.8% below the 2007 peak levels.

Prices for chemicals in the EU in August climbed on a year-on-year basis, up 1.0% during the month against the comparable period in 2011. The price increase was led yet again by the overall price hike in basic inorganics. Overall prices for chemicals rose by 2.7% during the first eight months of 2012 against the comparable period in 2011.

Latest trade data show the EU chemicals net trade surplus increased further through the first seven months of 2012 by €6.6 billion compared with the same period of last year, reaching €29.1 billion. Overall chemicals sector confidence decreased by 2.4 points, the decline being mostly due to more negative assessment of the current level of

overall order books. This is in line with the downward trend of EU confidence of the overall manufacturing sector, analysis of the most recent EU Commission data indicates.

### August Chemicals Output Down

The 2.2% year-on-year output decline in August was led by two chemicals subsectors – specialty chemicals and consumer chemicals – which fell by 4.6% and 3.6% respectively.

Polymers fell by 2.8% in August on a year-on-year basis while petrochemicals experienced a 2.3% drop. Basic inorganics production registered a small decline of 0.2% in August 2012.

### EU Manufacturing Output Falls in August

Based on Eurostat data, the production index of the EU manufacturing sector as a whole went down by 1.6% in the first eight months of 2012 compared with the same period in 2011. Monthly data for August 2012 showed a 1.7% drop compared with August of 2011. Sectoral analysis shows that construction and

basic metals categories – key chemicals industry customers – each fell by 4.7%. The machinery and equipment subsector is likely to resist, however, the generally stormy economic and business environment in Europe. Output in the food and beverage sector, as well as the auto sector, was anaemic during the January to August 2012 timeframe.

### EU Trade Surplus Up €6.6 Billion Through July

Trade data through July 2012 show a €29.1 billion overall year-to-date EU chemicals net trade surplus with other markets, up €6.6 billion on the same seven-month period the year prior. The EU net trade surplus with the NAFTA region contributed significantly to the bump in the January-July overall surplus, reaching €7 billion, up €2.2 billion compared with



Prices for consumer chemicals rose by 0.8%, while petrochemicals and pharmaceuticals prices edged down by 2.9% and 1.8% respectively in August as compared with the year prior.

### January-to-July EU Sales up 4.9% from 2008 Pre-crisis Period

the same period in 2011. The EU net trade surplus with the Rest of Europe, which includes Russia and Turkey, reached €8.9 billion through July, up €1.5 billion compared with the same seven-month period the previous year. A €3.1 billion surplus occurred with Asia, excluding Japan and China, during the first seven months of the year, down €0.1 billion from the comparable period in 2011.

### Prices for Basic Inorganics Climbed by 2.1% in August 2012

Year-on-year EU chemicals prices rose in August by 1.0%, driven by the price for basic inorganics, which increased by 2.1% during the month.

Compared to full-year sales levels in 2008, the pre-crisis peak, the total value of EU chemicals sales through the first seven months of 2012 was 4.9% higher. July sales were 4.4% lower compared with the same month the year prior. Sales for the first seven months of 2012 were 1.6% below the comparable period in 2011.

### EU Chemicals Confidence Indicator (CCI) Decreased by 2.4 Points in October 2012

Based on data from the EU Commission business and consumer survey report published on Octo-

ber 30, 2012, the EU chemical industry confidence indicator, or CCI, decreased by 2.4 points in October 2012 compared to September of the same year. Managers' assessment of the current level of overall order books decreased by 7.2 points, and their production expectations for the sector decreased by 4.0 points. The EU Commission report also showed a similar downward trend in confidence in the overall EU manufacturing sector.

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## Standard & Poor's Raises Rating of Germany's Merck

Standard & Poor's has raised the long-term corporate credit and issue ratings of German chemicals and pharmaceuticals producer Merck to A- from BBB+ with stable outlook and affirmed its short-term corporate credit rating at A-2. "We anticipate that Merck's significant free operating cash flow is likely to continue to increase gradually over the next five years, in line with increasing sales and profit margins on the back of the group's efficiency plan," the agency said.

The new rating which complements that of Moody's Investor Ser-

vices, places Merck solidly within the investment grade category, ensuring that it will be able to benefit from attractive financing terms. The upgrade shows that the company's transformation program along with its commitment to a conservative financial policy is appreciated by the ratings agency, said CFO Matthias Zachert.

S&P said its rating assumes stable demand for Merck's liquid crystals business, despite increasing competition although sales of the Merck Serono pharmaceuticals business are expected to remain flat in 2013 and 2014.

## UK Plans Cost Breaks for Energy-Intensive Industries

The UK plans to exempt industrial energy users from the additional costs that might arise from its electricity market reform. Details will be determined in 2013 following a government consultation. Energy-intensive industries such as chemicals had threatened to quit production in the country if not awarded breaks. Producers had contended that the

higher costs would hurt competitiveness. The deal is subject to approval under The EU's rules on state aid.

The government is also debating a 250 million pound (\$400 million) scheme to compensate some energy-intensive users for some of the planned 16 pounds per ton\* tax on CO2 emissions due to take effect in the UK in April 2013.

## Brenntag Seals New Distribution Pact with Dow

Brenntag Europe has signed an agreement with Dow Consumer & Industrial Solutions to distribute the US group's full range of scale inhibition polymers for water treatment, mining and mineral processing applications in central and eastern Europe along with Turkey.

For more than a decade the Germany-based distributor has handled a range of specialty products of the former Rohm and Haas in Western Europe, the Philadelphia company acquired by Dow in 2009. The distribution deal includes the full legacy portfolio of Rohm and Haas fabric and surface care specialties.

## AkzoNobel Expands Middle East Joint Venture with Kanoo

Akzo Nobel has expanded its joint venture agreement with the Yusuf Bin Ahmed Kanoo group of companies in the United Arab Emirates to include products across its Performance Coatings portfolio to include professional wood care, automotive refinish, marine, yacht, fire protection, protective and powder coatings. The previously existing JV extended only to the Dutch company's International Paint brand and its coil and packaging coatings products.

Leif Darner, executive committee member responsible for Performance Coatings, the beefed-up cooperation will give AkzoNobel "a firm

foothold in the Middle East and a solid platform from which to deliver on our ambitious growth strategy in the region." He said his company sees "many opportunities for our products and services to supply the construction, oil and gas and transportation sectors in the Middle East."

AkzoNobel has two major production sites in the Middle East, both of which are said to be planning increased investment to support the enlarged portfolio. Work on a new powder coatings facility in Dubai has already begun. The company started up its first powder coatings in the emirate in 2008.



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# Chemical Islands

## Sustainable Pulp Production in Brazil Through Optimized Chemicals Management

**Sustainability** – Brazil is continuously becoming more important in the world economy and it is the most important emerging market after China. The Brazilian market is becoming more and more important for AkzoNobel. In the last two years the company has announced investments in Brazil of over € 170 million. The focus is on the pulp industry - one of the most important Brazilian industries – and AkzoNobel's innovative Chemical Island concept for sustainable pulp production. CHEManager interviewed Werner Fuhrmann, Executive Committee member responsible for the areas "Supply Chain" and "Specialty Chemicals", and André Veneman, Corporate Director Sustainability at AkzoNobel, on this topic.



*CHEManager Europe: The buzzword "Sustainability" is an indispensable part of the corporate guidelines or strategies of chemical corporations. What does sustainability mean to AkzoNobel?*

**A. Veneman:** The world is facing a growing population, scarcity of natural resources and climate change. To be able to continue delivering products and solutions to our customers we need to adapt to this reality and change the way we do things. We need to do more with less. In fact it is an opportunity to do this better and faster than our competitors and it will also help us to grow our business.



**André Veneman,**  
Corporate Director Sustainability, AkzoNobel

**W. Fuhrmann:** Sustainability is fully embedded in our company strategy. All sustainability targets are derived from the overall company Value and Values strategy, but tailored to fit the specific conditions and markets in which we operate. We strive to deliver sustainable profitable growth by: Reducing the negative impact from our own operations and those of our suppliers. Innovating: offering our customers new technologies, products and services with a better environmental performance.

*One aspect of sustainability is the responsible exposure to natural resources and the minimization of environmental impacts of production processes. For the pulp and paper industry, a resource-intensive sector and important market for AkzoNobel, you have developed the concept of "Chemical Islands". What is it based on, how does it work and where do you apply it?*

**A. Veneman:** The Forest Products industry is considered by many as one of the most sustainable industries of the modern era. When people use more paper, landowners plant more trees; moreover the Pulp & Paper industry is a recognized leader in Renewable Energy Production and Use; energy produced by the industry is carbon neutral, sustainable and renewable unlike coal, oil or natural gas. On average, paper and wood products mills generate 65 % of their energy needs from waste biomass. Their increasing use of renewable energy has allowed the industry to reduce its use of carbon-intensive fossil fuels and purchased energy by 19 % since 2000.

**W. Fuhrmann:** Modern pulp mills, like those being built in Brazil, normally generate excess utilities – such as steam and electricity – that can be used to fuel other manufacturing processes. To make use of this excess energy, our Pulp and Perfor-

mance Chemicals division developed a concept whereby it installs its sodium chlorate and chlorine dioxide plants inside or adjacent to a pulp mill. This way AkzoNobel is able to produce sodium chlorate using the excess electricity generated by the pulp mill. The use of sodium chlorate to generate chlorine dioxide is the best available technology (BAT) globally; pulp mills use chlorine dioxide to bleach pulp. A "Chemical Island" provides a comprehensive, state-of-the-art chemicals management system for the safe, reliable and cost-efficient production of chemicals such as sodium chlorate, chlorine dioxide, and hydrogen peroxide. It also enables the handling of other pulp and papermaking chemicals – always with the environment in focus. This includes round-the-clock staffing by trained AkzoNobel professionals who manage and operate the facility on-site to produce and deliver the chemicals that pulp and paper mills need. Effectively reducing transportation and energy costs and thereby minimizing the environmental footprint. This solution has proven highly successful in Brazil, where the AkzoNobel Bahia plant at Veracel was the first fully operational unit to apply the "Chemical Island" concept. The plant was brought on line in 2005. Since then, several other customers have chosen this more environmentally sustainable partnership to safeguard their chemical production needs. To date we have six operational "Chemical Islands", all in Brazil.

*What distinguishes the "Chemical Island" concept from other material- and energy-integrated concepts?*

**W. Fuhrmann:** The unique thing is that the energy is based on biomass. The concept and business model was new to the pulp industry when first introduced by AkzoNobel, with us



**Werner Fuhrmann,**  
Executive Committee member, AkzoNobel

as chemical supplier establishing a plant at the customer site.

*What are the key investments you have made in Brazil in the last years, which are based on the "Chemical Island" concept?*

**W. Fuhrmann:** Jupia facility close to €90 million to supply the Eldorado pulp mill. Imperatriz €80 million to supply the Suzano Maranhão pulp mill.

*Do you implement the concept of "Chemical Islands" also in other countries or regions?*

**W. Fuhrmann:** Although our current Chemical Islands are all located in Brazil, this is a concept ready to be implemented in any region of the world and we are always looking into options to further expand this innovative way of helping our customers improve their business.

*Can the "Chemical Island" concept be applied also to other manufacturing processes?*

**W. Fuhrmann:** The idea of integrated concepts, where you work very closely with your customers, can of course be implemented in other manufacturing processes. The "Chemical Island" concept, however, was specifically designed for the pulp and paper industry and is dependent on things like the excess availability of bio-based energy produced by a pulp mill.

*What other investments in energy-efficient production processes are you making or planning at the moment?*

**W. Fuhrmann:** We are always making investments to make production more efficient and less energy consuming. One example is our investment of €140 million to convert the Frankfurt-based chlorine electrolysis into a more modern and effective technology.

*Back to sustainability: You as a chemicals company, that works in a global economy together with various industries and customers, don't you have to inevitably make compromises?*

**A. Veneman:** Sustainability is not an option; it's a crucial element for long-term business success and it will help us deliver more competitive products and solutions to our customers. Our aim is to create value for both AkzoNobel's businesses and for our customers. Our Eco-premium solutions, for example help to achieve this goal. These solutions provide top line growth opportunities, because of their improved performance in areas such as raw material use, manufacturing processes and product innovation. Eco-efficiency is about creating more value with less environmental impact.

*What problems and dilemmas do you encounter therewith and how do you handle these? Can you give examples?*

**A. Veneman:** Sustainability requires a change in thinking from a short-term to a long-term view. We used to think that one day we would be a sustainable company. We now know that it is an ongoing journey. Some of the challenges we encountered along this journey are the same for our internal as well as our external stakeholders. For example, how to get the management, employees but also customers, on board to implement those changes needed to become more sustainable. For that, it is important to show that it's not about 'going green'. Instead we should look at sustainability from a business perspective. Look into how you can create added value for your customers while ensuring the continuance of your own business and working with fewer resources. For example, we initiate discussions regarding the availability, price structure and manufacturing logistics for renewable raw material options. Sustainability is truly a combination of people, planet and profit. In short: Sustainability is business and business is sustainability.

Read additional statements of Jaap de Jong, AkzoNobel's Regional Director Latam and Country Director Brazil; and Antonio Francisco, AkzoNobel's President Director, SBU Pulp and Paper Chemicals Americas, online.



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### The Latest From SOCMA

#### 2012 Performance Improvement Awards

SOCMA recently announced winners of the 2012 Performance Improvement Awards, recognizing more than 30 member facilities for their outstanding commitment to continuous improvement in environmental, health, safety and security (EHS&S) practices.

"The annual Performance Improvement Awards highlight the achievements of our members and underscore their commitment to a safe and healthy workplace," said ChemStewards Director Dr. J. Holland Jordan.

SOCMA received a record number of awards applications in 2012, with more than 50 member companies submitting entries. "Our members take pride in winning these awards, which is evident in the quality of the awards applications," Jordan said.

Through a month-long, double-blind selection process, the judging committee has named an outstanding group of recipients.

Performance Improvement Award Recipients recognized in four categories – Gold, Silver, Bronze and Educational Outreach Award – were honored, along with the Sustainability Award winner, at SOCMA's Annual Dinner on December 10 in New York.

The 2012 Gold Performance Improvement Award were given to two facilities: Baker Hughes' Kilgore, TX, facility and Strem Chemicals' plant in Newburyport, MA, for their efforts in exceeding standards set forth in the ChemStewards program. Strem routinely communicates program goals with employees and has established a safety inspection routine with internal audits to address problem areas. They have also installed an electronic compliance calendar, alerting employees of reports and due dates, as well as ChemStewards goals. Baker Hughes isn't satisfied with mere compliance. It wants to be "best in class." The facility is active in the Local Emergency Planning Committee and Economic Development Board, holds daily safety meetings and has installed a system to achieve a 95 % reduction rate in vapor releases.

Sixteen Silver Awards were presented to facilities showing excellence in one of the five ChemStewards Core Principles: Stakeholder Communications, Product Stewardship, EHS&S in Planning and Operations, Employee Training and Engagement, and Resource Management and Waste Minimization.

Additionally, 12 SOCMA member facilities were awarded the Bronze Performance Improvement Award, which recognizes facilities maintaining strong EHS&S programs. SOCMA will honor BASF Corporation and Strem Chemicals with the association's Educational Outreach Award sponsored by the Chemical Educational Foundation. Both made exemplary efforts in expanding their school and community outreach efforts.

Dixie Chemical Company was awarded the ChemStewards Sustainability Award for its evaluation of membrane technologies to recover material from wastewater to reduce total organic carbon and treatment costs.



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SOCMA is a U.S.-based trade association dedicated solely to the batch, custom and specialty chemical industry. Since 1921, SOCMA has represented a diverse membership of small, medium and large chemical companies and has now a global membership of more than 210 companies.



### Wacker Invests in Brazil and Mexico

Wacker Chemie is strategically expanding its presence in the Middle and South American growth region. The Munich-based chemical company is investing €1.2 million and is extending its existing technical center in São Paulo, Brazil, and creating a new technical center in Mexico City, Mexico. At the same time, the Group's international training center - the Wacker Academy - will also be expanded at the former site, and a new one opened at the latter. Both projects are scheduled for completion in the first quarter of 2013.

In Brazil, the Group is enlarging its technical center in Jandira near São Paulo. This center has been supporting customers in the development of new products and applications since 2003, taking local raw materials and environmental conditions into consideration. The expansion focuses mainly on the labs for dispersible polymer powders, which are used in dry-mix mortars for concrete applications, tile adhesives and sealing slurries, for example. The test area for polymer binders available at the technical center will more than triple in size and the new labs will get state-of-the-art testing equipment in line with international standards. In addition, the Wacker Academy training center will be equipped with a new, larger training lab, which will allow participants to carry out extensive practical tests.

In Mexico, too, polymer binders are the focal point of the new technical center that Wacker is currently building in the southwest of Mexico's capital. The reason for this is the strong growth of the regional economy, especially of the construction and paint industries. Covering an area of over 800 m<sup>2</sup>, the facility will house the new offices of the local sales subsidiary Wacker Mexicana and the R&D labs for dispersible polymer powders and vinyl acetate-ethylene copolymer (VAE) dispersions. These binders find application in paints, coatings and adhesives. Due to the rising number of training inquiries from the region, a training center for the Spanish-speaking market will be created with the Wacker Academy Mexico.

