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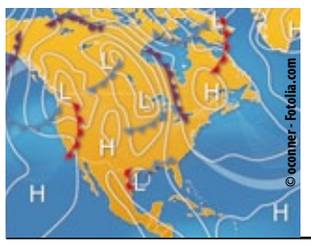
# CHEManager EUROPE

THE NEWSPAPER FOR THE CHEMICAL AND LIFE SCIENCE MARKETS

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# The U.S. Business Climate in 2013

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**Michel Blanc**
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*We are experiencing strong business growth in the U.S.*

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*The economic outlook for growth is somewhat muted for 2013.*

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*We are quite optimistic about our potential for growth in the U.S.*

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*The challenges faced by the pharma and biotech industries are creating a paradigm shift.*

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*The U.S. will still be the largest single market for pharmaceutical products.*

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*Siegfried is upbeat on the development of its U.S. business in 2013.*

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Chief Scientific Officer, Euticals Group

*North America has the most advanced and highly developed health-care system.*

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# Solvay's Clamadieu Reveals New Group Management Structure

Solvay has given itself a new management and divisional structure after a 16-month process of integrating the Belgian-led group with France's Rhodia, acquired by Solvay in 2011. Presenting the results, CEO Jean-Pierre Clamadieu spoke of a "radical transformation that has made the company more agile and in a better position to seize growth opportunities, while keeping customer focus, operational excellence, corporate social responsibility and innovation as priorities. Few groups," he remarked, "would have been able to bring about such major changes in such a short period of time."

> *"Major changes in a short period of time."*

**Jean-Pierre Clamadieu**
**CEO, Solvay**

The new Solvay will be run by a six-member executive committee headed by Clamadieu. Bernard de Laguiche as chief financial officer, served in that position at Solvay prior to the Rhodia takeover. Other committee members are Vincent De Cuyper, who had responsibility for chemicals on Solvay's executive board, Roger Kearns, with responsibility for Asia on Solvay's board, and Jacques van Rijkevorsel, who on Solvay's board with responsibility for plastics.

Five new operating and reporting segments have been created out of businesses run by Solvay and Rhodia Each, the group said, reflects the business models most adequate to the diverse market drivers and competitive dynamics.

The new Consumer Chemicals segment includes the units Novecare (specialty surfactants, polymers, amines, solvents, home and personal care products), Aroma Performance (flavouring for the food industry, building blocks for pharmaceuticals, agrochemicals and electronics, along with monomer stabilizers) and Coatis, a Latin American producer of phenols and solvents.

Advanced Materials encompasses specialty polymers, silica, rare earth systems and special chemicals, while the Performance Chemicals segment takes in mature products such as soda ash and bicarbonate, cellulose producer Acetow, Eco Services and Emerging Biochemicals. Functional Polymers brings together the chlorovinyls chain and the group's polyamide activities, which supply mainly the construction and infrastructure, automotive and electrical/electronics industries.

The Corporate Business and Services includes the Solvay Energy Services GBU as well as all the Corporate Functions, including Solvay Business Services and the Research & Innovation Center. ■

# BASF Prevails in Struggle to Take Over Pronova

BASF has prevailed against the last shareholders of Norwegian biopharmaceuticals producer Pronova who had been holding out for larger pay offs. With nearly 98% shares in hand on 21 January and all regulatory approvals obtained, the German group said it would settle the offer within 14 days and close the transaction during the first quarter. Based on all outstanding shares and net financial liabilities, it estimated the company's value at just under NKr. 5 billion (around €684 million).

The takeover bid was officially launched in early December 2012 and the acceptance period later extended until January 18. A few days before the deadline, having fallen short of its targeted tender of 90% of all shares, BASF sweetened the deal from NKr 12.50 to NKr 13.50 per share. The psychological breakthrough may have come when Nykredit Asset management, an investor holding 1% of the omega-3 fatty acids specialist's equity agreed to tender its shares. It would have been difficult being part of a free float of only 10–20%, the portfolio manager said in an interview.

The world's largest chemical producer said its increased offer for the Norwegian company corresponds to a premium of 34% above the volume-weighted average price for Pronova's shares in the six months prior to publication of the bid. BASF management board member Michael Heinz said his group firmly believes the acquisition, which will strengthen its and Pronova's position in the omega-3 market, provides the "the best strategic option" for the further development of the business.

**Michael Heinz**
**Management Board Member, BASF**

Through the deal, BASF will gain a leading global position in the market for the fish oil used in treatment of cardiovascular diseases and also marketed as a nutritional supplement. Heinz said a detailed integration plan, combining the German giant's worldwide presence and technical knowhow with Pronova's strong expertise and good position, will be developed during a discovery phase after closing.

In combination with its prior acquisitions of Cognis and Equatec, the Pronova takeover will help BASF cover the entire omega-3 range from food grade to highly concentrated drug ingredients and compete with other European market players such as DSM and Croda. Overall, the German group, which is already cooperating with U.S. agricultural products manufacturer Cargill to extract the fatty acids from new types of rapeseed, sees the market as growing by 8% annually up to 2020.

In its quest to gain a stronger foothold in nutraceuticals, BASF evidently had better cards than compatriot Bayer, which after a protracted battle was forced to withdraw from the race to acquire U.S. vitamin maker Schiff Nutrition following a higher bid from the UK's Reckitt Benckiser. ■

# German Chemical Producers Disappointed with 2012 Performance

German chemical producers' hopes for 2012 were not fulfilled, the German Chemical Industry Association VCI said in December. Instead of the targeted 1% increase, production declined by 3%. Industry-wide sales, at €184 million, were flat at the 2011 level. The combination of a cooling global economic climate, the euro crisis and the recession in southern Europe, exacerbated by Germany's exit from nuclear power and higher production costs, was "a little too much at once," newly elected VCI president Karl-Ludwig Kley, CEO of Merck KGaA, said.

> *"The USA are still the most important trading partner for the German chemical industry outside Europe."*

**Karl-Ludwig Kley**
**President, VCI**

With the exception of inorganic intermediates, which rose 0.5%, output declined throughout the industry. Polymer production receded by 5%, petrochemicals by 4%, specialty chemicals by 2.5% and consumer chemicals by 2%. Pharmaceutical output fell by around 3%, a situation the industry association blamed in part on increased restrictions by national governments.