Bundling sales, applications laboratories and the training center under one roof will foster closer teamwork between the sales and development teams and thus optimize customer support in the region. In the future, the technical center in Mexico will support customers from Mexico, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, the Caribbean, Columbia, Ecuador, Peru, Venezuela and Bolivia. The technical center in Brazil will continue as the South American hub for customers from Argentina, Brazil, Chile, Paraguay and Uruguay. ■

# Talent and Technology

Continued Page 1

Now if that happens, over time we may well see a reversion to a situation where the regions with the biggest populations become much more dominant economic forces." This is already becoming a reality in China, Crotty noted. Does this mean it will happen in India, and the countries of Africa? Will there be a paradigm shift in world order?

## Ecology

Moving onto ecology, the EPCA President said population growth brought new challenges. "We're already living beyond our means and consuming the earth's resources at a rate that is - in geological time - the blink of an eye. And the rate of that consumption is increasing." In light of the current population growth dynamic, is the world facing a doom-laden future, Crotty wondered. Will there be shortages of food, fuel and water?

cells, the lubricants for wind turbines or the technology to make fuels from waste. As we speak, Ineos is in the process of commissioning the world's first bio-refinery - we're making bioethanol fuel from waste carbon. And similar technologies are being developed by the chemical industry around the world."

He cited several outcomes from a recent Cefic meeting as evidence of the industry's response to these challenges: "A commitment to zero plastics in landfill by 2020, and the major new SPIRE initiative - a public-private partnership to establish sustainable process industry in the European Union through resource and energy efficiency. And longer term, the R&D challenge to develop pathways from sunlight straight through to feedstock and fuels."

Our industry has a huge opportunity to remain at the heart of global development, Crotty continued. It is also his belief that the European industry can lead that development. "This isn't only important for the



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source of risk finance for our industry are now more risk averse. Indeed the financial regulations put in place to prevent a repeat of that crisis are now institutionalizing risk aversion and caution. And governments throughout the developed world have debt levels of unprecedented scale as a result of repeated financial sector bailouts. These debt levels could be with us for generations," he said.

What's more, governments grappling with these "politically impossible tasks" are telling people that vote for them that things will get worse before they get better, which just adds fuel to the fire of recession because it undermines public confidence, the EPCA President contin-

ued. "Nowhere is this more keenly felt than in Europe, where there is the added challenge of trying to manage a single currency influenced by a number of independent

offer to customers by European producers has limited the impact.

"There are other big signs of economic change for our industry on the horizon. The shale gas de-



**Our chemistry is allowing the world to ease the environmental burden.**

Tom Crotty, President  
European Petrochemical Association (EPCA)

and economically disparate states."

Now the short-term effect on the European chemical industry is very real but also being well managed. Demand is depressed, but in Crotty's view an increasingly sophisticated

developments in the US have led to a truly astonishing renaissance in U.S. petrochemicals with no fewer than eleven ethylene expansions now announced and a further seven being considered. This has also led to

major falls in U.S. gas prices and a shift in U.S. global competitiveness, pushing it right up the scale of competitive industries."

This has implications for Europe's chemical industry, he continued. "It's too early to say how the search for novel gas is going to impact Europe. A number of countries, notably the UK and Poland, have made statements of government support for novel gas developments. In the meantime some arbitrage between the US and Europe seems inevitable. In fact Ineos has just announced long-term arrangements to bring US gas into Europe. But whatever happens, feedstock development will remain a major issue for this industry in the coming years - whether through novel gas or through bio- or waste-derived feedstock or through blue-sky developments like artificial photosynthesis."

## The Future of the Industry

Crotty reiterated his confidence in the future of the industry: "I really do believe we are a force for good in the world and that the world needs us to address these major global issues. Meeting the needs and aspirations of a growing world population in a way that is sustainable is a huge challenge. How can we provide food, water, shelter, transport and entertainment for 9 billion people without depleting the world's resources? The answer, of course, is by harnessing our talents and harnessing our technology."



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**To ensure we have the right people for the future, we've got to enthuse young people about science and engineering.**

His belief is that the industry remains at the heart of the solution. "In the short term, we are already using our talents and technologies to husband those scarce resources. Our chemistry is allowing the world to light-weight cars and planes and drive up their fuel efficiency to ease the environmental burden. Our industry is already underpinning renewable energy resources, whether by providing the materials for solar

reasons I have described, but it is also important because of the third big issue we face: economic imperative. "While every generation thinks it is living in unprecedented times, we surely are, Crotty said.

## Economy

"The shock waves from the 2008/2009 crisis are still felt around the world. Banks that once were the

## Brenntag to Appeal German Cartel Authority Decision

German chemical distributor Brenntag plans to appeal a decision by the German cartel authority, Bundeskartellamt, to disallow its continued participation in CVH Chemie-Vertrieb, a joint venture with rival CG Chemikalien. The distributor said it did not follow the authority's argument that such a cooperation between partners that are actually competitors limits competition.

The JV founded in 1984 had sales of €95m in 2010, the last period for which figures are available. It operates solely on the German market. Bundeskartellamt opened its investigation into the distribution joint venture in 2008, taking a closer look at companies whose partners are in a position to share sensitive

information. The authority saw this as especially critical in the case of CVH Chemie-Vertrieb, as it has a 70% share of the market.

For the third quarter of 2012, Brenntag saw operating EBITDA increase by 0.7% to €167.8 million but adjusted for €10 million of extraordinary expense in Europe, figures saw a 7% improvement year-on-year. Assuming constant exchange rates, sales rose 5.4% to €2.47 billion. Based on actual currency translations, the rise was 11.5%. In the year's first nine months, the distributor said it "was able to increase all relevant earnings parameters."

Brenntag's European business in Q3 showed improved gross profit

despite a "soft market environment," with North American activities showing "stable" development against a "less dynamic" economic background." In Asia, the pace of growth slowed but still far outpaced the rest of the world. Looking to 2012 as a whole, the company said it "currently does not expect a positive economic uplift in demand. Considering "the challenging macro-economic climate, it has narrowed the range for expected operating EBITDA to €795-725 million.

To beef up its Latin American business, Brenntag plans to acquire specialty chemicals distributor Delanta Group. The company with 2011 sales of \$24.3 million is active in Argentina, Uruguay and Chile. ■

## Linde Wins New LNG Contracts

Industrial gases and engineering specialist Linde has won two major contracts to build liquefied natural gas (LNG) facilities for companies in Scandinavia and Malaysia. Executive board member Aldo Belloni said the contracts are the latest in a series of mid-scale LNG projects for Linde with "particularly demanding features."

In Norway, Skangass has tapped the German group to build a mid-

scale LNG import terminal at Lysekil, on Sweden's west coast, to supply the nearby Preem refinery as well as industrial and transport applications. The contract for engineering, procurement, construction and installation of the Swedish terminal slated to start up in spring 2014 with a storage capacity of 30,000 cubic meters of gas is worth €44 million. ■

Linde did not disclose the value of the Petronas project, a new boil-off gas liquefaction facility in Malaysia, commissioned by national oil and gas company Petronas. This facility, also set to start up in 2014, has a maximum design capacity of 1,840 metric tons of LNG per day and will be located in the Bintulu complex in East Malaysia. ■

## Arkema May Reconsider Scrapping French PVDF Plans

In late November, French specialty chemicals producer Arkema was expected to resume dialogue with its unions following the renewed outbreak of a dispute over plans to consolidate two production sites in southern France as part of a planned €70 million expansion of polyvinyl fluoride (PVDF) production. In the interim, speculation had arisen over a possible relocation of the investment to the US or China.

Earlier in the month, following a strike by members of the union CGT, Arkema had said it would cancel the project,

which called for a new reactor to be built at Pierre Bénite, near Lyon, parallel to an upgrade of triochlorethane (T111) capacity at St. Auban, near Avignon. The moves would have increased output of PVDF by 50% to 9,000 metric tons per year, while lifting triochlorethane capacity by 10,000 metric tons to 32,000 metric tons per year.

The investment was intended to go hand-in-hand with a consolidation of operations at the two sites, moves that the company said would help improve competitiveness, but would have cost some 20 jobs

at Pierre Bénite. While management said consolidation of French production was needed to improve competitiveness, CGT said its members were being asked to agree to unfavourable working conditions.

When announcing the investment in 2011, Arkema said the "technological advances" it planned to implement -- including an innovative high purity process, a new effluent treatment plant and an upgrade of safety equipment and procedures -- were all designed to improve long-term prospects of its fluorochemicals activities in France. ■

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# Winning Tactics

## Pharmaceutical and Consumer Goods Companies are Mobilizing for Action in the Consumer Healthcare Market

**Growth Opportunities** – A new market of consumer-focused healthcare products is emerging to occupy the space between consumer goods and pharmaceuticals—and becoming a battleground that giants in both industries are gearing up to dominate. Many factors—consumer awareness of health issues, higher personal incomes, more focus on fitness, and the urbanization of emerging economies, just to name a few—have combined to create a new market for healthcare products. And the world's leading pharmaceutical and consumer goods companies are eager to do battle for this new market's seemingly unlimited potential.

On one side, the pharma industry is addressing explicit health needs with scientifically proven products, and learning how to market these products more effectively. On the other side, the consumer packaged goods industry is using compelling marketing stories about how quality of life can be improved, and learning to back up those claims with scientific evidence.

### Choosing the Battlefield

With a wide range of product categories to choose from (c.f. Fig. 1), the question becomes which battle to fight—and where? Which categories are hot? Which markets are driving the most growth? Given the rise of chronic diseases, higher household incomes, and more consumer knowledge and awareness about health, one would expect the consumer health market to be growing by leaps and bounds everywhere. This is not the case.

Globally, consumer health markets are growing at an average of 5.7% but are lagging overall GDP growth. Compared to other categories, consumer health grows at a snail's pace, particularly when times are good. For example, between 2005 and 2012, consumer health categories in India grew by less than 13% a year, but the cosmetics market grew more than 27% per year. There is also a common belief that the market is being driven by consumers bearing an increasing burden of health costs. Not so: The proportion is actually falling, and consumer health spending generally lags overall health spending.

Several factors are responsible for this relatively slow growth. First, getting people to become more health conscious is not easy. Second, the market faces a real innovation deficit. Portfolios of leading consumer health companies feature products that are an average of 30 to 50 years old. The OTC market has historically been driven by so-called Rx-to-OTC switches, where drugs containing certain pharmaceutical ingredients



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and available only with a prescription are licensed for sale over the counter once their safety profile is well established (and, typically, once the product has lost its patent protection). However, only a handful of active ingredients have achieved OTC-switch status in the United States over the past five years. Meanwhile, the pipeline of new pharmaceutical ingredients coming off patent is drying up, and the few that do exist, such as anti-psychotics and biopharmaceuticals, are unlikely to be suitable for purchase over the counter. In this market, innovation has been basically limited to marketing and product variants rather than scientific efforts.

This isn't to say the market lacks sweet spots of significant growth opportunities. A look at historical growth rates reveals that the relatively new lifestyle categories, such as food supplements and energy drinks, are driving market growth, signaling a shift from illness to wellness as the new consumer motivator.

However, a glance at the pharmacy and supermarket shelf shows that consumer health companies seem satisfied promoting trendy health supplements to young people who do not need them, rather than providing solutions to the very real health problems older people face.

### The Winning Model

Given their respective histories, one would expect our two protagonists to approach the market battle with very different mindsets. Consumer goods companies would try to build global brands and use marketing muscle to win supermarket shelf space. Pharma, on the other hand, would use Rx-to-OTC switches as a source of innovation, maintaining

their grip on pharmacy and specialist channels and building a portfolio of local assets. Indeed, this is pretty much what we found: Players apply the tactics they are most comfortable with and apply much the same approach across the portfolio.

It is difficult to say which is the winning model. In fact, we aren't convinced that either approach is inherently superior. The best tactics will depend on the category and the geography and the type of company you want to be. The two most important decisions will be the brand's role and the distribution channels.

### Brand versus Category

Consumer goods and pharma companies define "brand" quite differently. To a consumer goods company, a brand is the articulation of a relationship with a consumer, encompassing personal aspirations, trust, and promises of performance. To a pharmaceutical company, a brand is a molecule—and the value of some of these molecules is enormous.

Unfortunately, it is hard to find any consumer health category where global brands under either definition have made any significant impact. A look at top brands across categories shows that global brands rarely achieve more than a few percentage points of market share. This does not mean that trying to build global brands is a pointless strategy. Big brands are a proven way to access growing mass-market channels. Global brands are also a good strategy for genuinely innovative products—though as we have mentioned, product innovation is sadly lacking in the consumer health industry.

However, the reality is that in most markets, consumer health

companies will have to build on existing local brands that embody trusted relationships and are tailored to local needs. For this reason, it is probably more productive to pursue category leadership than building global brands.

We believe that if consumer health is to achieve its full potential, it needs to grow beyond Rx-to-OTC switches and clever marketing. It needs to develop science that truly addresses the health needs of the aging and chronically ill and build the expertise to reach out to consumers and help them embrace their own health needs. It needs to convince consumers and health professionals alike that its products are safe and effective, and generate the evidence to prove it.

It is enlightening to look at the evolution of the food industry, where many companies are adopting the category platform model. Innovation, technology, product concepts, and formats are shared across countries, while the brands with very strong local consumer loyalty are maintained.

### Specialist versus Mass-Market Channels

Nothing illustrates the battle for consumer healthcare more clearly than the choice of distribution channels. Historically, pharmacies have been the dominant consumer health channel, protected by both tough regulation and customer expectations of where health products should be sold. However, there is a trend for deregulation, supermarkets are becoming more credible for health and beauty products, and much of the growth is coming from lifestyle products. Also, while developing countries are seeing an expansion of pharmacies, pharmacy floor area in most developed markets – and even in Russia and Brazil – is declining, according to Datamonitor.

Overall, this means that most of the growth in consumer health sales, even OTC medicines, is occurring in mass-market channels.

Do pharmacies and specialist channels matter anymore? Absolutely! First, pharmacy deregulation has proved to be incredibly slow in most markets, so pharmacies re-

main the only route to market for many products. Second, margins generated in pharmacies and specialist channels are generally far higher than in supermarkets. Finally, specialist channels such as pharmacies and dentists provide the expert endorsements that justify premium pricing, which can carry over to the supermarket shelf.

The key for the successful consumer health company is to use specialist channels to maintain clinical credibility while using mass-market channels to achieve wide distribution – easier said than done, to be sure.

### Who will be the Winners?

The fight for the consumer health market is a war with multiple fronts, and participants will have to organize effectively, move swiftly, and know which battles they must take on and which tactics will ensure victory.

As in all types of evolution, the winners will be those that adapt best to their rapidly changing environment. The winners in consumer health will be an entirely new species, but it is far from clear which gene set will prevail.

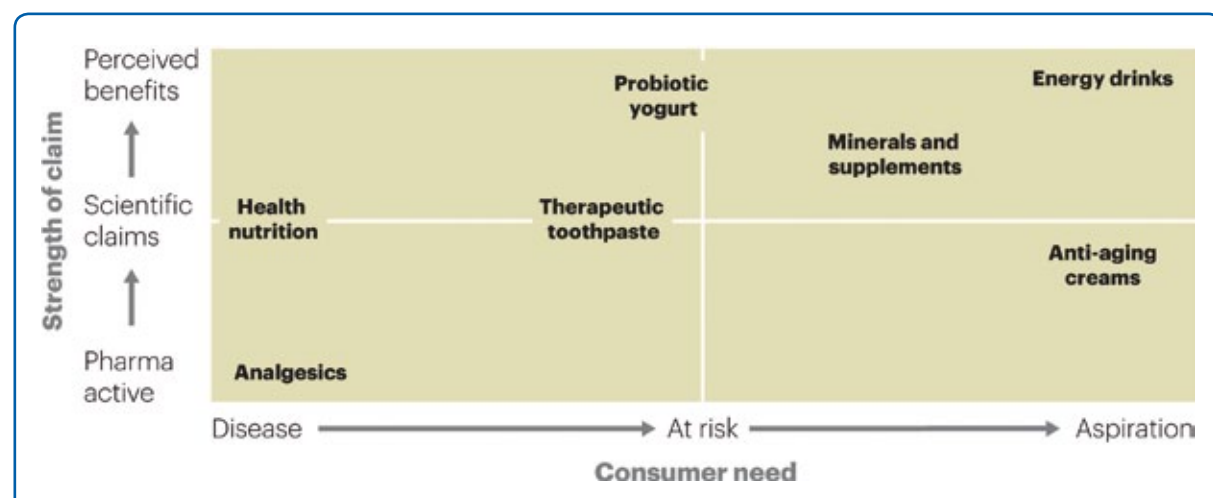
We believe, however, that the consumer health company of the future will be an amalgam of the two industries, able to engage consumers and prove the clinical effectiveness of their products and as adept at dealing with medical professionals as negotiating supermarket shelf space. Even more important, such a company will have the ability to identify unmet consumer needs and develop innovative ways to unlock true value in the marketplace.

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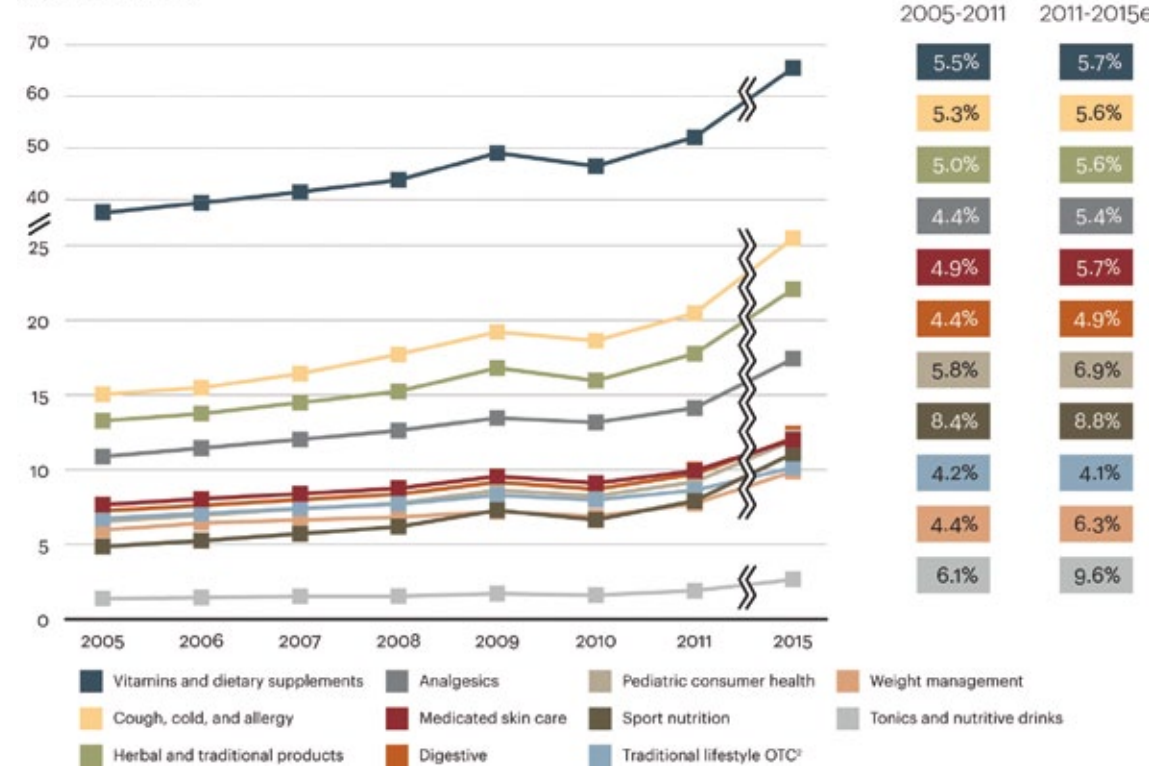


### Defining Consumer Health

The consumer health market covers a wide range of categories and products, all of which claim to improve some aspect of health or wellbeing and are not generally reimbursed by healthcare systems. Product characteristics vary widely, with the two most essential dimensions being the consumer needs they address and the strength of the claims they make.

© A.T. Kearney analysis

### OTC market by category (\$ billion, MSP)



### Market Growth

A look at historical growth rates reveals that the relatively new lifestyle categories, such as food supplements and energy drinks, are driving market growth, signaling a shift from illness to wellness as the new consumer motivator.

© Euromonitor, 2010; Consumer Health, Passport database; A.T. Kearney analysis

Note: OTC = over-the-counter; MSP = manufacturer's selling price

1) Sales data: retail value MSP/\$ billion, historic constant 2011 prices, forecast constant 2011 prices, historic fixed 2011 exchange rates, forecast fixed 2011 exchange rates

2) Includes calming and sleeping, wound care, ear care, eye care, smoking cessation using nicotine replacement therapy, emergency contraception, OTC triptans, and adult mouth care.

# Science for a Better Life

Continued Page 1

And we also have the eye medicine VEGF Trap-Eye, marketed under the Eylea brand. Our pharmaceutical pipeline comprises about 35 development projects.

CropScience expects products with estimated launch dates between 2011 and 2016 to have a total peak sales potential of €4 billion. These include eight crop protection products with new active ingredients and 18 new projects in the Seeds business for the broad-acre crops of cotton, canola, rice, wheat and soybeans.

These figures clearly demonstrate our innovative capability as well as the importance of our researchers and developers for Bayer's future and for scientific progress.

*In the life sciences, Bayer is able to leverage product synergies between the areas of human health, animal health and plant health. Do you plan to systematically develop the interfaces between these segments? What measures will you take in order to allow your R&D teams to maximize the opportunities of this cross-fertilization?*

**M. Dekkers:** We have a unique position thanks to our extensive expertise with respect to the health of people, animals and plants. Bayer is the only global company to combine all three under one roof. It is from this very position that we are also breaking new ground in terms of innovation. Thanks to significant progress in the biosciences, there is a steady flow of new findings about fundamental cellular mechanisms in people, animals and plants. These mechanisms may be very similar across different species and can thus enable new research approaches.

We have therefore created the framework our researchers need to work together on innovations – systematically and much more intensively across subgroup boundaries. The objective is to strengthen Bayer's innovative power through collaboration and optimally leverage our business portfolio.

*In the materials business innovation is also crucial to growth. How do you rate and foster your innovation pipeline in MaterialScience?*

**M. Dekkers:** Bayer MaterialScience has a very successful history of innovation and a promising project pipeline. We are focused on three

We are also active in process research to make our production as energy- and resource-efficient as possible. One example is the gas phase phosgenation technology for isocyanate production, which helps to lower energy use by 60% compared to traditional processes. In the field of application development we are working on solutions for global challenges such as population growth, increasing mobility and the need for greater energy efficiency and climate protection. Among our latest developments is extremely fine-pored rigid polyurethane foam for highly effective insulation.

*Innovation is not only a question of money, but also of the ideas of your researchers. Do you expect difficulties in the near future to get the amount of highly qualified and creative people you need, and do they have enough space and time in today's ROI-driven economy to be creative?*

**M. Dekkers:** Until now, we've had no difficulties recruiting outstanding researchers and that is unlikely to change in the foreseeable future. And, of course, our researchers are given the space they need to be creative. We can only continue to be as innovative as we have been in the past nearly 150 years if we have a

**There is no doubt that all of our businesses serve markets that will continue to grow.**

culture that gives space to lateral thinkers and accepts new ideas. And it's only by remaining innovative that we can stay competitive.

*When innovations become products, their success not only depends on their usability, but often on the public acceptance. Are you concerned about the degree of technology skepticism that is becoming obvious especially in Europe?*

**M. Dekkers:** Of course, I'm concerned. If we're investing €3 billion in research and development year after year, then we should be given a fair chance of actually earning money with our innovative products. This means we need a society that is open to innovation and doesn't instantly cast doubt on anything new. Novel products that can help improve people's life should be valued appropriately. If not, the business model of

innovative companies will cease to function at some point – with serious consequences. After all, there can be no doubt that we need innovations.

*Do you have a certain target ratio for internal and external growth*



Bayer has extensive expertise with respect to the health of people, animals and plants. It is from this very position that the Group is breaking new ground in terms of innovation, too.

*or do you place greater importance on one than the other?*

**M. Dekkers:** Our focus is on organic growth – but neither the success of research nor market developments can be reliably forecast. When we

develop a new pharmaceutical active ingredient, for example, the likelihood of eventually receiving approval increases from Phase I to Phase III – but it's the regulators who decide. In making acquisitions, we're looking for bolt-on additions to our businesses which can provide access to new technologies, innovative products and attractive markets. The question is always what potential targets are on the market and what the price tags are.

We aim to take advantage of all the viable opportunities – whether for internal or external growth. If we set quotas we would restrict our own freedom of action.

*Some of Bayer's businesses are still showing good growth rates in mature markets, others will have to focus on emerging markets. What will Bayer's global footprint and regional revenue breakdown look like in ten years?*

**M. Dekkers:** The trend we have seen in recent decades will continue, which means growth rates in the emerging markets will be higher on average than in the mature markets. The reason is that these countries are still in the process of catching up in terms of health services, purchasing power and economic efficiency, to name just three examples.

At Bayer, the emerging countries increased their share of Group sales

in the first nine months of this year by half a percentage point against the prior-year period to 36.2%, a figure that is likely to increase in the future. We are greatly expanding our organizations in the emerging markets, stepping up our marketing, expanding research and development, and increasing our production capacities there.

So there will be shifts in the regional distribution of our business in the coming years. But I cannot give any specific forecasts, because this trend can obviously be affected by various factors such as economic developments.

*In order to improve Bayer's competitiveness and financial perfor-*

*mance you have initiated several efficiency improvement programs. What are the main areas where efficiency needs to be improved?*

**M. Dekkers:** We launched an efficiency program two years ago. Under the tagline of "More innovation – less administration," we are investing our resources even more systematically in Bayer's growth and innovative capability. Specifically, this is about researching, developing and marketing new products – and expanding our activities in the emerging markets. We have to generate the financial resources we need for this expansion by carefully redistributing resources, improving efficiency and

making cost savings. This involves almost all units of the company, especially the administrative and service functions. We will achieve our target of €800 million in annual savings starting in 2013.

*Bayer is a pioneer and role model in Corporate Social Responsibility and Sustainability. Nowadays, these topics are not only tools to improve a corporation's reputation but are crucial for economic success. Bayer's business model and strategy fully embrace these principles. What are the benefits for companies – multinationals or SMEs – that follow your example?*

**M. Dekkers:** The fundamental question for every individual and every company should be whether we are leaving a good world for our children. This is the essence of sustainability – and ultimately ensures our license to operate. At Bayer we consider social responsibility as an essential part of our mission "Bayer: Science For A Better Life."

And I am convinced that every company – big or small – needs to develop its own sustainability and CSR strategies. There are many stakeholders who attach increasing significance to a convincing sustainability strategy – take the Carbon Disclosure Project as an example.

Another important aspect is employee retention: employees identify more strongly with a company that is not only commercially successful but that also demonstrates social and ecological responsibility.

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## South and Central American API Market Set to Grow

The active pharmaceutical ingredients (API) market in the Americas was worth a staggering \$46 billion in 2011, with North America accounting for over 88% of it. But thanks to rapidly expanding economies and improvements in healthcare, South and Central America (SCA) are set to take a more substantial chunk in the future, pharmaceutical industry analysts from GBI Research predict.

According to the report Active Pharmaceutical Ingredients (API) Market in Americas to 2017 - Shift Towards Generics and Biosimilars as South and Central America Emerges as a Key Growth Region, the SCA region has one of the fastest growing API markets in the world, with a growing demand for generic

and biologic medications. Mexico is currently the largest market in the region, but thanks to an aging population and a strengthening healthcare system, Brazil is expected to overtake by 2017.

SCA countries are becoming increasingly open to global drug producers and supporting the manufacture of medications at home through investments. Many governments in the region are aware of the huge potential of generics and are providing financial backing as well as promoting pharmaceutical growth through the employment of various programs and schemes.

This region is also home to an expanding aging population and is witnessing an increase in lifestyle

diseases such as diabetes and obesity – further driving the demand for healthcare and pharmaceutical treatments.

The API market in South and Central America was valued at \$5.4 billion in 2011 and is expected to climb at a Compound Annual Growth Rate (CAGR) of nearly 13% to reach \$11.1 billion in 2017. As the North American API market is expected to grow at a more modest CAGR of 4.4%, the SCA will increase its share of the total Americas market to 17.4% from the 11.7% stake held in 2011.

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# Anticipating New Trends

BASF's Personal Care Business is Well Positioned to Help Customers Meet Challenging Consumer Needs

**Performance** – BASF Personal Care is part of BASF's Care Chemicals division and a leading supplier of high performance ingredients for the personal care industry. The business unit was established in 2011 following BASF's acquisition of Cognis a year earlier. CHEManager Europe asked the management of BASF Personal Care Europe for a review of the integration phase and also a business preview into the next year. Jan-Peter Sander, Senior Vice President of BASF's business unit Personal Care Europe and Dr. Thomas Schröder, Vice President Business Manager, provide the answers.

**CHEManager Europe:** The last two years have been an eventful time for BASF's Personal Care business. You have had to deal with both an integration phase and setting up a new unit. What were the major challenges posed by this? How did the different company cultures match and what did you do to "get the best of both worlds"?

**J.-P. Sander:** The best of both worlds perfectly describes the integration of the former Cognis businesses into BASF. Even though I joined BASF Personal Care Europe only some months ago, I can conclude that it is an excellent match and the cultures and skills of the two companies complement each other very well. After the acquisition, the core competencies were analyzed and a rich and diverse pool of resources and expertise, both in terms of scientific knowledge and consumer understanding, was discovered. What I can say about Personal Care is that the business successfully managed to draw on the combined strengths and leveraged the joint skills. But of course, in the beginning, every change brings with it challenges such as an organizational set-up and the defining of an infrastructure and business model. Thanks to the huge effort made by the whole team, great progress was made and a challenging period was faced successfully. All of the employees showed great commitment and played a key role in making the integration a success by living a culture of diversity and bringing creativity to our innovation process – a key factor when it comes to meeting current and future market demands.

**What was/is your strategy to harmonize the different brand structures and to communicate the changes to your customers? And how far has the unit got today?**

**J.-P. Sander:** The new Personal Care business is the leading supplier of high-performance ingredients for the personal care industry. This is a position we managed to achieve thanks to the joint market expertise, technical and formulation skills and a combined product portfolio. In terms of our brands, the different brand architectures complemented each other very well and there was no need to change them. However, we did launch a new umbrella brand, Care Creations, and a new communication concept, Inspired by Life. The brand and the concept apply to all BASF activities towards the personal care industry, includ-

**"We successfully managed to draw on the combined strengths and leveraged the joint skills."**

Jan-Peter Sander

ing the cosmetic active ingredients business. This represents a major milestone in our commitment to always having a finger on the pulse of consumer and market needs, and expressing our business approach. The brand and the concept also clearly indicate our strengths. From an internal perspective, being inspired by life represents who we are. It is a roadmap that guides our everyday activities – from innovation processes to developing products and concepts that shape the market.

**T. Schröder:** Our first step was to invite our customers to join us in looking at life from a broader perspective by seeing things from a bird's eye view. The next step involves digging a little deeper, by taking an even closer look at people's needs, as though we were face-to-face with them. We analyze, for example, market research data to develop new consumer-focused innovations. This whole process involves global communication activities, with a noticeable presence in industry publications and relevant media.

**What are the particular strengths of your business unit?**

**J.-P. Sander:** In addition to a broad range of high-performance products, which is in fact one of the most comprehensive portfolios available for personal care applications, our customers also

benefit from our commitment to innovation, technological excellence and formulation expertise adapted to local markets, as well as our global reach since we have production and development sites and sales and marketing offices all over the world. Our approach is a synthesis of our key strengths market empathy and scientific excellence, which does not only add value but also makes BASF Personal Care a valued partner.

**Mr. Sander, before being appointed Senior Vice President at BASF Per-**

**sonal Care you held the equivalent position at BASF Pigments and Resins Europe. How do you aim to position BASF's European Personal Care unit? Will the personnel change also bring about a change in strategy?**

**J.-P. Sander:** No. In fact, I'm looking forward to building on the excellent work that has been done so far to drive the unit's strategy forward. We aim to support our customers by providing outstanding expertise, taking a pioneering approach and drawing inspiration from people's lives, thereby helping our customers and their offers to take on a more relevant role in consumers' lives. We will continue the successful implementation of this strategy.

**In terms of personal care solutions, different cultures have different requirements and demand a personalized approach in terms of customized products for regional markets. How do you handle these differences from the R&D stage all the way through to marketing the new products?**

**T. Schröder:** Innovation is one of our strategic priorities, because many of our customers are brand owners. They need to anticipate new trends and differentiate themselves in the market. We aim to support them by continually enhancing our portfolio and bringing solutions to market quickly. Imagine a cycle with the consumer as the starting point. We closely monitor the market in order to identify both new regional demands and overarching global demands, and also to anticipate current and upcoming trends. The next step is to take our understanding of the consumer needs we have identified, and translate them into solutions that are of real value for our customers and for us. New technologies and methods play a key role here, and are also important when it comes to taking product inventions to the next level and developing new application concepts. Let's take the trend for products for sensitive skin as an example. People with sensitive skin show a heightened sensitivity to topically applied substances and environmental factors, and therefore are looking for products that are soothing and offer a pleasant sensory profile. But developing solutions like this can present considerable challenges, partly because it is difficult to predict sensorial responses and to find the right combination of ingredients, which makes formulating tricky. New emulsion technologies could be, for instance, a key to developing an innovative care product for sensitive skin. This overall approach requires constant investment in research and development, including regional application labs and new consumer-focused, science-based methods of innovation.