Mainly through passing on higher production costs, German chemical producers increased their selling prices by 2.7% in 2012. While the cost curve flattened in the second half, Kley said that due to the euro crisis, VCI companies did not profit. While prices for pharmaceutical chemicals gained 25% against 2011, selling prices for finished drugs weakened.

The only really positive impetus for business in 2012 came from Asia, according to VCI. In the final tally, domestic sales sank by 2.5% to €73 billion, exports rose by 5 % to €161 billion and sales of companies from production in other countries by 2% to €111 billion. After a rise of 7% in 2011, imports fell by 2% in 2012 to €114 billion. Employment increased by 2% and capital spending by 5% to €6.6 billion. Most of the investment was for capacity expansion.

Despite the decreased dynamics in Europe, Kley said German chemical producers are not excessively pessimistic going into 2013, especially as there are no signs that the domestic economy is headed for a recession. He described expectations for business overseas as "positive," even if somewhat slacker than last year. The association's forecast for the full year sees chemical output rising 1.5%, selling prices by 0.5% and sales by 2% to €188 billion. ■

# FMC Management Well on Track to Meet 2015 Growth Targets, says CEO

Bullish about the outlook for its business up to 2015, U.S. diversified chemicals producer FMC is on track to meet or exceed its aggressive performance targets, CEO Pierre Brondeau said at an investor day in December 2012. Over the past three years, he said the group has been able to capitalize on its "unique strengths" to move closer to its Vision 2015 targets announced in 2010.

FMC now expects to exceed its $5 billion sales target for 2015 by "at least" 10%, Brondeau said. This would mean more than doubling revenue against 2009. At the same time, management expects to meet or exceed its targeted EBIT of $1.2 billion, an increase of about 2.5% against the 2009 figure. The return on invested capital is forecast to remain "well above the target of mid-teens or higher." After an expansion of over 120 basis points since 2009, EBIT Is expected to gain another 230 points up to 2015.

Brondeau said FMC continues to maintain disciplined and balanced cash development. Some 40% of the $1.5 billion deployed over the past three years has been used for

**Pierre Brondeau**
**President and CEO, FMC Corporation**

organic reinvestment, another 20% for external growth and 35% going to shareholder dividends or share repurchases.

### Improved Expectations for Reportable Segments

In 2015, FMC expects an improved performance by its three business segments. Agricultural Products, driven by a rich organic pipeline, sustained premium margins and a low-cost manufacturing base, is targeted to return sales of around $2.8 billion and EBIT of about $675m in the corporate vision's final year.

For Specialty Chemicals, sales of around $1.2 billion and EBIT of about $275 million are foreseen for 2015. The biopolymers business and an improved lithium performance, along with cost reduction initiatives, are seen as the growth drivers.

FMC's Industrial Chemicals business is expected to deliver sales of around $1.2 billion and EBIT of about $250 million in 2015, propelled by the group's market leadership in soda ash, a continuing shift toward higher value-added specialties in peroxygens and growth in the new Environmental Solutions business unit.

The U.S. chemical producer's management team is "planting the right seeds today to ensure strong, profitable growth well beyond 2015," Brondeau told the conference. "We continue to evolve our portfolio, investing in current product lines and pursuing new ones," he added.

Beyond 2015, the CEO said FMC's growth will be driven by technology investments that support commercial success, continued expansion in fast-growing, rapidly developing economies and the ongoing rebalancing of the group's organizational model that "leverages our size without compromising strong business accountability." ■

# BASF Shifts Isononanol Plans to China as Evonik Steps into Petronas Project

A revolving door seems to have opened in Petronas' Refinery & Petrochemical Integrated Development (RAPID) project at Pengerang, Johor, Malaysia. BASF and the Malaysian oil and petrochemicals heavyweight have canceled their Heads of Agreement (HoA) agreement signed in March 2012 calling for a BASF majority-owned (60:40) specialty chemicals joint venture within the RAPID project, and Evonik has moved in as a new European partner for at least three planned production facilities.

In a statement, BASF and Petronas said they had concluded it would be in their mutual interest to terminate the HoA as they had been unable to agree on terms and conditions of the proposed venture. At the same time, the two petrochemical giants stressed that their commitment to continuing their existing long-term JV, BASF Petronas Chemicals, in Gebeng Industrial Zone, Kuantan, Pahang.

The new BASF-Petronas partnership would have owned, developed, built and operated production facilities for a number of chemicals. Tentative plans included a superabsorbent polymers plant and a capacity increase at an existing glacial acrylic acid plant as well as facilities for the plasticizer feedstock isononanol (INA), isobutylene, non-ionic surfactants, methanesulfonic acid and precursors.

BASF is now preparing to relocate some of the projects to other sites. After announcing the Malay cancelation, the group said that, following a feasibility study, it had decided to form a 50:50 joint venture, BASF MPCC Co., with Sinopec, to build and operate a world-scale plant for INA at Maoming, China. The facility, scheduled to start up in 2015, would be fully integrated into an existing petrochemical site at Maoming.

Subsequently, Essen, Germany-based Evonik said it has signed a letter of intent to build among other things, a 220,000 t per year facility for INA within the Petronas RAPID project. Under what appear to be the same terms as envisaged between the Malay group and BASF, Petronas and Evonik said they intend to jointly own, build and operate production facilities for 250,000 t of hydrogen peroxide and 110,000 t of 1-butene annually – alongside the INA plant. The peroxide is planned to be processed on-site using technology developed by Evonik and Dortmund, Germany-based engineering group ThyssenKrupp Uhde. ■

# Clariant Sells Three Businesses and Buys Another

At the end of 2012, Swiss specialty chemicals producer Clariant sold three business units, Textile Chemicals; Paper Specialties and Emulsions, to private equity investor SK Capital for Sfr. 505 million, including Sfr. 460 million in cash – equivalent to 6.3 times the recurrent EBITDA of the businesses. The units expected total sales of Sfr. 1.2 billion for 2012, about 15% of Clariant's overall turnover.

In mid-January, the Swiss company agreed to acquire CRM International, a French producer of natural ingredients for the personal care industry, to strengthen its Consumer Specialties business unit and also inaugurated a new production site for its Industrial & Consumer Specialties business unit at Coatzacoalcos, Mexico.

CRM, a privately owned cosmetics raw materials producer, specializes in natural ingredients based on olive oil. The transaction is due to close in March. Acquisition terms were not disclosed. In Mexico, Clariant plans to invest more than $20 million in the new site, which will produce several chemical specialties and technological solutions for markets including personal care, crop protection, metalworking, construction and painting. ■

# Arkema, CJ to Build Bio-Methionine, Thiochemicals Complex in Malaysia

After several years of studies, the construction of Arkema's bio-methionine plant and thiochemicals platform in Asia officially started in October in Kerteh, in the State of Terengganu in Malaysia. Total investment for the joint project with Korean food, feed, and bioscience company CJ CheilJedang is about $450 million, where CJ will build and operate bio-methionine plant and Arkema will build and operate the thiochemical plant.

Arkema owns an in-house production process of methyl mercaptan, a sulfur-based intermediate that is used in the production of methionine. CJ owns an industrial bio-fermentation process to produce L-methionine, a bio-amino acid for animal feed, from renewable raw materials. The plant is scheduled to come on stream by end 2013.

Upon completion, Arkema will supply a key raw ingredient to CJ for the production of bio-methionine. When completed, the facility will be able to produce 80,000 metric tons of bio-methionine additives for poultry and 50,000 metric tons of sulphur derivatives for the petrochemical markets. ■

# DyStar Transfers Textile Chemical Production to Nanjing

In order to strengthen its manufacturing capability for textile chemicals in China, DyStar plans to transfer the production from its plant in Hangzhou to the multi-purpose manufacturing site in Nanjing. The production transfer is planned for the second half of 2013. The plant in Nanjing started the production of dyes in 2006 and since then has been expanded to produce almost 14.000 t of textile dyes a year. The plan is to increase production to about 20.000 t. This transfer will allow for increased scope in terms of chemical synthesis together with strict quality control in the extensive laboratory facilities. ■

# Novartis CEO Tempers Talk of Roche Stake Sale

Novartis CEO Joe Jimenez played down talk that it was looking to sell its one-third voting stake in cross-town rival Roche, and certainly not at its current market price. There has been widespread speculation that Novartis could be heading for a change of strategic direction – including a possible sale of the Roche stake – following the appointment of a new chairman.

**Joe Jimenez**
**CEO, Novartis**

"It's a strategic purchase," Jimenez said of the holding during an interview at the World Economic Forum. "What we mean by that is the value of that stake is worth more than the market price today." Previous Novartis boss Daniel Vasella secured the 33% voting stake in Roche between 2001 and 2003. Vasella initially wanted to merge the two Swiss drugmakers but, after hitting resistance, kept the block as a long-term investment. ■

# Bayer HealthCare Closes Takeover of Teva Animal Health

After receiving approval from the U.S. Federal Trade Commission, Bayer HealthCare has completed its $145 million acquisition of Teva's U.S.-based animal health business. The deal, in which Bayer gains what it said is "a strong anti-infectives portfolio," includes a manufacturing site at St. Joseph, Missouri and around 300 employees. The German group is making an upfront payment of $60 million in addition to a total of $85 million in milestone payments for meeting manufacturing and sales targets. ■

# New Astra Zeneca CEO Eliminates Top Jobs

Pascal Soriot, who took over as CEO of struggling drug maker Astra Zeneca in October 2012, has wasted no time in getting down to business. In January 2013, Soriot, a former Roche executive, eliminated two top positions, saying that the roles of Martin Mackay and Tony Zook, as head of research and commercial operations respectively, had been eliminated. Both men were to leave the company at the end of January.

In place of the top research job, Soriot has created three senior R&D positions with responsibilty for discovery and early stage development in small molecules, biologics and late-stage development. On the commercial side, three new positions will represent the various regions, with a further senior role responsible for global portfolio and product strategy,

The new CEO is scheduled to outline his strategy for returning Britain's second largest pharmaceutical to health, when he presents 2012 results on 31 January. A more in-depth presentation to be made to analysts in March. AstraZeneca will face two steep cliffs in 2014 and 2016, when patents for stomach acid drug Nexium and cholesterol drug Crestor expire. ■

# Linde Wins LNG Contract in China, Acquires Calea

Linde's engineering division has been awarded a contract by China's Sichuan Tongkai Energy and Technology Development Company to design and supply the Bazhong Phase II LNG plant to be built in the Bazhong Economic Development Zone in Sichuan. This is the fourth LNG contract for the Linde division in the People's Republic.

The project is expected to process 1.3 million m3 of feed gas per day, equivalent to an annual production of 300,000 t of LNG. The plant will use Linde's proprietary LiMu process that the gases and engineering group said can accommodate various feed gas compositions and has proven its stability and reliability.

Separately, In a deal planned to be completed at the beginning of 2013, Linde said it would acquire French home healthcare company Calea France, based at Sèvres. The company with sales of €28 million in 2011 has 200 employees. The German group said the deal will "significantly improve" its position in the French market. The acquisition was its third in the homecare business in 2012, lifting its annual revenue in health applications to €3 billion and making it by its own account the world's largest supplier of medical gases and related services. ■

# New Gold Rush

## — Renaissance of U.S. Industrial Production Offers Growth Opportunities for the Chemical Industry —


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**Made in the USA** – The United States is currently experiencing a re-industrialization that, until a few years ago, hardly anyone had thought possible. Car manufacturers such as Chrysler, GM, Nissan or Volkswagen and electronics giants like Samsung have started to build up new production capacities, or have announced to do so. In other sectors such as the energy and the extractive industries, as well as the pharmaceutical industry and biotechnology, similar investment decisions are emerging. There is every indication that here a trend reversal is taking place, and that across a broad front. According to an analysis by Accenture, investments of $1 trillion in total are planned in industrial production in the U.S. over the next four years, until 2016.

**Goetz Erhardt**
Executive Partner,
Accenture

The reasons why the U.S. has gained attractiveness not only as a sales market, but especially as a production location are complex. First of all, labor costs have become less relevant as an argument for moving production to low-wage countries. Secondly, the physical proximity to customers and markets has become a more important factor. And thirdly, the intensive exploration and production of shale gas is the fuel that drives the train back to the USA. From this development the chemical industry is benefitting twice. The expansion of capacities in the customer industries leads to an increased demand for chemical products, and their own production costs decrease due to the low gas price.