Jan-Peter Sander, Senior Vice President, BASF Personal Care Europe



Dr. Thomas Schröder, Vice President Business Management, BASF Personal Care Europe

The BASF Verbund system provides us with even more opportunities to take approaches such as the one outlined. This means we can utilize resources to push successful innovations forward, and invest more time and resources in long-term innovations. We have an integrated network that we can rely on along the whole supply chain, from the initial stage through to the final, marketed product.

**What have been the major trends in the personal care market in 2012?**

**T. Schröder:** The personal care market is currently being driven by a variety of social aspects. Demographic

structure. They are based on highly technical formulations that work at a cellular level and promise to deliver fast, visible results.

**In which market segments and regions do you see or expect to see above-average growth?**

**J.-P. Sander:** Responding to trends and detecting them at an early stage is key to increasing market share. We aim to continue doing this in the future, by being a value-adding partner for our customers and allowing them to concentrate their efforts on research and production. This way, they can leverage growth opportunities by rapidly launching specially tailored products that meet emerg-

**"The personal care market is currently being driven by a variety of social aspects."**

Dr. Thomas Schröder

change, individualization and the growing number of multicultural societies are key drivers that have led to the creation of some very specific product categories. In addition to this, a growing awareness of health, safety and sustainability factors have penetrated every aspect of daily life. Overall, consumers have a very wide range of needs, depending on their lifestyle and attitudes, and this has led to a greater segmentation of the market. Key examples here are products that can be adapted to specific needs and targeted to different age groups or stages of life. I've already mentioned the specific demand for products that are suitable for sensitive skin. There is also a growing demand for everyday UV protection, and this has resulted in a significant increase of UV filters being integrated into cosmetics that are used on a daily basis. Another major trend is the evolution of anti-aging solutions that no longer focus solely on preventing wrinkles, but also target a multitude of signs of aging, aiming to improve firmness, radiance, suppleness and skin tex-

ing consumer needs at both a regional and global level. For instance, Asia and Latin America as well as Africa and Middle East are potential growth markets with a high demand for a variety of personal care applications. Body care, color cosmetics, sun care and hair care are focus segments, as the demand for high-performance products is likely to grow in these markets.

Thanks to our strategy and our market approach, I would say that BASF's Personal Care business is very well positioned to help our customers follow and set new trends while also meeting challenging consumer needs. In 2013, we will continue to invest in innovations and roll out the next phase of our Care Creations brand. Customers can also expect new products, concepts and formulations helping them to target the real needs of every day consumers, which in the end means business growth for all of us.

[www.chemanager-online.com/en/tags/personal-care](http://www.chemanager-online.com/en/tags/personal-care)

## Bayer Sues Lipin over Generic Birth Control Pill

Bayer has filed a lawsuit in the U.S. state of Delaware against Indian generics producer Lipin to stop what it sees as a patent violation. The German drug giant said Lipin is preparing to market a copy of its birth control pill Natazia, even though

Bayer's U.S. patent extends through 2026. It contends that is entitled to an award of "damages and treble damages for any commercial sales of the generic product."

The contraceptive is approved in the U.S. for treatment of heavy men-

strual bleeding. Following its acquisition of compatriot drug maker Schering in 2006, birth control has become one of the most important businesses for Bayer's pharmaceuticals arm, with contraceptive sales of €1.1 billion in 2011.

## Brenntag Signs New Distribution Agreement with Evonik

From 1st January 2013, Brenntag will distribute the full range of products from Evonik Household Care in the UK, Scandinavia, the Russian Federation, Belarus, Ukraine the Baltic States, Croatia, Serbia, Slovakia, Austria, Spain, Turkey, and Cyprus. The chemical distributor is already a partner for Evonik in various markets all over

the world. The agreement covers the full product portfolio of the business line Household Care from Evonik's business unit Consumer Specialties, which is a leader in the manufacture and supply of raw materials and additives to the household, detergent, car care and industrial & institutional markets. "This is an exciting complementary addition to our product

portfolio", comments Dr. Thomas Heinrich, European Marketing Manager Cleaning & Water Treatment at Brenntag. "We are delighted that we will be working with Evonik, which will further strengthen the leading position of Brenntag in the Household, Industrial & Institutional (HI&I) cleaning market in aforementioned countries".

## Multinational Drug Makers Find Indian Pharma Market Tough Going

Only a few years ago, the Indian drug market was unhampered by patent restrictions, opening the door to an influx of expensive European and North American medicines. Now, multinational pharmaceutical companies are finding it increasingly difficult to do business in this market worth \$12 billion annually. In September, an Indian patent appeals board rejected Bayer's petition to block the market launch of a generic version of its cancer drug Nexavar -- after authorities in March had issued a compulsory license to domestic generics producer Natco to produce cheap copies of the high-priced German medicine.

In early November, acting on a petition purported to have been

made on behalf of Indian patient, authorities revoked a patent granted six years ago to Roche's hepatitis C drug Pegasys, citing a lack of evidence that the import was better than any existing treatment.

While observers see no legal subterfuge involved, they say recent decisions in favour of domestic generic drug companies smack of political favouritism. What's more, as Munich patent attorney Jens Hammer points out, is that India's patent laws allow "any person of interest" to file petitions, which could include local competitors.

Another law that can be interpreted to the disadvantage of foreign producers, he says, is one designed to prevent "evergreening,"

the practice of applying for new patents for substances based on similar active ingredients without showing any advantages over existing drugs. This, notes Hanner, is the trap Roche fell into.

The recent decisions show that price is playing an increasingly important role in the Indian drug market, the German lawyer says. To relieve some of the pressure, he recommends that drug makers cooperate with recognized international aid groups or leverage their own generic businesses. In his view, however, the most pressing concern is that India could become an interesting playing field for special interest groups seeking to undermine patent protection.



# PRODUCTION

## Clean Production

### Designing Out Contamination for White Biotech Applications

**Hygienic Design** – Biotech applications are particularly susceptible to contamination. Some of the cells used in biotech processing are very sensitive to contamination from the outside; carrying cells from one batch to another too can be disastrous. So, designing a plant in the right way to minimize the opportunity for contamination is a primary requirement that can help prevent expensive mistakes. Thorsten Vammen, Director of GEA Liquid Processing in Skanderborg Denmark, looks at what can be done to avoid contamination in the design stage of a white biotech plant.



Best sites have been designed specifically to handle biotech products. Many existing plants were originally designed as chemical plants where Clean in Place (CIP) technology was not generally employed. Therefore, some of these plants that today are used for producing biotech products are not made for CIP, either because they used to be chemical plants or because people are not used to designing CIP'able systems.

#### Sources of Contamination

One of the problems of not having proper cleaning is that 'left overs' from the product stay in the system. When sterilizing, the product that is left over will build up over time and be burned onto the equipment. This makes it difficult for the sterilizing steam to reach all the crevices and corners. Even if the left over material is sterile in itself, it creates a perfect environment for bacteria to grow. In addition, burnt-on product remains will, over time, produce particles which can easily clog and cause a malfunction in steam traps and small drain valves, etc.

Dead legs too are another challenge. These are areas, usually within pipework, that cause air pockets making it difficult for the steam to reach to the bottom of the dead leg area. These dead leg areas typically have seals at the bottom which can be notoriously difficult to clean.

#### Multi-purpose Plants

In today's competitive world plants have to work harder. Many biotech plants are now multi-purpose, producing different products based on different types/strains of bacteria. In these cases it is very important that there is no cross contamination from the previous batch especially if the previous batch was based on a bacteria type that is 'stronger'

than the one being produced. If so the stronger bacteria will take over the environment and decrease the yield or worst case 'kill' the one being produced.

#### Effective Cleaning

The part of the industrial biotech segment that are producing living bacteria, frequently require their cleaning and sterilization systems to achieve a very high efficacy level during product treatment at  $F_0 = \log_{10} 9$  to  $\log_{10} 16$ . To obtain this high level it is necessary to have a well-functioning CIP system combined with a well-designed steam sterilization system (SIP).

To achieve this level of efficacy many factors come into play. The physical system design, selection of best suited components, care in mechanical manufacturing and a well-designed control system will be of outmost importance. Even very small design flaws can lead to product losses. More importantly, perhaps, if there are faults, finding them can be very complicated, difficult and time consuming leading to lost production.

Frequently it is not the production systems that are the main culprits: utility systems such as water supply, steam generation, ventilation systems and gas and chemical supply systems can harbour bacteria if the cleanliness of these systems does not fall within design parameters. It is often these utilities that do not always receive the attention they require and, therefore, can be the starting point for serious problems.

#### Designing Out Contamination

Effective cleaning is important, however designing systems that are not bacteria friendly is a vital part of a system. For example, all instruments should be flush mounted to avoid creating dead legs or crevices where bacteria can collect. Every piece of pipework must be designed in such a way as to ensure that the CIP fluid hits all surfaces at the correct velocity and temperature. Utility systems too should be designed to be cleaned and sterilized or if



this is not required, a sterile barrier should be created at the point where the utility product meets the sterile process.

Air pockets can be a problem and should be designed out as far as possible. If this is impracticable, the air should be capable of being vented. Air creates an isolation layer between the steam and the metal preventing the metal surface from reaching the correct temperature for effective sterilization to take place.

It is also necessary to design out human intervention as much as possible to avoid contamination. Instruments too need to be placed correctly to ensure that they provide accurate readings of temperature and pressure to validate sterility and, therefore, verify that sterilization has been performed to the correct level.

#### The Environmental Gain

Designing a plant to limit contamination and to make sterilization easy limits the amount of chemicals,

water, and power necessary during the sterilization process. In turn, this saves money and limits the effect of the process on the environment. The initial investment might be a little higher but the total cost of ownership will be lower, more than compensating for the additional up-front expenditure. Less use of power reduces fuel bills, avoids penalties for unacceptable emissions and saves resources. Efficient use of chemicals and the clever use of water – including closed circuit systems – minimizes disposal costs. Good cleaning means less down time and can reduce the need to use preservatives.

#### Saving Money and Avoiding Contamination with Heat Recovery

Heat recovery systems save money and help the environment too so they make good commercial sense and can save up to 20% on heating bills for chemical plants. Modern systems can also contribute significantly to reducing contamination in sanitary operations. Heat recovery systems re-use heat that has already

been generated in the plant. One of the main opportunities for heat recovery is after CIP and SIP operations that inherently require high temperatures to be effective. By recovering this energy and using it for pre-heating of the next batch, it's possible for plants to make a significant power saving.

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## Protest Group Files Petition Against Bayer MDI Plans for Brunsbüttel

Coordination Gegen Bayer-Gefahren (CBG), the self-appointed safety watchdog, has filed objections to plans by Bayer MaterialScience (BMS) to build a new €100 million, 420,000 metric tons per year plant for polyurethane precursor MDI at Brunsbüttel on Germany's Baltic seacoast. CBG's view is that while that the company plans to house production of starting material phosgene under a protective shell, its choice of material does not ensure sufficient safety.

Noting that phosgenation plants at BASF at Ludwigshafen and Dow

in Stade, Germany, are protected by a concrete cover. The protest group insists the light metal cover proposed by BMS is inadequate containment. It contends also that the plant is not located at least 1,500 meters from inhabited areas, as German safety standards require.

CBG's petition to local permitting authorities contains a long list of other perceived threats associated with the Bayer facility, including the absence of adequate protection against airplane crashes, an energy and CO<sub>2</sub> analysis as well as description of a worst-case scenario in case of accidents.



## Atotech Builds New Cleanrooms for Semiconductor Production

Atotech is setting up cleanrooms at its worldwide TechCenter locations. The new cleanroom for flat panel display (FPD) and semiconductor manufacturing equipment in Feucht, Germany, is the latest addition. The first FPD-Line will be engineered and produced there in 2013. Further cleanrooms around the world, mainly for sample plating, will follow.

Cleanroom facilities for sample plating have already been established in Jangan, South Korea, Yokohama, Japan, Berlin, Germany,

and Guanyin, Taiwan. A cleanroom for chemicals production has been in use in Neuruppin, Germany since 2008. And Atotech's R&D Center for copper interconnect technology is working closely with and at the College of Nanoscale Science and Engineering (CNSE) in Albany, New York, USA. The facility there provides over 86,000 ft<sup>2</sup> of cleanroom and analytical lab space with a complete line of cutting-edge 300 mm semiconductor manufacturing and R&D equipment.

## Dow Corning Expands Solar Solutions Lab in Greater China

Dow Corning has expanded its Solar Solutions Lab in the China Business and Technology Center (CBTC) with cutting-edge photovoltaic (PV) research and testing capabilities that support the emerging needs of customers in Greater China. At the Solar Solutions Lab, Dow Corning will collaborate with customers to help advance the global solar PV market. On-site laboratory capabilities

include performing environmental testing, testing new silicone encapsulation technologies, testing new technology for module installation, and optimizing solar module production processes based on new silicone materials for PV. Established in 2010, the facility is dedicated to shortening the innovation cycle that turns market opportunities and new ideas into profitable solutions.

## Sartorius Launches Innovative Biopharma Prefilter Series

Sartorius Stedim Biotech (SSB) has launched the Sartoguard NF prefilter series for the downstream protection of more expensive sterilizing-grade and Mycoplasma-retentive filters in challenging prefiltration applications for biopharmaceutical manufacturing. These new prefilters feature a unique combination of high performance polyethersulfone (PES) membranes and innovative nanofleece technology. This is the first time that PES nanofleece material is being used for liquid prefiltration applications in biopharmaceutical manufacturing.

The newly developed nanofleece technology provides an ultrafine fleece structure based on a small nanofiber diameter of 120-150 nm compared with the fiber diameter of conventional fleece materials of >500 nm. The resulting fleece structure offers enhanced clarification ca-

capabilities, even for extremely fine contaminants, along with a high-dirt holding capacity, fast flow rates and high total throughput performance.

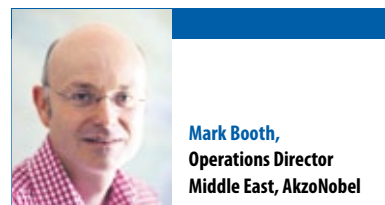
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## Full Supply Chain Transparency at AkzoNobel Powder Coatings

AkzoNobel is the world's largest producer of powder coatings and is a world leader in the field of powder coating technology. After the successful go live of a production scheduling solution at 7 different AkzoNobel Powder Coatings locations across Europe, Mark Booth, the Operations Director Middle East of AkzoNobel, was confident and proud to share his experience with European Supply Chain Industry leaders at the Gartner Supply Chain Executive Conference 2012.

During his presentation he not only discussed the journey, but also credited Quintiq, the developer of the Advanced Planning & Scheduling (APS) software for various business benefits achieved. Mark Booth went into great detail with his audience, sharing experiences working with Quintiq and highlighting profitable results.



Mark Booth,  
Operations Director  
Middle East, AkzoNobel

"Before we implemented the Advanced Planning and Scheduling software, we were facing the problem of very high inventory levels, sub-optimal utilization of plants, inconsistent service levels, a lack of supply chain visibility, and a duplication of planning tasks across the various plants. We had different planning systems in use and had no integration with SAP," said Booth.

Mark Booth reported that AkzoNobel now has a fully transparent supply chain in Western Europe. "Full transparency was created through the combination

of centralized planning and decentralized scheduling in 7 plants. We have proven results in capacity balancing and improved schedules. There has been a 5% reduction in overtime and hiring of temporary workers, a 5% decrease in finished goods inventory, a 20% decrease in slow moving/obsolete stock, and improved service performance due to reducing out-of-stocks and MTO lead time measured by key performance indicators".

Quintiq's Advanced Planning & Scheduling (APS) software enables companies to create business value by visualizing and optimizing their operational processes.

www.quintiq.com



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## Integrated Plant Design Solution

Hitachi Power Europe has selected SmartPlant 3D for its future design and construction projects to further strengthen its position in the global market through improved productivity and intelligent collaboration. As a market and technology leader in the energy sector, Hitachi Power Europe relies on innovative and integrated software to support its projects around the globe. After a thorough benchmark period, the company chose SmartPlant 3D as its design tool for future projects, which will start with a planned implementation of the integration platform SmartPlant Foundation. Hitachi Power Europe chose SmartPlant 3D to ensure enhanced collaboration, to increase productivity and to have a consistent impact through the whole plant life cycle. The improved collaboration with other Hitachi sites was one of the key reasons for the company's decision.

"After a preliminary selection process, two finalists for a pilot installation were selected and tested under identical conditions. The result of the user test, together with the evaluation of a predefined requirements matrix, showed a clear vote for SmartPlant 3D," said Chris-

toph Kastl, head of technical information technology at Hitachi Power Europe.

"The increasing number of customers who rely on Intergraph's design tools and information management solutions encourage us to keep working on delivering integrated solutions that have a purposeful impact in the whole life cycle of the plant," says Gerhard Sallinger, Intergraph Process, Power & Marine president.

Companies using SmartPlant 3D typically report a 30% improvement in overall engineering design productivity, according to Intergraph.

SmartPlant Enterprise, the suite comprising Intergraph's pool of solutions, offers a powerful portfolio of best-in-class design and data management solutions, enabling companies in the process, power, and marine industries to capture integrated engineering knowledge at the enterprise level for the competitive advantage needed in the market.

SmartPlant Enterprise's integrated suite of solutions enable proven productivity gains, improving engineering efficiency by up to 30%.

www.intergraph.com



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## Plant Design for Lean Construction

Aveva has released a new business paper focused on the adoption of a Lean Construction philosophy by Engineering Procurement and Construction (EPC) companies. The paper looks at what is required from the next generation of plant design products to make a step change in project execution efficiency and presents Aveva's insight on how to apply lean principles in the plant industries.

"When we first devised the concept for the Future of Plant Design, Lean Construction was the key driver", said Dave Wheeldon, CTO & Head of Engineering Design Systems, Aveva. Lean Construction is founded on three key principles: respect for people by empowering all levels of an organization, eliminating non-value adding activity by adopting a zero tolerance of waste, and maximizing the efficiency of activities that add value.

"It has always been a challenge to adopt the Lean philosophy to major capital projects due to the fragmented nature of the supply chain and the one-off nature of the project itself. There is now evidence that companies are open to change and thinking about new contracting styles to

improve efficiency. New technologies such as affordable laser scanning and mobile computing have already allowed us to create an innovation, which can enable EPCs to adopt a version of Lean Construction for EPC projects", Wheeldon added.

Aveva's new product Everything3D (E3D) enables the realization of Plant Design for Lean Construction. It reduces project execution duration and allows increased productivity for quicker ROI. Enhanced feedback from fabrication and construction to design will enable EPCs to benefit by eliminating or managing rework early in the design processes rather than by crisis management on the construction site.

Wheeldon added "The move to Lean is a significant challenge, but the benefits are plain to see. As this paper demonstrates, the approach will add competitiveness, increased profitability, improved delivery success and an enhanced brand image for the EPC. Operators will enjoy faster time to first production or first oil and receive a 3D model which is a true reflection of their constructed asset."

www.aveva.com

## Ineos Processes for Russian and Malaysian PE Projects

Ineos said that its Innovene G and Innovene S polyethylene technologies have been licensed for OAO Nizhnekamskneftekhim's new petrochemical project and that Petronas has chosen the Innovene G gas phase fluidized bed process for its new HD/LLDPE swing plant.

The two plants of the Russian petrochemical company, each with a planned capacity of 300 kilotons/year, will be part of a larger expansion

at the petrochemical complex in Nizhnekamsk, Republic of Tatarstan, Russia. Commissioning for the complex is planned in the 2015-2016 timeframe.

Petronas' new 350 kilotons/year HD/LLDPE swing plant will be part of its \$20 million Refinery & Petrochemical Integrated Development (RAPID) project in Johor state. The plant will produce a full line of high value-added PE resins, including

HDPE, LLDPE and metallocene LLDPE. Output of the facility will meet demand in Malaysia and other Asian countries for polymer used in high performance film as well as molding and packaging resins for industrial and consumer applications.

The Rapid project, scheduled to be completed by 2016, is claimed to be the largest liquid-based downstream investment in Malaysia.

## Chinese, Indian Groups Acquire LyondellBasell PE License

Indian chemical giant Reliance Industries has acquired a license to use LyondellBasell's Lupotech T process in an LDPE plant it is building at its refining and petrochemicals complex in Jamnagar in India's Gujarat state. No details of capacity or start-up date have been revealed. The Lupotech licence to Reliance is the 23rd awarded by LyondellBasell and its predecessor Basell in 10 years, said Bob Patel, Senior Vice President of Olefins and Poly-

olefins, Europe, Asia, International and Technology at the Rotterdam-based group, adding that licensed capacity now totals 11 million tons.

Days earlier, China's Shenghua Coal to Liquid and Chemical Co, believed to be the world's largest coal producer, also acquired a license to use the Lupotech process in a new 270,000 metric tons per year LDPE/EVA swing plant it plans to build in Xinjiang province. No start-up date has been announced for this facil-

ity, either. U.S. engineering group Jacobs has won a contract to provide engineering and procurement assistance services for a 750,000 metric tons per year monoethylene glycol (MEG) plant at the Indian complex. The bulk of the investment cost for Reliance's \$12 billion expansion drive designed to improve refinery margins is to be invested at Jamnagar, reports say.

## Operating Permit Issued for Evonik's Rebuilt CDT Plant

German Authorities have issued an operating permit for Evonik's rebuilt cyclododecatriene (CDT) production facility at Marl. The chemical producer said all mechanical systems were in place by the end of Novem-

ber, so that the plant would be able to restart in December. First shipments of the PA 12 precursor (a starting material for laurilactam) are planned to be in the market by January.

The facility was partly destroyed by an explosion and fire that killed two workers on 31 March of this year. Evonik said it seems "certain" that an overdosage of a catalyst triggered the accident.

## UK Opens the Door to Shale Gas Exploitation

In a statement widely criticized by supporters of renewable energy, UK Chancellor of the Exchequer (finance minister) George Osborne has announced plans to create a dedicated Office for Unconventional Gas, which he said would provide a point of contact for investors in shale gas extraction and simplify regulations for the sector. At the same time, he said the government would "consult on tax breaks" for the industry.

The minister stopped short of announcing that the moratorium on hydraulic fracturing, or fracking, to retrieve the gas would be lifted. Drilling was stopped in June 2011 follow-

ing a series of earth tremors in England suspected of being related to the practice. Osborne has hinted in the past that the moratorium could be lifted, and the energy ministry said recently a statement on fracking would be made in the near future.

Osborne's remarks were part of the government's autumn budget statement and coincided with publication of a report saying that shale gas could make a significant contribution to the country's economic future. The minister said Britain should "not miss out on the opportunities being enjoyed in the U.S.", where gas prices have plunged.

"The chancellor is misleading people to position shale gas as the answer to UK's energy woes," said Greenpeace political director Joss Garman, adding that the impact of fracking in the U.S. is irrelevant because energy experts say the shale gas boom cannot be replicated here." Andy Atkins, executive director of the UK arm of Friends of the Earth, commented that, "while (energy secretary Ed) Davey attempts to show leadership at the Doha climate talks, the chancellor is handing out tax breaks to the fossil fuel industry."

## New Olefins, Polyolefins Project Eyed by Polish Government

As part of the Polish government's plan to drive forward chemical production and reduce dependence on imports, state-owned refinery operator Grupa Lotos and chemical producer Zakłady Azotowe Tarnowie-Moscicah (ZAT) will form a consortium to carry out pre-planning for a petrochemical complex at Gdansk on Poland's Baltic seacoast.

The complex, projected to cost about €1.5 billion, would link Lotos'

refinery with downstream chemical and plastics production. According to treasury minister Mikolaj Budzanowski, construction could begin as early as 2014, with start-up pencilled in for late 2017 or early 2018. Along with olefins and polyolefins, some sources believe the project could include methanol, as well as caprolactam to provide additional feedstock for ZAT's polyamide production.

Currently, Basell Orlen Polyolefins, a 50:50 joint venture of Rotterdam-based LyondellBasell and Poland's PKN Orlen is the only producer of polyolefins in Poland. According to the company's website it operates three world-scale plants at Plock, with capability for 400,000 metric tons per year of PP, 320,000 tons of HDPE and 100,000 tons of LDPE.

## Nova Chemicals Ditches Plan to Sell Styrenics to PFB

Canada's Nova Chemicals has terminated its plan to sell its Performance Styrenics business to compatriot expandable polystyrene converter PFB Corporation.

In May of this year, the two companies had signed a letter of intent to conclude a deal that called for PFB to take over of both Nova's EPS

and Arcel resins, a blend of styrenic polymer and EVA copolymer.

# Gas-to-Liquid Technologies

Speakers at the 2012 Gastech Conference Spoke Optimistically about the Future of GTL

**Raw Materials** – Some of the major doubts about the long-term viability of gas-to-liquid (GTL) technologies for producing fuels and chemicals from natural gas are now beginning to be eliminated. Several speakers at the 2012 Gastech Conference and Exhibition held in London in early October spoke optimistically about the future of GTL because of the promise being shown by new gas-to-liquids projects.

Two large-scale GTL plants in Qatar, recently brought on stream by Shell and Sasol of South Africa, have shown that the gas-to-liquids process can be highly profitable when based on cheap feedstocks and producing high quality fuels and high grades of feedstocks like naphtha. Like with all GTL technologies both Shell and Sasol use Fischer-Tropsch (F-T) synthesis of syngas into syncrude with Shell having a fixed-bed system and Sasol a slurry bed one.

In the first stages of their commercialisation, a second string of small-scale GTL schemes based on mini or micro F-T reactors are demonstrating that gas-to-liquids has the potential for broad applications, particularly in the processing of relatively small amounts of gas in remote areas and for the production of speciality chemicals. With micro-channel reactors it can also be used for processing biomass into liquids (BTL).

It has taken a long time for GTL to come to full commercial fruition—being derived from a discovery made in the 1920s for turning carbon monoxide and hydrogen into long-chained hydrocarbons. Yet there is still some uneasiness about its future. “The GTL industry

still faces considerable uncertainty—from competing technologies and policies yet to be decided,” Alex Forbes, director of Forbes Communications, Brighton, England, told the conference.

Technology issues holding back gas-to-liquids over the past decade are being resolved while the market fundamentals for GTL produce look promising because of wide divergencies between oil prices and gas prices in some areas, he said. “GTL will need to compete with other gas monetisation options, such as LNG and chemicals,” he explained. “The biggest constraint to growth will be the availability of proven technologies.”

Michael Phillipson, study manager and principal consultant at engineers Foster Wheeler, said that gas producers in their quest to add value to their output now have a choice between liquefied natural gas (LNG) and gas-to-liquids with several economic factors now favouring GTL.

## Derivatives

One of the biggest of these are derivatives which are more valuable than LNG. These include liquefied petroleum gases (LPG), naphtha, diesel, kerosene, base oils and paraffins. Also liquefied products from the F-T process command premium prices because of enhanced characteristics, such as higher cetane numbers, lower sulphur levels, lower exhaust particulates, lower toxicity and biodegradability. GTL kerosene, for example, is more energy efficient than conventional kerosene and emits 65% less CO and 79% less particulates.

value of the premium products has bolstered even further after the differential between oil and gas prices widens to an historic high in



areas like the U.S. and the Middle East. In the U.S. the shale gas boom has reduced gas prices to around \$3 million British thermal units (MMBtu), which has meant in terms of MMBtu-equivalent the price of low-sulphur diesel, a typical GTL product, being 4-5 times higher in the country.

In Qatar the gap between oil and gas prices is even wider where gas feedstocks have been supplied to local downstream industries at around \$1-1.25 MMBtu.

Shell's Pearl GTL plant, the world's largest gas-to-liquids facility, is now close to running at its full capacity of 140,000 barrels per day (b/d) with its economics being enhanced by an adjacent LNG unit of 120,000 b/d which Shell jointly owns with the state oil and gas company Qatar Petroleum (QP), according to Mr Forbes.

## Return on Investment

The GTL facility, which cost \$19 billion to build, is making a net annual income of up to \$8.5 billion with oil prices of over \$100 per barrel, which is equivalent to an internal rate of return (IRR) of 44%, Mr Forbes said.

“According to our scenarios, Pearl GTL remains an economic project even at surprisingly low oil prices,” Mr Forbes added. If crude oil prices plummeted to around \$30, the unit would still have an IRR of 10%.

The six-year-old Oryx GTL facility of Sasol, which also runs a GTL unit of 23,000 b/d in Mossel Bay, South Africa, has an even higher top IRR rate of 55%, according to Mr Forbes.

But with a capacity of 34,000 b/d its net annual income with high oil prices is around \$770 million.

A GTL unit of similar capacity to Oryx with Sasol's F-T technology which is being built at Escravos in Nigeria by a joint venture of Chevron Nigeria and the Nigerian National Petroleum Company has capital costs per barrel a day almost 8 times higher than the Qatar facility. But after its scheduled start-up next year its net annual income with high oil prices should be up to \$834 million equivalent to an IRR of close to 9%, said Mr Forbes.

## Projects

Both Sasol and Shell are reported to be planning GTL plants in the U.S. to take advantage of low-cost and plentiful supplies of shale gas while having the added benefit of easy access to a large domestic market for gas-to-liquids products. The availability of shale gas feedstock is likely to bolster demand for the new generation of small F-T reactors with capacities ranging from as low as 500 b/d to 15,000 b/d.

These are based on microchannel-structured reactor designs which accelerate the process by 10-1,000 fold and “allow use of novel, much more active catalysts”, Neville Hargreaves, business development director at Oxford Catalysts Group, Oxford, England, told a Gastech GTL session. His company's reactors achieve a catalyst productivity around 14 times higher than the Shell F-T process and 7 times that of Sasol's.

Iain Baxter, business development director at CompactGTL,

Abingdon, England, which with Oxford Catalysts is the leading pioneer of the global application of micro F-T reactors, explained that one of his company's 5,000 b/d units would fit into one football field while the Shell's Pearl facility in Qatar took up 450 football fields.

Oxford Catalysts with its U.S. subsidiary Velocyst Inc, which like CompactGTL uses modules to build plants to ensure flexibility of scale, said that several gas producers are evaluating the company's micro-channel GTL technology for making synthetic fuels from shale gas in the U.S., according to Mr Hargreaves.

The process is also attracting the interest of downstream operators in the country. In September, Oxford Catalysts' technology was selected by Calumet Specialty Product Partners, Karns City, Pennsylvania, whose portfolio includes lubricating oils, solvents and waxes, for use in a 1,000 b/d GTL unit due to open in 2014.

Oxford Catalysts is also involved in GTL projects with Petrobras of Brazil and Rosneft, the Russian oil company. In the biomass segment, it is joining with Solena Fuels Corp of the U.S. to convert municipal waste into jet fuel for British Airways with its GTL technology.

“GTL is ‘for the masses’ because there are a large number of opportunities for projects of the 1,000 – 15,000 b/d range,” Mr Hargreaves said. “We see more and more companies like Calumet wanting to use our GTL technology to exploit local gas supplies to make their speciality products. As this demand increases there will be opportunities for us to license out our technology, which is

ultimately the business model we want to follow.”

CompactGTL, which like Oxford Catalysts works with several partners in engineering, reactor and equipment manufacture and catalyst production, is focusing on the growing market for small GTL facilities for processing associated gas from oil production in offshore fields. Due to the growing number of government bans on the flaring of offshore gas, oil companies are increasingly attracted to using GTL to convert associated gas into syncrude.

“GTL is enabling oil producers to develop oil fields which they would not have otherwise been able to do because of the prohibition on flaring,” Mr Baxter explained. “It also increases the amount of recoverable reserves because the syncrude is blended with the oil output of the field.”

CompactGTL, whose reactors are placed on ships using floating production, storage and offloading systems (FPSO) to serve oil fields, is currently involved in eight projects with international and national oil companies across the world. These include an on-shore demonstration plant for Petrobras in Brazil.

Infra Technology of Russia has a strategy of using small and medium sized GTL reactors to convert on location remote offshore and onshore gas into syncrude, fuels, waxes and other products to avoid what Vladimir Mordkovich, its chief technology officer, called the “colossal investment and complexities” of gas transportation.

“GTL plants would produce motor fuel and/or syncrude (which) can be shuttled directly to the customers by traditional oil tankers,” Mr Mordkovich said. “This solution changes the very paradigm of offshore gas development that exists today.”

Although a limited number of technology companies are now bringing micro- or mini- channel GTL reactor processes to the market, they are providing a platform for its expansion across the world. “The time has come for small-scale GTL,” Mr Hargreaves said.

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[www.chemanager-online.com/en/tags/gas-to-liquids](http://www.chemanager-online.com/en/tags/gas-to-liquids)

## Ineos to Build New Ethane Tank at Norwegian Site

Ineos has signed a letter of intent with TGE Gas Engineering to build a new ethane tank and expanded infrastructure at its Rafnes, Norway, production site. The new tank, scheduled to be in place by the second quarter of 2015, will complement the group's existing storage units at Rafnes and will facilitate its access to ethane from world markets while securing long-term competitiveness and jobs at the site, Ineos said.

The petrochemicals group now based in Switzerland recently signed long-term supply and infrastructure agreements with a number of

logistics companies to leverage U.S. ethane feedstock for its European cracker complexes. The additional gas will supplement existing supplies and is expected to allow the group provide the opportunity to replace the more expensive Liquid Petroleum Gas (LPG) as feedstock.

The new storage tank and infrastructure gives the Rafnes site additional long term options to access raw materials from around the world and supplement its current supply, said Magnar Bakke, site manager for Ineos Olefins & Polymers Norway.

## European Parliament Votes Against Move to Ban Fracking

The plenary session of the European Parliament (EP) has rejected proposals by various political factions that it ask the European Commission not to authorize any new shale gas exploitation projects. At the same time, it sought to ease tension between the parliament's energy and environmental committees, which have differing views on the virtues of hydraulic fracturing -- or fracking -- technology that U.S. chemical producers say is giving them a competitive advantage.