### Low Wages are Not Important Any Longer

In the past – in addition to the proximity to new markets - it was often the significantly lower labor costs, which prompted the companies to relocate large parts of the production to emerging economies like China, India or Brazil. As a result, some 5 million jobs were lost in the U.S. over the decade between the years 2000 and 2010. It is not likely that many of those jobs in the mass production of consumer goods in electronics or textile industry will be shifted back. Meanwhile, however, in industries with high added value, such as the capital goods or the automotive industries and the chemical industry as their supplier, other criteria offset the advantage of wages as low as possible. Moreover, also this factor will become less relevant, because the dynamic has changed. The unit labor costs in America have been stagnating for more than a decade, compared to those of major trading partners. For the next few years up to 2016, a moderate increase of 0.5% is predicted, whereas an increase by more than 8% per year is expected for China, and yet at least almost 2.5% for India. In addition, as a result of the continuously advancing automation and the use of increasingly sophisticated robots the productivity in the U.S. has risen much faster than the wage level.

> *By 2016, investments of $ 1 trillion are planned in the U.S. industrial production.*

### Proximity to Customers is Getting More Important

One factor that has become increasingly important is the proximity to the consumer. Not only is it becoming continuously more difficult to predict economic cycles, also the purchasing behavior and the taste of the customers can change from one day to the next. In such a volatile market environment, no manufacturer can afford to produce large quantities of goods for stock and then transport them over long distances – especially with transport costs tending to increase. The Japanese car manufacturers were the first to understand that and started to build up production sites in their major export markets early. Meanwhile, customer proximity as it is demanded today is practiced by most industries and is one of the main reasons for the current increase in capacities by the automobile industry in the U.S.. The most recent example is the construction of a new plant in Chattanooga by Volkswagen which started operation in 2011. The principle to manufacture where the market is has a lot of advantages. Thus, it allows a closer cooperation between the development and the manufacturing of new products and a better adjustment of the specifications of new developments to the needs of the customers. Furthermore, in the case of quality problems reaction times are shorter than if the contract supplier were located on another continent.

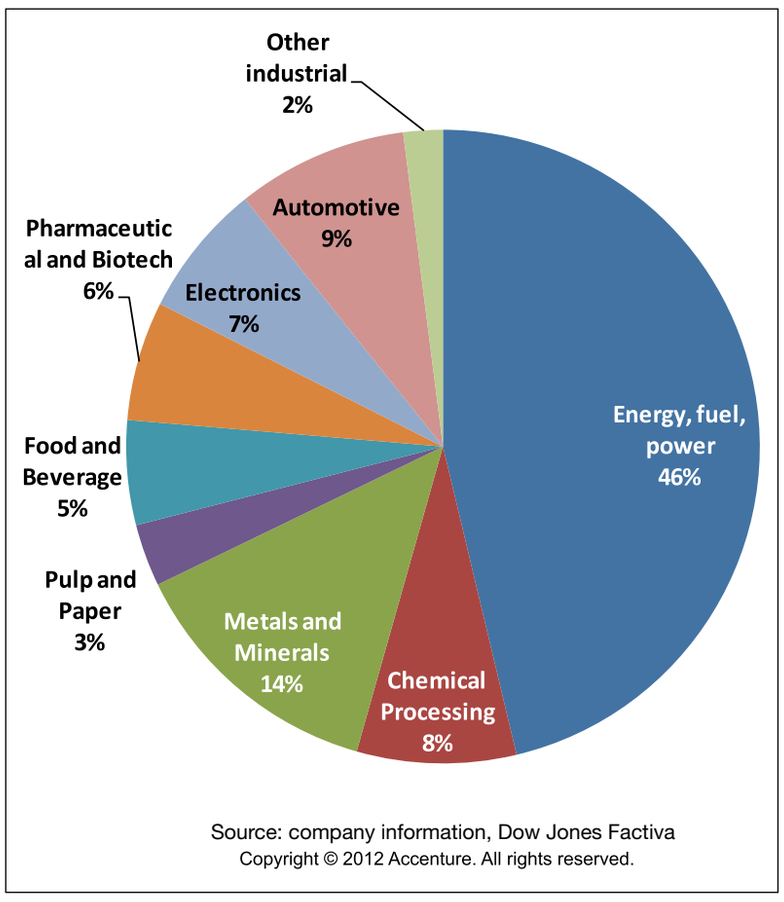


**Fig. 1: Estimated investments in North America by manufacturing industry sectors (2012-2016)**

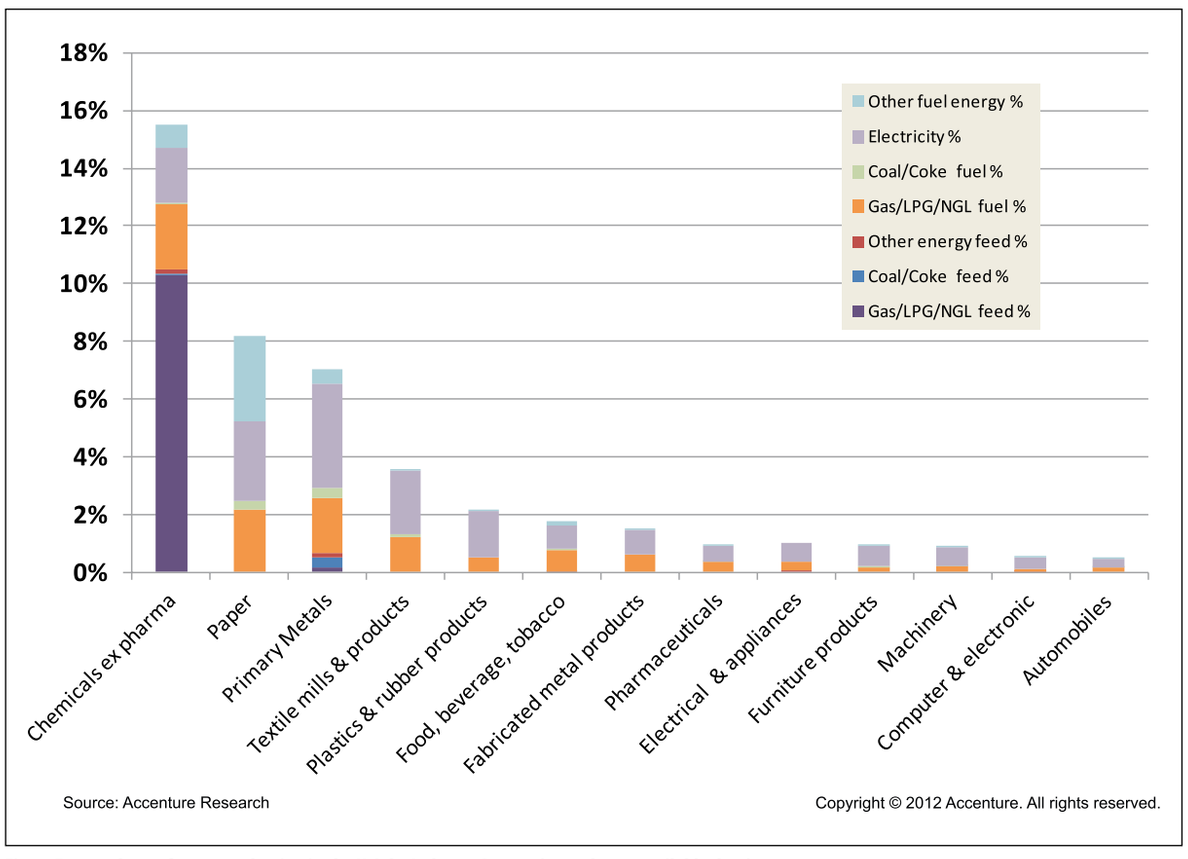


**Fig. 2: Energy share of gross production in the U.S. by Industry Sectors (2006, latest available data)**

### Low Gas Price is An Accelerator

The catalyst for the renaissance of industrial production in the U.S. is, no doubt, the cheap gas. The discovery and exploitation of large shale gas deposits has led to a massive price decline. In the year 2011, the gas price in the United States was 40% lower than in China, 50% lower than in Brazil and 85% lower than in India. Moreover, the latter countries cover the large part of their energy requirements from oil and coal, and only a small fraction from gas. In North America, however, the share of gas in energy consumption is between 24% and 30%.

While potentially all sectors of industry with production sites in the United States benefit from this price advantage, the chemical industry actually profits in two ways: The energy needed for the manufacturing process is cheap and a lot of pre-products that are based on natural gas become cheaper as well. According to present calculations, as a consequence the ethylene production in the U.S. could rise by up to 30% until 2017. A number of large chemical companies such as Chevron Phillips Chemical, Shell Chemicals and Dow Chemical have, meanwhile, announced to expand their capacities in America. This is hardly surprising if one keeps in mind that, for the manufacturing process and the pre-products, three quarters of the demand of the chemical industry in the United States is covered from natural gas and that the chemical production is even more energy-intensive than paper, metal, plastics or rubber production.

### New Markets vs. Old Markets

Has the gold-rush mood in the BRIC countries evaporated? The answer is no, but the indicated trends suggest a more nuanced picture. The re-industrialization of the U.S. is creating new opportunities also for German manufacturers who are obviously going to take them, as a survey by Accenture among 120 German companies with subsidiaries in the U.S. suggests. According to this survey, two thirds of the interviewed managers expect that the U.S. market will become more important for their companies. However, the possibilities resulting from this need to be analyzed accurately, in order to achieve an accordingly high return on investments in new capacities. Then, due to the revived competitiveness, North America could once again become the „place to be“.

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## The Latest From SOCMA


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### Policies Supporting Competitiveness and Market Expansion are Key

There are policies that the U.S. government can and should pursue, or not pursue, to help American companies be more competitive and expand their markets. Clearly, there are ways it can be a hindrance to growth, such as overregulation and higher taxes. In shaping SOCMA's strategy for 2013, here are a few areas in which we plan to advocate in the new Congress and a second Obama administration.

#### Regulatory Reform

An August 2012 study by the Manufacturers Alliance for Productivity and Innovation provides solid evidence as to why and how chemical manufacturing is among the most regulated industries in the U.S.. It is very important that government officials understand how regulations hold back our industry in terms of both productivity and innovation. We know that, as a U.S. industry, we must abide by many more regulations than our competitors in Asia, South America, and even Europe. Many of these regulations are intended to serve noble purposes, such as safer workplaces and lower toxic emissions. However, we also know that there are a number of regulations, from environmental to economic, that are duplicative or simply unnecessary. Congress needs to take concrete steps to reform our regulatory process as well as compel the federal government to review and, where necessary, revoke regulations that are duplicative, contradictory, or clearly prevent our industry from leading the world in innovations, not in inhibitions.

#### Taxes

The federal research & development (R&D) tax credit is highly important to SOCMA members and chemical manufacturers in general. Because of the highly innovative nature of specialty, custom, and batch manufacturing, much research and investment is devoted to developing a product before it is sold in the marketplace. On average, manufacturers claim approximately 70% of R&D credit amounts. The credit is needed to keep the U.S. competitive in the global race for R&D investment dollars. Congress repeatedly drags its feet in renewing the tax credit, which creates much uncertainty among SOCMA members that rely upon it. We need to find a way through Congress to make this credit permanent.

#### Intellectual Property Protection

More than 70% of the world's intellectual property resides with U.S. companies. It is no wonder that we are often the target of corporate espionage and intellectual property theft. As a highly innovative manufacturing sector, SOCMA's members are particularly at risk. We occasionally hear from our members that have had their IP stolen by a foreign entity. In most cases, their violator's government merely slaps the company on the hand with little to no consequence other than to our members, who see their proprietary information copied and sold in the marketplace. In other cases, we hear from members who learn that foreign competitors claim to customers that they are making our members' products—and selling them at a lower price—when, in fact, the product is fraudulent. The violation of companies' IP affects not only current profits, but also the long-term sustainability of their business because of unfair competition.