In the final tally, 391 MEPs agreed with the energy committee's view that regulation of fracking was up to individual member states, while 262 disagreed and one abstained. The delegates stopped short of embracing the energy committee's stance that shale gas could play a critical role in the move toward low-carbon power generation while also declining to support moves toward

“a high level of sustainable shale gas production.” In 2013, the European Commission is scheduled to deliver a framework paper on the risks of fracking.

In a nod to energy hawks, the EP acknowledged that new sources of natural gas in combination with increased use of renewable resources could help increase security of supply. To pacify environmentalists, it advised national governments to proceed cautiously with permits and develop “robust” regulatory regimes.”

The Parliament urged that the most environmentally friendly processes and best and safest available techniques be used to extract underlying gas reserves, adding that as much of the fracking water as possible should be recycled. It also pointed out that companies must disclose the chemicals used, in compliance with EU legislation. ■

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# Sustainable Commitment

ChemPark Sites in Germany Have Seen Investments Totaling €1 Billion Since 2008

**Locations** – The three ChemPark sites in Germany's Rhineland region can look back on 100 years of tradition as successful research and production locations in the chemical industry, and as important regional employers and providers of vocational training. It is here that numerous versatile plastics, such as polycarbonates and polyurethanes, and butyl rubber were invented. At present, the 45,000 people who work for the 70 companies at the three sites in Leverkusen, Dormagen and Krefeld-Uerdingen are busy searching for answers to future questions on global issues like energy, mobility and health.

One key factor contributing to such innovation "Made in Germany" is attractive site conditions, which ChemPark operator Currenta has established by investing €1 billion since 2008.

## Evolution of Chemical Sites

Like any organism, chemical manufacturing sites undergo evolution, too. Companies that do not advance can fall by the wayside under increasingly global market conditions. The reason: opening up industrial sites that have developed over many years not only invites new investors to benefit from the network's efficiency advantages; it also promotes transparency, comparability and competition. By carefully targeting investments and tailoring services to the individual needs of the chemical industry at prices in the top quartile, ChemPark lays the basis for remaining one of the largest and most attractive chemical sites in Europe for the future. As a result, customers and newly settled companies at the three sites in Leverkusen, Dormagen and Krefeld-Uerdingen can continue to fully concentrate on their core competencies in researching

and developing innovative chemical products. One decisive added-value factor is networking, which Currenta is expanding at the sites themselves, regionally as well as and nationally. These efforts include, for example, the establishment of the Netzwerk Innovative Werkstoffe (Network of Innovative Materials) in the Rhineland, founded by ChemPark in February 2011, or its membership in the LOG-IT-Club, whose purpose is to better represent interests in chemical industry logistics. Further, through its communications department, the ChemPark operator maintains a close dialog with local residents, government agencies and the general public. This is an important basis for acceptance and therefore long-term reliability in production.

## Reliable Energy Supplies

In support of these soft factors, ChemPark also ensures a reliable energy supply by generating its own steam on the basis of combined heat and power systems. Some electricity is sourced from external providers. Thanks to numerous power plants in the vicinity and their geographic location on the Rhine as part of a closely linked and powerful network, all three ChemPark locations offer a very stable electric power supply. What is more, the redundancy of power grids: while the Leverkusen and Dormagen sites have backup power networks, Krefeld-Uerdingen maintains emergency power generators. However, Currenta does not concentrate on this advantage alone in the location competition.

ChemPark operator and manager invested €1 billion between 2008 and 2012 for maintenance and modernization at its three sites in Leverkusen, Dormagen and Krefeld-Uerdingen. Expenditures totaling some €250 million are planned for this year. This total breaks down to €110 million for utilities, €70 million for environmental protection, €30 million for infrastructure and



Fig. 1: Chemical site operator Currenta has invested around €1 billion in the three ChemPark sites in Leverkusen, Dormagen and Krefeld-Uerdingen. Every euro spent there draws an investment of more than three euros from ChemPark companies.

€40 million for other maintenance and repair projects.

**Utilities:** For example, over €4 million are being invested in 2012 to maintain electrical switching systems, through which ChemPark customers are supplied with power.

**Environment:** The Currenta Environment Business Unit is investing €14 million in the ChemPark Leverkusen site. The funds are being used to add another hopper with claw crane to incinerator 2 at the Leverkusen-Bürrig Waste Management and Recycling Center. In addition, a large storage and mixing facility totaling 1,600 square meters is under construction for the entire center. Other significant investments are planned for the scrubbing water treatment facility for the flue gas cleaning system. At the ChemPark Krefeld-Uerdingen site, the drive and control equipment for the wastewater treatment plant currently is being modernized for €2 million. Once completed, wastewater

will continue to be treated reliably in the future, but with significantly less energy and at lower costs.

**Logistics:** The on-site logistics at a chemical park, comprising pipe bridges, sewerage systems, warehouses, roadways, railways and dock facilities, make a decisive contribution to its attractiveness and efficiency. To optimally coordinate the transportation of raw materials, intermediates and end products, Currenta continuously invests in this area. For example, €5 million are going to the "Signal Tower Project X 45" to increase rail traffic safety and the efficiency of its control over the nearly 33 km of tracks and switches belonging to the ChemPark railway in Leverkusen alone (including connections to the public railways belonging to DB Netz). After the control and signaling equipment has been modernized, railway traffic in Dormagen and Leverkusen will be controlled centrally from the signal tower in Leverkusen.

## Investments Benefit Site Companies

Currenta continuously invests in more than the overall attractiveness of the three sites; it also invests in specific projects in close cooperation with ChemPark companies for their direct benefit. For example, Currenta is investing €40 million in the ChemPark Dormagen site, in part to optimally integrate Bayer MaterialScience's new TDI plant. Toluene diisocyanate (TDI) is a flexible foam precursor that is to be produced there starting 2014. It requires a total of 48 product and energy connections, as well as 14 different types of utilities. The new TDI production facility will not only draw steam at different pressure levels from the ChemPark network in the future, but also electricity, refrigeration, technical gases and cooling, process and demineralized water. Also under construction on an area immediately to the west is a supply center with transformer

station, refrigeration system and cooling tower facility. Energy is supplied via underground pipes as well as existing, expanded and new pipe bridges. By 2014, Currenta will have installed energy distribution networks with a total length of up to 8 km for the TDI plant.

## Long Term and Sustainable

Above all, the chemical park concept provides a long-term and thus also sustainable basis for the chemical industry in Germany. By sharing infrastructure, supply and disposal facilities, and producing in a network, companies already settled at ChemPark can develop and manufacture products very efficiently. Furthermore, this economic region offers attractive opportunities for service providers and future-oriented industries, such as renewable energies or water and recycling technologies. The fenced-in protected ChemPark "organism" provides a supportive environment for research and development, as well as a wide range of over 1,000 industry-specific services. Site investments therefore serve as a guarantee that ChemPark is strengthening its role as one of the largest and most attractive chemical parks in Europe, and can offer the right economic niche for the chemical and associated industries into the future.

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Fig. 2: The environmental experts at the Leverkusen-Bürrig Waste Management and Recycling Center are even prepared for snow and freezing temperatures. Wastewater and wastes generated by production are safely treated, thermally recycled or landfilled around the clock in both summer and winter.



Fig. 3: To develop even better logistics solutions with all participants in the supply chain, ChemPark operator Currenta has been a member of LOG-IT Club, the operational arm of LogistikCluster.NRW, since the start of the year.



Fig. 4: ChemPark is connected to the European pipeline system for naphtha, natural gas, ethylene and other petrochemical products. What's more, all three sites have outstanding connections to road-, rail- and waterways.

## DSM Breaks Ground for Dutch Research Facility

DSM has kicked off construction of a new research building for Materials Sciences at its "Chemelot" chemical park in Sittard-Geleen, The Netherlands. The facility is part of a €100 million investment in R&D activities that the company said will benefit in particular its engineering plastics business.

Employing 420, the campus set to open in 2014 will complement research units in Asia and the U.S., Roelof Westerbeek, president of the engineering plastics sub-group said at groundbreaking ceremonies. The emphasis will be on developing sustainable solutions for the automotive, electronics, food

packaging and consumer goods industries.

R&D personnel based at the Dutch center will also work for other units of DSM's Materials Science cluster, particularly in the field of bio-based materials and biomedical materials.

## BASF New Capacity to Support Metal Molding in China

BASF plans to add two new facilities in Taiwan and Shanghai to support metal injection molding (MIM) in Greater China. In the second half of 2013, a new plant at Kuanyin, Taiwa, will begin producing more than 5,000 metric tons per year

of the ready-to-mold feedstock for MIM. A new technical service lab for the feedstock will be established at Shanghai, within the group's Innovation Campus Asia.

The Asian market is one of the growth drivers for the Catamold

business, said Stefan Koser vice president of BASF's Metal Systems business unit. While the region currently represents about 50% of the global MIM market, Koser said, "we expect that this share will increase to 60% by the year 2020."

## Solvay Inaugurates Silica Capacity Expansion in France

Solvay inaugurated its highly dispersible silica capacity production expansion and its modernized R&D facility at its Collonges-au-Mont-d'Or site in France. This investment follows a similar volume expansion last year in the US and the start-up in 2010 of a new plant in China. These three investments required in total EUR 74 million.

"Our worldwide highly dispersible silica production capacity now exceeds 400,000 tons," commented Tom Benner, President of Solvay's Silica Global Business Unit. "Demand for highly dispersible silica is pulled by a growing need for safer and more energy-efficient tires and the new European Tire labeling legislation applicable from November 1st," he added. "We can

now meet our customers' needs globally as this new legislation takes effect."

Solvay's benchmark range Zeosil and Zeosil Premium highly dispersible silica is used by major tire manufacturers worldwide in the production of energy-saving tires providing up to 30% reduction in rolling resistance, thereby decreasing fuel consumption by up to 7%, while improving traction. The investment in Collonges includes important upgrades in control technology, ensuring the site has world-class performance for quality and environmental protection. Equipped with the latest technologies, the modernized R&D facility can now speed up innovation, and offers customers full support for develop-

ment and testing of innovative silica formulations by manufacturing improved end products that meet the challenges of sustainable mobility. "The refurbishment provides more flexibility, increases productivity, and raises our best in class standard, enabling us to better serve our customers worldwide," added Site Manager Sabine Gouvernel.

Solvay's Silica Global Business Unit is the inventor and leading global provider of highly dispersible silica, which finds its main application in the production of fuel-saving tires. Solvay's silica is also used in a wide range of other key markets such as industrial applications, personal care and nutrition.

# A World Of Potential

## China's Plastics Industry

**New Competition?** – As China's economy cools to a government-projected 7.5% growth rate in 2012 from the double-digit increases of recent years, Western analysts are wondering what effect this could have on Chinese manufacturers who want to expand. Specifically, will companies look to exports to bolster sales, and would this put them on a competitive collision course with Western companies in global markets?

Chinese goods have been a staple in the West for years, of course, but products have largely been produced for Western companies and shipped to local markets. The concern now is that after two decades of foreign direct investment (FDI) and offshore companies capitalizing on China's low production costs and, to a degree, sharing their expertise, local manufacturers will develop their own products and make inroads in global markets using low labor costs, government subsidies and an undervalued currency to boost sales.

This could be a scenario for some consumer goods. But for the plastics industry, sources in China and at Western companies that do business there say it will be at least 5 to 10 years before most Chinese manufacturers have the engineering skills, technology, products and support services to meet Western standards.

There is also the issue of whether most Chinese companies would consider export sales. China is the world's second-largest economy after the U.S., and despite its reputation for low-cost labor, it is generating more income for its citizens and thus greater spending power for the products of local manufacturers. China is also embarking on an ambitious plan to economically develop its western provinces, which would significantly expand the domestic market.

### Economics Of Cheap Labor

Western companies are familiar with China's low labor costs, which have slashed market share and jobs in their local markets and created trade deficits. (Since China joined the World Trade Organization in 2001, 2.7 million U.S. jobs, including 2.1 million in manufacturing and 57,600 in the plastics industry, have been lost through 2011 as a result of China's cheap labor and America's trade deficit with the country, according to a recent report from the Economic Policy Institute, or EPI, of Washington.)

Even though factory wages have been rising at an annual rate of 15% recently, most of China's assembly-line workers are paid \$300 to \$350 per month before overtime, a frac-

tion of what Western workers earn. In the U.S., the average wage of a worker in 2010, according to figures from the Social Security Administration, was \$3,473 per month. With these numbers and the country's efforts to improve product development, engineering and quality capabilities, some believe that local Chinese companies could within a decade establish themselves as world-class OEMs and possibly exporters.

Many challenges will affect the global ambitions of manufacturers and their ability to compete with Western producers. Among them, observers note, are these:

- **International quality standards.** Chinese manufacturers do many things well. In plastics, for example, they produce good additive modifiers, some component assemblies such as mold bases, and biaxially oriented films. Because of low labor costs, they also excel at labor-intensive jobs like device assembly. One reason that virtually all cell phone assembly takes place in China, says Steve Braig, president and CEO of Trexel Inc., in Wilmington, Mass., is that with styles changing every four to eight months and many models available, the process is difficult to automate. China, he said, has developed a "unique and efficient mixture of some automation and mostly manual labor" for assembly. Problems persist, however, in development of high-tech processes as well as processing equipment, complex molds, and advanced resins and compounds, all of which are key to world-class production.
- **Close customer relationships.** Suppliers need to cultivate and build relationships that allow them to acquire insight about



market needs and demonstrate their ability to meet product specifications or develop technology for emerging and evolving applications. Knowledge of local business practices, legal requirements and regulation is also vital, as is the investment to support operations until business develops.

- On the other hand, advantages for manufacturers that remain domestic include these: A burgeoning local market. In 2011, a Brookings Institution report said the Chinese middle class — a group critical to economic growth — comprised 157 million consumers. But Brookings estimates that by 2030, when China's population is expected to be 1.46 billion (according to the

Chinese Academy of Social Sciences), more than 70%, or some 1.02 billion people, will be in the middle class — more than the combined projected population of the U.S. and European Union — and consuming \$10 trillion of goods and services.

- **Government control of the economy.** China no longer promotes five-year industrial plans, but it is still an authoritarian state run by the communist party. Consequently, it can generally ease or impose restrictions that are intended to give local manufacturers competitive advantages at home, while benefiting exports and promoting foreign direct investment. One prominent example of this is currency manipulation. Although the value of

the yuan, which is pegged to the U.S. dollar, has risen since 2005, experts say it is still artificially low. The EPI states that while the yuan rose 31% in value from 2005 to 2011, it is 17% below its par value in 1990. This is a powerful force behind exports, but also a degree of protection for local producers. In 2011, China exported \$398.5 billion worth of goods to the U.S., says EPI, while the U.S. that year exported only \$96.9 billion of products to China.

### Wanted: A Broader Skill Set

Companies that want to expand business offshore could find receptive markets in developing regional countries — Vietnam, Myanmar, the Philippines and Malaysia among them. For a presence in the West, however, Chinese manufacturers need greater skills in engineering, innovation and business development before they pose a competitive challenge.

"Over 20 years, China's local plastics industry has grown significantly and can hardly be ignored," says Jianwei Ho, director of overseas relations at J Color Chemicals Corp. of Hangzhou, which produces fluorescent pigments.

Ho argues that while some local products are penetrating regional markets, "it's rare to see cutting-edge technologies developed by Chinese companies."

China is successfully developing its space program and marine industry, he notes, which could lead to advances from these areas spilling over to everyday applications. "I do foresee the trend of cutting-edge technology transfer into civil applications."

Chinese companies that have a connection with the West, usually through joint ventures, benefit from



what Trexel's Braig calls a "spillover effect."

"Whenever a Western company is active in developing a market (in China), there is a spillover of best practices," he said.

Braig said that in the past 10 years he has seen a "profound" change in the manufacturing practices of local molders.

"I used to go into injection molding companies and see poor working conditions," he said. Not anymore: "Indigenous molding plants have come a long way and are not all that different from Western companies."

### Building Markets

There is ample potential for growth in China, says Rich Oles, vice president of engineering at Plastic Engineering & Technical Services of Auburn Hills, Mich., which makes custom injection molding equipment, including products in China for sale there.

As the government develops the interior of the country away from the industrialized east, Oles sees ongoing opportunities for low-cost production and demand for his company's products.

"China's main goal is fueling its own economy," Oles said.

"Ninety minutes inland (from the east) is like going back in time 200 years," he said. But as the government demonstrated when it made cities such as Shenzhen industrial centers, it can swiftly build infrastructure ahead of demand.

China's infrastructure development, in fact, could be a boon to local manufacturing. Francois Hincker, president of Rhodia Engineering Plastics in Paris — a company that has been doing business in China for 30 years — believes that China could become a leader in some product areas because it has the ability to adapt new infrastructure to leading-edge technology.

"As Chinese companies build factories, they have more freedom to adopt new technologies than Western companies," Hincker says. "So you may see (production of) some technologies in China first, which means the early adopters of these technologies could be Chinese."