#### Confidential Business Information Protection

For many years, the U.S. Environmental Protection Agency (EPA) has been protecting confidential business information (CBI) claims for products regulated under the Toxic Substances Control Act. However, today the agency has a proposal awaiting White House approval that would force chemical manufacturers to reveal highly proprietary details of new chemicals even before they are sold in the marketplace. If finalized, this action would deal a significant blow to our industry's ability to maintain our innovative competitiveness. Competitors would no longer need to steal this information, but merely mine EPA's public website for characteristics that were previously protected as CBI but would now be available for anyone to copy.

#### Free Trade Agreements

Trade agreements continue to be a way for our members to fairly access foreign markets and positively contribute to the growth of the U.S. economy. These agreements support domestic manufacturing jobs by offering access for our competitive, innovative products. SOCMA continues to push for movement of the trade policy agenda, advocating for high standard free trade agreements, such as those with Korea, Colombia, and Panama, which will save U.S. chemical manufacturers billions of dollars now that these agreements are in place.

*Bill Allmond, Vice President of Government and Public Relations*

Read more about SOCMA's "First 100 Days" initiative to educate Congress and regulatory agencies about issues important to the U.S. specialty chemical industry on page 9.

Contact:
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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.

## Dow Opens Wind Energy Center in Switzerland

Dow Chemical has opened a global wind application center at Freienberg near Zurich, Switzerland, to showcase new system formulation capabilities, process testing equipment and semi-scale lab demonstration tools. The 800 square meter facility, Dow said, gives the U.S. chemical group enhanced ability to deliver a complete solutions portfolio of resins, foams and adhesives to wind blade manufacturers.

Equipment for the new center was transferred from Baltringen, Germany, while additional component scale manufacturing equipment overs adhesive bonding, vacuum bagging, vacuum resin infusion capabilities needed to test and manufacture Dow's Airstone systems. The center also houses a new five-meter blade mold section, which will test and demonstrate innovative products such as the group's Compaxx foam core system. ■

## Arkema and BMS in R&D Deals for Electric Car Batteries

Battery technology pioneer Oxis Energy, a U.K.-based firm specialising in production technology for Polymer Lithium Sulfur cell (Li-S) batteries for electric vehicles, has signed separate development agreements with France's Arkema and Bayer MaterialScience (BMS) aimed at furthering the technology and bringing it to market.

Arkema and Oxis say they have identified several areas where "key enhancements" could be made, both in terms of power delivered and reliability. The aim, the French company said, is to optimize the conductivity increase of the electrolyte to improve energy density as well as reinforce the mechanical resistance of some components in order to extend the lifetime and safety of the battery. Arkema will supply specialty materials such as carbon nanotubes, electrolyte and advanced technical polymers that will be tested by Oxis for their suitability.

The collaboration between Oxis and BMS is aimed at increasing safety and mileage of electric vehicles, using the German company's high tech materials. Huw Hampson-Jones, CEO of the British company, said the agreement with the Bayer sub-group supports the development and commercial introduction of the battery technology. BMS' expertise in high performance materials for the automotive industry is "highly significant" to Oxis, he added. ■

## Eastman Announces Debottleneck of Butyric Acid Manufacture

Eastman Chemical announced a debottleneck of butyric acid production capacity at its Kingsport, Tennessee/USA, facility. The debottleneck, scheduled for completion in the fourth quarter of 2013, will add an additional 11 million pounds of capacity to support growing internal and external demand for the acid.

"Eastman is committed to the butyric acid market for the long term," says Chip Millican, business manager for Eastman's Organic Intermediates business unit of the Specialty Fluids and Intermediates business segment.

"We carefully monitor the requirements of this growing global market. This expansion will satisfy the needs we currently have forecasted, and we have the capability to expand further as the demand for Eastman's butyric acid grows", he added.

Eastman is the world leader in butyric acid production and has been manufacturing the product for more than 70 years. Butyric acid is a naturally occurring short-chain fatty acid found in the human body, butter, and numerous other sources. Esters and salts of butyric acid are used in a variety of applications including perfumes, flavorings, and animal feeds. Eastman offers a variety of grades of butyric acid appropriate for these various end uses. ■

## Evonik to Lift Output of C4 Derivatives and Precipitated Silica

Evonik will expand production of C4 derivatives 1-butene, butadiene and MTBE at two of its European production sites by 2015. The company said the expansion of 1-butene capacity by 75,000 t per year at Marl, Germany, will make it the world's largest supplier. Output of butadiene will be widened by 100,000 t at Antwerp, Belgium, while MTBE capacity will increase by 150,000 t. An additional 40 jobs will be created when the plants start up in 2015.

The investment, pegged at "hundreds of millions of euros" is designed to support the growth plans of customers in Europe and overseas," said executive board member Dahai Yu, adding that "a sharp rise in growth rates" for the three C4 product groups is expected.

Evonik uses 1-butene as a comonomer for higher value-added plastics such as polyethylene, to improve tensile strength for packaging film, among other applications. Butadiene is used principally in rubber for tires and MTBE as an octane booster to improve fuel combustion. The Essen-based chemical producer's C4 portfolio also includes isobutene, isononanol, 2-propylheptanol and diisononyl phthalates. The new facility is part of a 30% expansion of global output to meet the expected increased growth in fuel-efficient low-resistant tires. ■

## Dow Corning, Crystal Solar Collaborate in PV Development

U.S.-based global silicon specialist Dow Corning and Crystal Solar, a solar energy venture company focusing on Direct Gas to Wafer technology have agreed to cooperate on supplying high performance silicon-based materials to the photovoltaics industry. Specifically, they will assess options for high performance building integrated photovoltaic (BIPV) solutions for both commercial and residential buildings.

Dow Corning will supply high-quality trichlorosilane, specialized silicon-based materials as well as providing supply chain consultancy services to Crystal Solar for manufacturing monocrystalline ultra-thin silicon epi wafers.The solar company that began trading in 2008 in California's silicon valley said its Epitaxial technology allows for high efficiency solar panels to be produced at lower cost. ■

## Saudis to Build Butanol Complex

Saudi Butanol, a newly created petrochemical joint venture of Sabic subsidiary Saudi Kayan and Sadara Chemical Company, a joint venture of Saudi Aramco and Dow Chemical, plans to build what would be the Middle East's first butanol complex. Production is slated to begin in 2015 with a capacity of 330,000 t per year of n-butanol and 11,000 t of isobutanol, Most of the output is earmarked for the Saudi paints and coatings industry. ■

## Air Liquide & Gazprom Sign MOU

French Industrial gases producer Air Liquide and Russian gas conglomerate Gazprom have signed a memorandum of understanding calling for the French company to build helium plants in eastern Siberia. The companies said they may consider forming a joint venture to operate the plants, transport, store and market the volatile gas. Gazprom is due to start up a new helium facility near Blagoveshensk in eastern Russia in 2018.

Alexander Medvedev, deputy chairman of Gazprom's management committee, said the gas group hopes the partnership with Air Liquide will prove an effective way to commercialize eastern Siberia's vast reserves. ■

## Ineos Consolidates PVC Assets as Solvay Mulls Strategy Options

Consolidation in the oversupplied European PVC market appears to be gathering momentum as poor profitability prompts some players to see the writing on the wall. In mid-2012, Arkema divested its vinyls business to Kem One, a newly formed holding of the Swiss family-run Klesch group. The latest market move sees Ineos ChlorVinyl consolidating its own assets, while Solvay's new leadership is still weighing the odds for SolVin, a 75:25 joint venture with BASF.

On 18 January, British-owned Ineos, now based at Rolle, Switzerland, said that following an internal review it has decided to discontinue production at three of its plants It cited prolonged weakness along the entire European chlorine chain, especially for PVC and vinyl chloride monomer (VCM).

The group's current plan calls for all PVC production in the U.K. to be focused at the Newton Aycliffe site. A smaller facility at Runcorn with nameplate capacity of around 100,000 t per year will be closed and the VCM plant at Runcorn converted produce ethylene dichloride (EDC) for captive use. At Wilhelmshaven, Germany, Ineos said it will bring forward the closure of its mercury cellroom.

ChlorVinyls CEO Chris Tane said management expects to achieve its targets without involuntary redundancies. He added that he is "confident these measures, along with other ongoing improvement initiatives, will help secure our business in the long term by improving profitability and cash flow during these very difficult times."

At Solvay, which has just unveiled a new corporate structure, new CEO Jean-Pierre Clamadieu told a U.K. news agency that the company is working on "various scenarios" to contribute to "some kind of restructuring" in a difficult, oversupplied market, but cannot yet forecast when any plans might be concluded. Solvay has a good position in PVC and in the past the business has been a cash contributor, but even today it is not losing money. Because of the quality of the assets, "a quick and dirty exit" is not planned, Clamadieu stressed ■

## Shell Close to Ukraine Shale Gas Deal While Huntsman Opposes US Exports

Shell is thought to be close to clinching a landmark deal to exploit shale gas reserves in Ukraine. According to the U.S. Energy Information Administration, the east European country has the continent's biggest deposits, totaling around 1.2 trillion cubic meters. An announcement was expected on the fringes of the World Economic Forum in Davos, Switzerland.

Ukraine's government said that if a pact covering the Yuziviska region is sealed, exploitation could begin within five to six years, with output expected to rise to 8-10 billion cbm within 10 years and exceed 20 billion cbm in 13 years' time. Meanwhile, an agreement reached with oil-petrochemicals group Chevron for Olesska in western Ukraine in May 2012 may be running into local opposition on ecological grounds, reports say. Ukraine is seeking to become independent of Russian gas imports.

In the U.S., shale gas is redrawing the energy and petrochemicals map. Large chemical companies such as Dow with access to shale gas-generated ethane feedstock are increasing their competitiveness against European players and are envied by rivals across the Atlantic. Plans by major European players such as Ineos to import U.S. natural gas are sparking opposition in some quarters.

### Huntsman Speaks Out Against Gas Exports

U.S. chemical producer Huntsman said recently it had joined a coalition of manufacturers and others opposed to proposals to permit unlimited exports of shale-derived natural gas. The financially struggling company is planning to expand its operations at home to benefit from shale gas. It has committed more than $150 million to new projects while at the same time evaluating other projects worth an additional $250 million.

CEO Peter Huntsman said he thinks it is "short-sighted and bad public policy" to jeopardize the U.S.'s natural gas advantage, which has tempered its energy price volatility "dramatically," to build manufacturing basis overseas that could otherwise be built in the U.S. ■

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# Plugging the Brain Drain

## How U.S. Chemical Companies Can Cope with Skill Scarcity in a Shifting Global Market

**Human Resource Management** – The U.S. chemical industry currently supports almost 25% of U.S. GDP and produces more than 15% of the world´s chemicals. However, by 2015 China is expected to overtake the U.S. as the largest chemical producer in the world. Competition from India and Brazil is also shifting the balance of market importance, meaning that in order to remain competitive in a new global context, chemical producers in the U.S. are under increasing pressure to streamline manufacturing processes and reduce costs in every possible area.