**Author:**  
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**Read full article in *Plastics Engineering*, October 2012.**

[www.chemanager-online.com/en/tags/plastics](http://www.chemanager-online.com/en/tags/plastics)

## Dow Says China Leadership Transition Bigger Worry

Dow Chemical's CEO says he is bothered by the messy Chinese leadership transition, which he believes is wreaking greater harm on global markets.

"Markets have, in a holistic sense, really been suffering more from China's slowdown than any slowdown here in the United States," Andrew Liveris said.

China, Dow Chemical's second-largest market by sales, unveiled its new leaders in November after months of speculation about who would assume top roles, as well as controversy about widespread corruption among government officials and the cooling growth of the country's economy.

The leadership transition has been "very uncomfortable" for the

Chinese and has "created a disruption to their supply chains and created a pause" in economic growth rates, Liveris said. "We'd been used to double-digit growth rates in plastics in China now for the better part of a decade, and now that's slowed to stopped in this last six months."

Dow has about 2,000 employees and more than seven manufacturing sites in China. The Asia Pacific region posted sales of \$10.55 billion in 2011, roughly a sixth of Dow's total revenue. Dow Chemical has seen sales of packaging and other consumer products begin to improve in China in recent weeks, but for 2013 the company expects Chinese GDP growth of only 6% to 7%, "which is way lower than it normally is," Liveris said. "We're not planning on any

big bounce back (in China), because inventories are staying low," he said. "But there is the beginning of a return to buying power."

Liveris has been trying to bolster sales amid the economic uncertainty and cut the company's \$20.4 billion debt load. Earlier this fall he said he would close 20 plants and cut 5% of Dow Chemical's workforce to offset the slowing global economy. He also slashed the company's research and development spending. "Companies our size, we don't want to cut into muscle and bone," Liveris said. "But in this new world order if you take the view that we've taken that the world is slow and going through massive uncertainty, then you are being more conservative."

## SABIC Says Sustainability Now Part of Company Strategy

Recognizing that sustainability megatrends will drive the need for change in business and national vision, Saudi Basic Industries Corporation (SABIC) is integrating changes into its business strategy and priorities to position the company and the nation for the challenges faced now and in the future, CEO Mohamed Al-Mady said. The effort will "require collaboration with the government and all contributors across the value chain," said the executive in a panel discussion at the United Nations Framework Convention on Climate Change in Doha, Qatar.

Part of the strategy will be to use finite natural resources more wisely and invest in renewable resources, especially energy, while reducing the impact of SABIC's manufacturing

and distribution processes through energy and material efficiency and process innovation, Al-Mady added. As examples, he pointed to lightweighting of automobiles and recycling, mentioning also that the Saudi government is developing a national energy efficiency plan that would extend to transportation, home air conditioning and industry.

Al-Mady also cited the King Abdullah University of Science and Technology (KAUST) as "one of the best examples" of national vision and sustainability. He praised the university's vision to focus on major sustainability issues by bringing the best minds in the world together to develop solutions to major sustainability problems in solar energy, water purification, plant science and

Red Sea biodiversity. "We are proud of our alignment with KAUST and have built a research center there to collaborate with the scientific network and talent that they have assembled. We have also developed research agreements with other Saudi and foreign universities to accelerate our innovation," he said.

A second key example of national vision, he said, is the emphasis which the Saudi government is placing on a national energy efficiency plan. The government is addressing energy usage in the transportation, home air conditioning and industry sectors as targets for energy efficiency improvement. SABIC is utilizing its sustainability program to address the challenges of this mandate, he said.

# Pricing in the Chemical Sector

## Automated Pricing Optimization: Creating the Best Scenarios for Everyone

**Enhancing Profitability** – Chemical companies have to face a breath-taking list of business pressures today. Worries around the continuous volatility of raw material costs and increasing fluctuations in the financial markets are squeezing company profits to a painful level. The reality of this economic situation leaves executives with little room to breathe when adapting to short-term rises in commodity prices. That's why market leaders use automated pricing solutions to help their companies maintain their competitiveness both now and in the future.



**Rob Glenn**  
General Manager EMEA,  
PROS

market's future have become even more difficult. Business executives from different backgrounds share these frustrations, as there does not seem to be an effective way of tackling the complexity of raw material fluctuations. A recent survey of the chemical sector conducted by Germany's Commerzbank revealed that 40 per cent of entrepreneurs could not assess whether their companies' supply of resources was adequate. Hence, there is tremendous need for data analysis and understanding.

However, an astonishing number of chemical companies still base their sales and pricing decisions on results generated by spreadsheets, individual databases, paper reports and analyst intuition. Instead of collecting all of the available data and agreeing on a mutual strategy, every department reaches its own conclusion. Marketing often sets prices that sales teams believe are too high, whereas the finance department would like to see some extra profitability. Sales teams are also under pressure to meet their own targets and can resort to selling by discount rather than the value of their products to the customer. In a high-pressure business environment these traditional pricing techniques fall short and cannot grasp the complexity and speed of global market developments.

Pricing optimization software enables decision makers to make more use of their existing investments and apply scientific analytics to this data. By consolidating all this internal and external company

data and applying data science to this mass of information, company leaders can get a thorough overview of what is really happening across their markets and how this affects sales and pricing decisions.

Consequently, chemical companies gain a powerful tool that delivers consistent and substantial profit improvement. The obvious analogy is the success of Customer Relationship Management (CRM), Business Intelligence (BI), and Enterprise Resource Planning (ERP) systems supporting vital business processes. In similar fashion, automated pricing optimization provides enterprises with better insight resulting in better pricing decisions. Today's pricing solutions use repositories of "big data" containing valuable transactional information and buying patterns. Based on this volume of data, pricing optimization software can segment customers and determine the right sales and pricing strategy according to an individual customer's willingness-to-pay.

Another advantage of pricing software is that sales organizations are equipped with pricing guidance enabling them to price products with far greater confidence when negotiating contracts. Sales and pricing staff are provided with better quality information as part of their decision process, such as the true profitability and cost for each customer, information about the wider market trends and the impact of commodity price changes in real time. Based on this information, companies can evaluate their own prices much more effectively and ensure they are meeting their targeted margin and demand levels.

### The Right Pricing Decision

Each day, chemicals companies make a myriad of pricing decisions, and



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getting it wrong directly results in a loss of profitability. Every time commodity costs vary, the market prices impact companies that now have to absorb cost increases or raise its own prices to maintain margins. By assessing the impact on the business from a cost and profit perspective, automated pricing software supports executives to make the right pricing decision. Pricing optimization technology also factors in the market's ability to withstand price increases, calculating the likelihood of customers seeking better deals elsewhere when prices are raised.

With support of modern pricing technology, decision makers can be much more proactive in changing prices as the cost of goods goes up or down, utilizing specific threshold levels that can automatically trigger price alerts. Simultaneously, this creates opportunities for improved margins based on the scarcity of product, or the ability to respond to potential challenges ahead of the wider market. When taking advantage of the automated power of pricing software tools, companies can integrate competitive market information into their price decision-

making and respond to changing conditions as fast as possible.

Pricing is a complex discipline within any organization as multiple commodities or products have to be tracked. Chemicals companies need to avoid the pitfall of eroding their margins when changing their price tags. While companies may be in the good position to pass on some cost increases, others may be offset by other commodity prices falling or currency fluctuations, so they effectively cancel each other out. Through pricing optimization software, companies have an effective and powerful way of balancing their price changes and improving their overall business and financial performance.

### Keep The Customer Satisfied

Pricing optimization technology also makes it much easier to see where keeping prices the same could be beneficial for customer stability and when to prioritize longer-term revenue performance against short-term profit goals. When negotiating contracts with key customers, pricing optimization software can be used to support modeling around

price adjustments. If a customer requests extra discounts, these reductions and their impact on profit can be properly assessed and managed against minimum profitability guidelines in real time, in the field. Similarly, proactive approaches such as discount campaigns, service surcharges or rebate offers can be evaluated in advance for their impact both on demand for product and cost of sale, and integrated into the negotiation process.

Sales and finance departments benefit from pricing optimization software as it helps them to collaborate and set up rules for discounting and sales packages. Following a consistent strategy is especially useful when preparing and negotiating longer-term contracts. By working together with sales on pricing strategies via price optimization technology, finance can help ensure that sales activities avoid less profitable deals, while protecting against the volatility created by economic uncertainty.

This pays off — McKinsey & Company have found that as little as a one per cent improvement in price can yield up to an eight per cent increase in profit. For organizations faced with finding new opportunities to improve results and make sales more effective, the combination of big data and pricing can reveal substantial returns.

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Chemical companies also have to operate in an international economic environment. In stark contrast to the downturn in the European economies, boom regions like China and India have increased their demand for valuable raw materials. From a business perspective, such industrial commodity price changes made a bad situation worse. This year alone, the market price for nickel has varied by 30 per cent. This has an impact on all organizations involved in the chemical sector, as they face huge variations in pricing across their own supply chains as well as the challenge of managing their sales consistently in these international markets.

### The Ups and Downs of Raw Materials

It is an up-hill battle for companies when dealing with frequently changing raw material costs that threaten business growth. Setting up business plans and making predictions about the chemical

# Pricing Strategies

## A Basis for Systematic Profit Generation

**When the Price is Right** – Pressure on margins, strong competition and high quality expectations of customers are typical determinants in the chemical industry. The Chemical Monitor of Homburg & Partner, a half-yearly survey among deciders in the chemical industry, confirms the importance of a pricing strategy: More than 50% of respondents attach a high value to having one. But many companies still do not create and implement a well-developed pricing strategy.



**Alexander Lüring**  
Homburg & Partner



**Simone Staudt**  
Homburg & Partner

up. As another example, if a pricing strategy is developed as a response to relevant impact variables, it enables long-term planning of profitability — offering a better overall strategic positioning of the company in the long run. Without a pricing strategy, a consumption of the market potential would happen just by chance.

However, there is more than one correct strategy. The "right" pricing strategy for any situation can be derived based on an analysis of the individual market and business conditions.

### Why Is a Pricing Strategy So Important?

Companies should develop an effective pricing strategy for several reasons. With regard to the previous example, a thorough pricing strategy, including the relative price/value positioning in the market, is indispensable for skimming customers' willingness to pay — a pricing strategy helps keep a company's margin

### How to Develop a Pricing Strategy?

A pragmatic approach and hence recommendations for a well-founded pricing strategy can be based on a top-down/bottom-up approach — a combination of vision and target setting (top-down) and internal and external factor analysis (bottom-up) creating the pricing strategy framework.

Although the needed information for a thorough pricing strategy is typically available within the organization, our impression is that few companies systematically take advantage of it. Often pricing strategies have grown from historical roots and are based on sales force experiences, but an intuitive approach is not sufficient for such important decisions. To ensure the success of a pricing strategy, a systematic approach with defined objectives involving all relevant analysis items is essential.

### Which Aspects to Consider?

Both perspectives — top-down and bottom-up — can be subdivided into specific factors of interest, which need to be analyzed systematically. In the first step, the vision and the targets of the pricing strategy need to be defined. In the second step, major internal and external factors

affecting the development of the pricing strategy should be analyzed focusing on three main criteria for each factor.

### Step 1: Define the Vision and Targets Driving the Pricing Strategy

Vision and targets have to be strictly aligned with the overall goals and the strategy of the company — thus, it is a top-management responsibility. A vision builds the qualitative pillar of the pricing strategy, reflecting the overall goals of the business. For example, a company that is the market leader based on a high level of quality might state its vision as follows: "We act as the pricing leader in the market, focusing on our high level of quality, and do not participate in price competition." Pricing targets create the quantitative pillar of the pricing strategy, supporting the target values of the overall business strategy. Exemplary quantita-

tive targets could be to establish an absolute price level of, e.g., €3.50/kg for a specific product group or to reach a minimum contribution margin of, e.g., 50% for all product groups.

### Step 2: Analyze the Internal and External Factors Affecting the Pricing Strategy

To analyze the internal factors, the three major aspects — cost-to-serve, the product life cycle (PLC) and the unique selling propositions (USPs) — have to be considered. Knowing a company's relative cost-to-serve gives must-have insights into the range of possibilities to respond to competitive pricing pressure. Also, for the different PLC stages, different strategies are recommendable and can be evaluated with regard to a company's PLC structure. Additionally, knowing and carefully quantifying USPs is essential in order to skim customers' willingness to pay.

Three key aspects for the analysis of the external factors should be considered — competitive intelligence, customer knowledge and market capacity. By gaining comprehensive knowledge about competitors (e.g., strategy, price position, pricing role) and customers (e.g., customer value, perceived value, willingness to pay), niche markets can be identified for successful positioning. Last but not least, knowledge about existing and planned production capacities in the market must be obtained to understand the effects of supply and demand on prices.

### What Is The Outcome?

Combining the insights of the bottom-up/top-down approach helps capture a well-developed, thorough picture of the relevant internal and external determinants. Based on these insights, all relevant criteria for the determination of the pricing strategy are given; they identify the most appropriate individual pricing strategy, such as premium, skimming or penetration.

Overall, price strategic decision-making, if based on a substantial information base, enables systematic profit generation and supports the realization of a company's full earnings potential.

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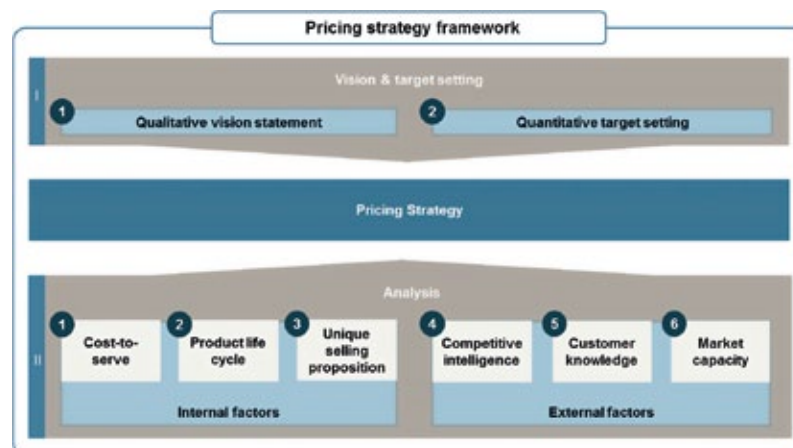


Fig 1.: Pricing Strategy Framework.

# Chemistry Is Key

## At the Doha Climate Conference ICCA Presented Roadmap for Building Efficiency

**Climate Protection** – Before the opening of COP-18, if you'd asked anyone – an environmentalist, an industrialist, the proverbial man or woman on the street – what they thought what the conference of the parties to the United Nations Framework Convention on Climate Change Conference might achieve, the answer probably would have been “not much.” Asked after the closing on December 7, what they thought the conference had achieved, the same people probably would have given much the same answer. Expectations have reached a low point after 20 years of international meetings without a spectacular breakthrough or even a binding agreement.

At all stations along the road to combating global warming – from the timid beginnings at the 1992 climate conference in Rio de Janeiro to the much-quoted “protocol” drawn up in Kyoto, from the shattered hopes of Copenhagen to the nervous expectation in the sweltering streets of Doha – nearly 200 nations have continuously wrangled over who should lead the way, how much greenhouse gases (GHG) must be cut, how fast this should happen and how much it is allowed to cost.

### Who's To Blame?

In the dispute over who's to blame for the lack of progress, popular scapegoats have traditionally been, and still are, the U.S. and China. This year, Europe's internal squabbles have trained the spotlight on this continent's failings. Poor countries continue to blame wealthy ones for not setting a positive example. Oil-rich nations that literally have money to burn are accused of paying little more than lip service to emissions control.

Up to now, media coverage has focused on the world's inability to solve the climate problem globally, and many Europeans never tire of pointing out the unfairness of having



to bear the heaviest burden. But the hype aside, the realization seems to be sinking in, some long-term observers say, that taking many “baby steps,” rather than one giant stride, could be the key to progress.

### Modest Goals

In the run-up to the Doha talks, the most optimistic pundits saw as at least attainable the completion of the framework on emissions and controls, along with expanding incentives to encourage greater energy efficiency at homes and businesses. One modest goal was to interest all levels of the private sector in the new technologies, materials and processes required for better insulation, more efficient tools and appliances, and more affordable low-emission vehicles.

That industry can be as much as part of the solution as it is perceived to be part of the problem apparently is being finally appreciated. To highlight how its products and technologies can help boost energy efficiency, the International Council of Chemical Associations (ICCA), a federation of chemical industry associations worldwide, was invited to Doha as an observer. On the final day of the event, the association presented its

new roadmap on energy efficiency in building.

### The Need For Action

Chemical producers are convinced that energy efficiency is the area where there is broadest consensus on the need for action. Dow Chemical's Russell Mills, vice chair of ICCA's energy and climate leadership group, told journalists in a pre-conference briefing. And, he said, chemistry is key, playing a central role both in terms of cost efficient reductions in energy consumption and providing technologies to decarbonize energy production.

According to the International Energy Agency's (IEA) Energy Technology Perspectives 2012 report, the building sector is directly or indirectly responsible for about 32% of global energy consumption and 26% of global total end-use, energy-related CO<sub>2</sub> emissions. With this in mind, ICCA believes the overarching goal of cutting GHG 80-95% by 2050 will be only possible with major contributions from the building sector.

In combination with lower-carbon fuel, the association calculates that five chemically-derived building technologies – insulation, pipe and pipe insulation, air sealing, reflect-

ive roof coatings and pigments, and windows – can potentially reduce energy consumption by 41% and greenhouse gas emissions by 70% up to 2050. At the same time, the cumulative net GHG saving in Europe, Japan and the U.S. could total 30 billion metric tons of CO<sub>2</sub> equivalents.

Over time, the ICCA roadmap shows that the emission savings realized by users of the chemically derived building components are “many times greater than the energy and GHG impacts for their production” and, moreover, the products “continue to accrue phase savings throughout their life in the building.”

### Chemical Industry Made Great Strides

Chemical producers point out that the industry already has made “great strides” in improving energy efficiency in buildings and continues its commitment through participating in projects demonstrating the cost effectiveness of low-energy houses, passive houses and zero emissions buildings. Companies also sponsor life-cycle assessment studies to provide credible scientific data quantifying the benefits of chemically-derived building technologies as well as investing in R&D to develop more efficient products.

But in order to ensure that the full potential of energy saving products and building technologies is unfolded, ICCA stresses that other stakeholders in the value chain, especially in officialdom, must create the necessary regulatory environment, along with providing incentives to increase renovation rates and foster new technology.

*Author: Dede Williams, freelance journalist, Frankfurt, Germany*

[chemanager-online.com/en/tags/energy-efficiency](http://www.chemanager-online.com/en/tags/energy-efficiency)



## PEOPLE



Ton Büchner

**Ton Büchner** has resumed his duties as CEO of AkzoNobel following a full recovery after he took a medical leave mid-September. Leif Darner will step down from AkzoNobel's Board of Management in April 2013. Conrad Keijzer, currently Managing Director of AkzoNobel Industrial Coatings, will succeed Darner in his responsibilities for Performance Coatings. Keijzer will join the Executive Committee on January 1, 2013. Leif Darner has had an extensive and successful career at AkzoNobel, joining the Dutch company in 1998 when Courtauld's became part of the group. Conrad Keijzer brings with him a strong track record and extensive management experience within AkzoNobel.



Gerd Löbber

© Borealis

**Gerd Löbber** has been appointed Head of Upstream in Yara International, effective 1 December 2012. Dr. Löbber, a German national with a PhD in Chemistry, brings extensive experience from leading positions at BASF and Borealis. His last position was as EVP for Polyolefins at Borealis. Prior to joining Borealis in 2010, he held several managerial positions at BASF, among others he was Group Vice President from 2002 to 2009. Gerd Löbber will be a member of Yara's Executive Management Team and report to CEO Jörgen Ole Haslestad. The Upstream segment manages Yara's global production of ammonia, finished fertilizer and industrial products, which are marketed by the Yara Downstream and Yara Industrial segments.



Prof. Stefan Buchholz

**Prof. Stefan Buchholz** (50) has assumed the position as head of Creavis, the strategic R&D unit of Evonik. Buchholz studied chemistry in Marburg, Germany and received his doctorate from the Max-Planck Institute of Polymer Research in Mainz. He finished his Post-doc at the Harvard University in Boston, USA. In 2011 Buchholz was appointed honorary professor by the University of Stuttgart. Prof. Buchholz began his professional career within Evonik in 1993 as scientific assistant in the business unit Industry and Fine Chemicals of the former Degussa in Frankfurt. From 1998 to 2000 he worked as plant assistant at the Antwerp, Belgium site before he took over management of the Biotechnology Project House at the Hanau site. From 2008 until recently, Prof. Buchholz was Head of Innovation Management in the business unit Advanced Intermediates.

**Dan Futter** has been named as vice president of Dow Corning's Solar and Wind Solutions businesses, effective September 1, 2012. Futter, who earned a B.Sc. Hons in Biochemistry from the University of Birmingham, UK, joined Dow Corning Corporation in 1994 and has since served in various technical, commercial, business development and executive positions in the U.S. and Europe. He is a board member for the Specialty Chemicals Business at Dow Corning. Futter has taken over from Eric Peeters, who has led the business since 2008. Also effective September 1, Peeters has been named to lead Dow Corning's Electronics Business, building on his experience in the photovoltaic industry.

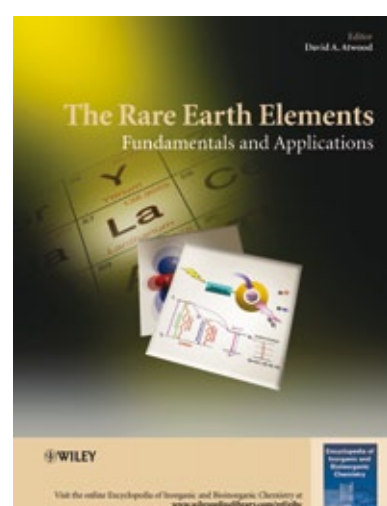


Thomas Pfütznerreuter

**Thomas Pfütznerreuter** assumes the position of CEO of Air Liquide Germany effective 1 November 2012. He replaces Markus Sieverding, who is leaving Air Liquide at the end of 2012 after 20 successful years, including 12 years as Chairman of the Board. Pfütznerreuter began his career at 3M Germany, where he held responsible positions in sales and marketing. The economics graduate also held management level positions in various international companies such as Saint-Gobain and AkzoNobel.



## The Rare Earth Elements



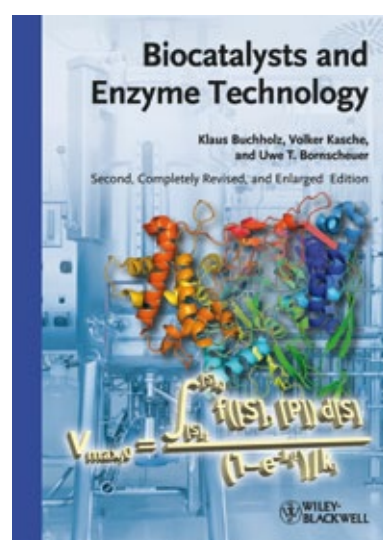
Lanthanides are of great importance for the electronic industries. This new book provides a comprehensive coverage of the basic chemistry, particularly inorganic chemistry, of the lanthanoid elements, those having a 4f shell of electrons. A chapter is de-

scribing the similarity of the Group 3 elements, Sc, Y, La, the group from which the lanthanoids originate and the group 13 elements, particularly aluminum, having similar properties. Inclusion of the group 3 and 13 elements demonstrates how the lanthanoid elements relate to other, more common, elements in the Periodic Table.

The book describes the occurrence and mineralogy of the elements and deals with diverse and critically important applications of the lanthanoids in electronic and magnetic materials, and medical imaging.

► The Rare Earth Elements  
David A. Atwood  
Wiley  
€ 209,-  
ISBN: 978-1-119-95097-4

## Biocatalysts and Enzyme Technology



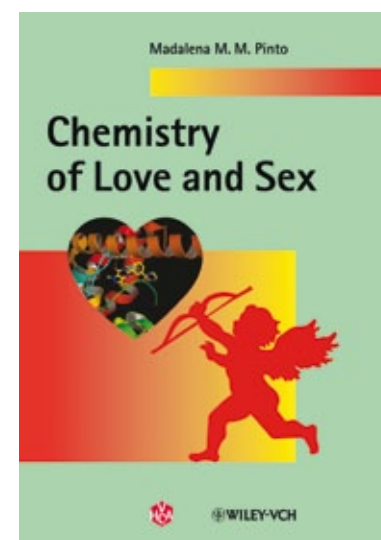
The second edition of this textbook offers an instructive and comprehensive overview of knowledge of biocatalysis and enzyme technology. The book now contains about 40% more printed content. Three

chapters are completely new, while the others have been thoroughly updated, and a section with problems and solutions as well as new case studies have been added.

The authors treat a broad range of applications of soluble and immobilized biocatalysts, including whole-cell systems, the use of non-aqueous reaction systems, applications in organic synthesis, bioreactor design and reaction engineering. Methods to estimate the sustainability, important internet resources and their evaluation, and legislation concerning the use of biocatalysts are also covered.

► Biocatalysts and Enzyme Technology  
Klaus Buchholz / Volker Kasche / Uwe Theo Bornscheuer  
Wiley-VCH, Weinheim  
€ 89.90  
ISBN 978-3-527-32989-2

## Chemistry of Love and Sex



This book is a chemist's guide to the chemical phenomena and molecules associated with endogenous hormonal mechanisms and brain neurotransmission – the basis of many

emotions associated with love, passion, and sex.

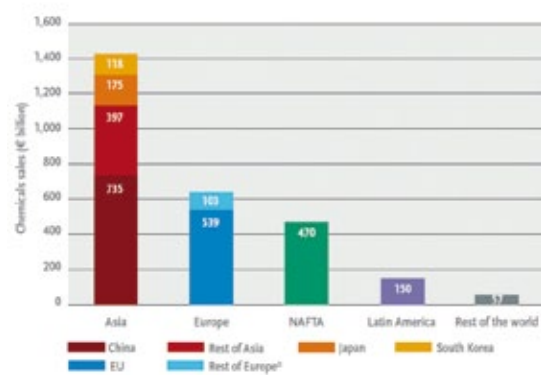
Chemistry of Love and Sex demonstrates how these substances interact and “play” with each other in the different phases of human relationships. External factors which may influence love and sex, such as pharmaceuticals, cosmetics or food are also considered.

The book covers topics such as Endogenous Chemistry, ‘bad odor’, ‘good odor’, ‘no odor’, chemical communication in humans, Pheromones, Exogenous Molecules intervening in love and sex and food components that may influence love and sex.

► Chemistry of Love and Sex  
Madalena M. M. Pinto  
Verlag Helvetica Chimica Acta, Zürich  
€ 22.90  
ISBN: 978-3-906390-68-0

## Competitiveness Trends in the European Chemicals Industry

### World Chemicals Sales 2011: Asia Surpassed Rest of World



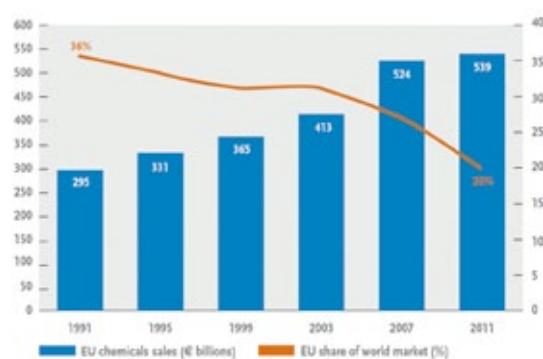
World chemicals sales in 2011 are valued at € 2,744 billion. The European Union accounts for 19.4% of the total.

Source: Cefic, Chemdata International  
\* Rest of Europe = Switzerland, Norway and other Central & Eastern Europe (excluding the new EU-12 countries)

### World Chemicals Sales

The global chemicals turnover was valued at €2,744 billion in 2011. The European chemicals industry, including the European Union and the Rest of Europe, is still in a strong position, posting sales of €642 billion in 2011. This is about one-fourth of world chemicals sales in value terms, according to the European Chemical Industry Council Cefic. But worldwide competition is getting fiercer, witnessed by the European Union losing its top ranking in terms of sales to China for the third consecutive year. Chemicals sales in Asia are more than double that of the European Union. Europe, Asia and the North American Free Trade Area (NAFTA) account for 92.5% of world chemicals turnover.

### EU Chemical Market Share 1991 - 2011

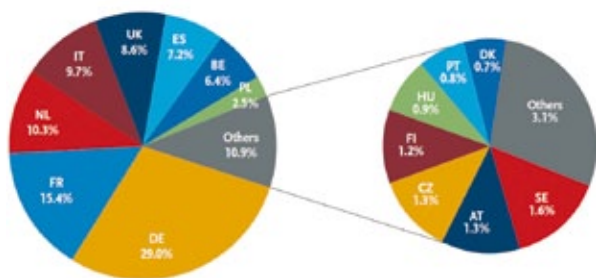


Source: Cefic, Chemdata International

### European Market Share

The chemicals industry is one of the European Union's most international, competitive and successful industries, embracing a wide field of processing and manufacturing activities. The output of the chemicals industry, which includes all 27 EU member states, covers a wide range of chemicals products. It supplies virtually all sectors of the economy and provides a significant contribution to EU net exports. But as emerging economies outpace industrial countries in chemicals production the global chemicals production is shifting away from Europe, particularly to Asia. Thus, the EU market share nearly halved from about 36% in 1991 to below 20% in 2011.

### Sales 2011: €539 billion Percentage shares

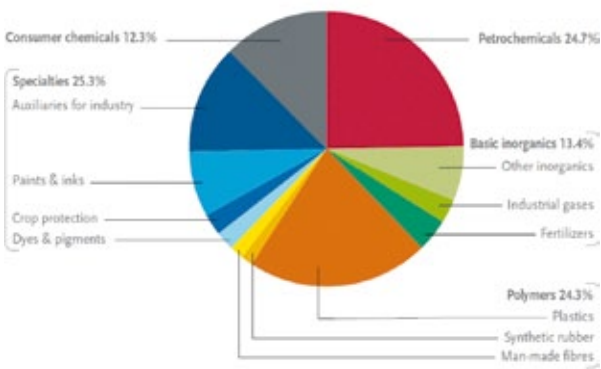


Sources: Eurostat and Cefic, Chemdata International

### EU Chemicals Sales by Nation

Chemicals turnover of the European Union was valued at €539 billion in 2011. Eight countries account for 89% of the EU chemicals production. Germany remains the largest chemicals producer in Europe, followed by France, Italy and the Netherlands. Together, these four countries generated 64% of EU chemicals sales in 2011, valued at €345 billion. The share rises to 89.1%, or €480 billion, when including the United Kingdom, Spain, Belgium and Poland. The other 19 EU countries generated 10.9% of EU chemicals sales in 2011, valued at €58 billion, about half of which was attributable to four EU countries – Sweden, Austria, Czech Republic and Finland.

### Percentage of sales by sub-sector



Sources: Eurostat and Cefic, Chemdata International

### Chemical Sub-Sectors

Among the chemicals produced in the EU countries, petrochemicals, polymers and specialty chemicals account for three quarters of the EU chemicals sales. Output from the EU chemicals industry covers three wide ranges of products: base chemicals, specialty chemicals and consumer chemicals. Base chemicals cover petrochemicals and derivatives and basic inorganics. In 2011, they represented 62.4% of total EU chemicals sales. Specialty chemicals cover the auxiliaries for industry, paints & inks, crop protection, and dyes & pigments (25.3% in 2011). Consumer chemicals are sold to final consumers, such as soaps and detergents as well as perfumes and cosmetics (12.3% in 2011).

## U.S. Supreme Court to Review Drug & Gene Patent Cases

The U.S. Supreme Court has agreed to hear a lawsuit on whether generic drug manufacturers can be subjected to personal injury lawsuits that allege flaws in the design of drugs, even if federal law would not permit such cases.

The court's decision was in response to a bid by Mutual Pharmaceutical, an indirect unit of Japan's Takeda Pharmaceutical, to overturn a \$21 million jury award to a New Hampshire woman who had taken its generic non-steroidal anti-inflammatory drug for shoulder

pain and was left with multiple disabilities after a rare hypersensitivity reaction to the drug.

Mutual had argued that that U.S. law barred such claims because the drug had already been approved by the Food and Drug Administration (FDA) and did not have the same design as the brand-name equivalent. The U.S. Generic Pharmaceutical Association submitted a brief in support of Mutual's appeal. A decision by the Supreme Court is expected by the end of June 2013.

The Supreme Court also has agreed to decide whether human genes can be patented, in response to a disputed ruling by a federal appeals court over whether Myriad Genetics may patent two genes, BRCA1 and BRCA2, linked to hereditary breast and ovarian cancer. A federal appeals court in August upheld the biotechnology company's right to patent the genes that account for most inherited forms of the two cancers, while simultaneously rejecting its effort to patent methods of comparing or analyzing DNA sequences.

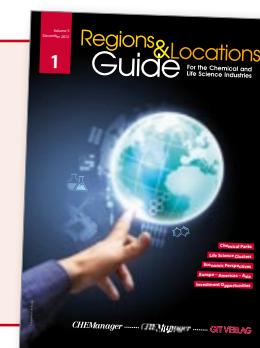


**Boy Toy** – General Motors (GM) has been named the winner in the Performance & Customization (Aftermarket) category of the Society of Plastics Engineers' (SPE) 2012 Automotive Innovation Awards Competition. GM's winning application is the carbon composite air extractor located on the hood of the 2012 Chevrolet Camaro ZL1 sports car. The air extractor makes extensive use of adhesive bonding to join two components to the one-piece design. Those two components are a polyamide vent screen and the water deflector molded from SABIC's high-performance Valox resin, a thermoplastic polyester which delivered the high mechanical and thermal performance needed in this demanding under-hood environment.

This issue of CHEManager Europe contains the special supplement

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For the Chemical and Life Science Industries



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