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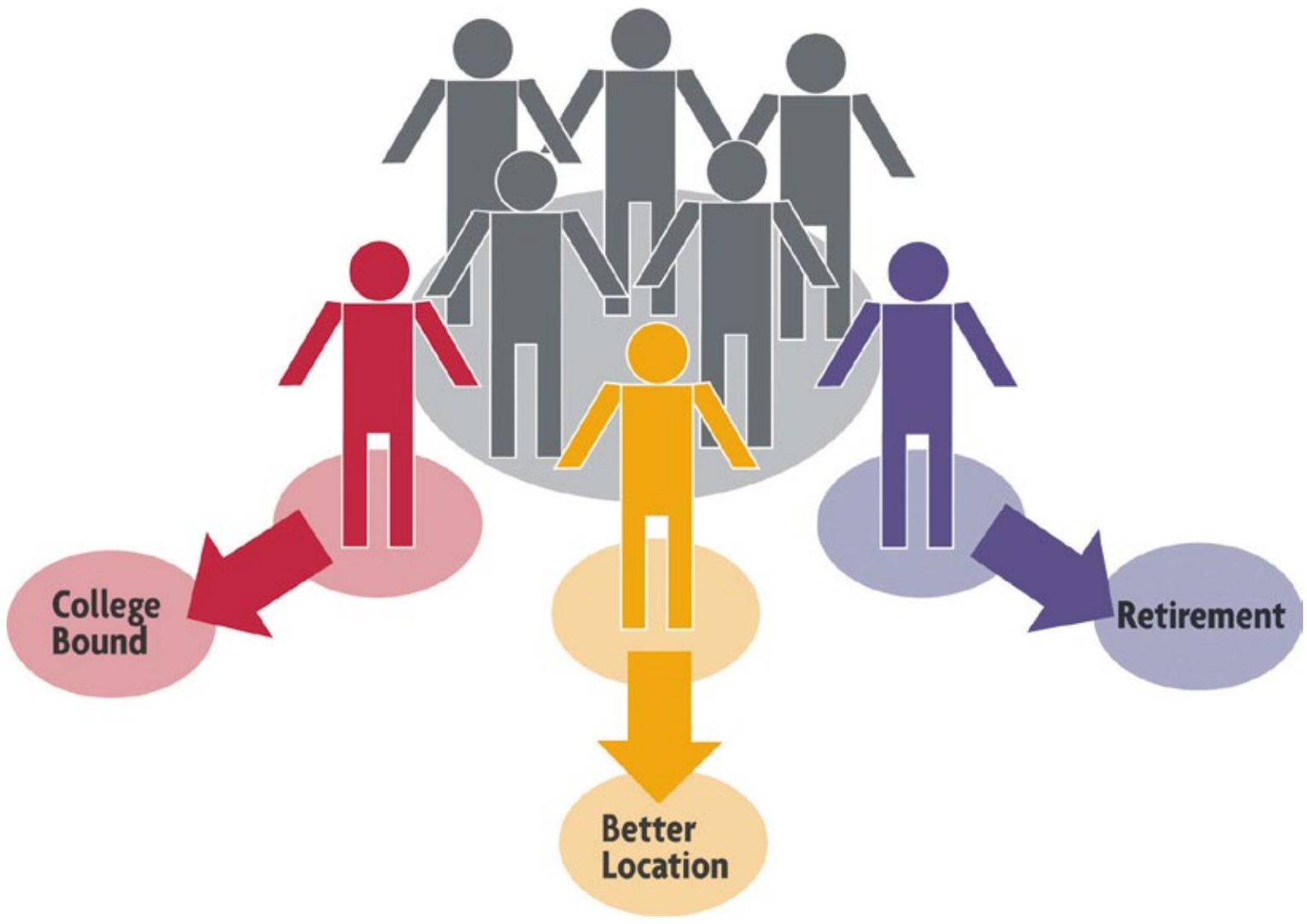


Additionally, the concentration of craftsmen in small areas spotted across a vast continent means that finding the right skills outside those clusters can be extremely challenging. Even within those clusters, intense competition from other local producers makes recruiting talent almost equally as demanding. In both cases, finding quality can be extremely difficult and is usually expensive, especially when considered in light of changing demography in the U.S.: by 2014 most baby boomers will have left the workforce, while the number of new entrants to the skilled trades is declining in favour of going to college.

### Ensure Processes Reflect Reality

Being prepared to pay competitive wages for the required skills is no longer enough to attract good workers from the competition, or to get them to remote regions. Management must accept that existing processes which depend on a high level of experience and skill may not be realistic in the current environment, where the availability of expertise has significantly decreased. Processes must therefore be adapted to reflect that environment and not maintained simply because they worked in the past.

Instead, the focus must be on what processes need to be completed and which behaviours are fundamental to making them work. Then, managers must be realistic about which skills already exist in their teams and find ways of leveraging them accordingly. By fostering active supervision, installing performance measurement systems aligned to requisite behaviors and institutionalizing training, expertise can be built and managed in a way that both recognizes and applies the aptitude at hand.

### Building Knowledge Capital

Taking a closer look at the potential of current staff at lower levels is also crucial in an employee´s market. Consider a company where a highly experienced and well-respected supervisor has retired after thirty years at the same plant: finding someone to replace his site knowledge will be impossible. However, it may be that a junior colleague of his is capable of understanding and taking on many of his responsibilities, but due to a lesser site experience level works more slowly and needs a little help to get things done. It makes sense then, to redefine timeframes, possibly re-align some roles & responsibilities of the former position and accept that some processes may take longer. The return will be realized in a faster ramp up time to meeting full job expectations and recruitment costs. The skills that our retired supervisor has taken with him may actually still exist within the company but are not being used or accessed properly.

Making the company more attractive to new entrants will also help to counteract the current dearth of craft employees available. At a time when more and more people are opting for a college education over entering the skilled trades, companies must make themselves more appealing to younger people - whether that means revising entry requirements or setting up apprenticeship programs. Training and aligning recruits to the systems they use will mean that skills not only develop faster and remain within the company, but that they will also remain with the company as understanding of the site environment deepens. In a professional context, this understanding does not just mean the literal, geographical surroundings, but rather the ways in which systems and procedures work: knowledge that can be used and transferred internally and across geographical boundaries.

### Retaining Valuable Expertise

Obtaining and rewarding expertise must be supported by consistent development: training is critical to retaining expert staff. Take the example of a Maintenance First Line Supervisor (FLS), who has recently been promoted due to consistently good working practice and willingness to get the job done. However, on his first day in his new role, the FLS is simply given a handbook listing roles, responsibilities, procedures and process flows, but providing no guidance whatsoever of the specific behaviours he needs to perform on a daily basis. He is not equipped with the tools to be a good manager or supervisor of people, which will have a direct effect on both maintenance productivity and schedule compliance.

However, by defining required behaviours, conducting workshops and intensive shop-floor-coaching, both the FLS and his team will gain a deep understanding of which skills are required of them and when, meaning that methods can be properly implemented and existing skills built upon. As sitting in a 40-hour training session is not productive, workshop content should be broken into digestible modules and spread across a number of weeks. Material can then be absorbed properly and gives participants the chance to put their skills into practice before the next session starts.

Training and coaching will contribute not only to an improvement in efficiency and cost savings, but also to the sense of satisfaction and pride in work that success generates: a combination that is crucial if the industry is to compete against the golden handshakes of sunnier climes.

### Sustainable Benefits

It is no surprise to anyone that emerging markets are forcing the old world to adapt to the new - one in which costs must be ever lower and productivity higher in order to stay in play. In this context, rewarding and training staff may seem to be time and cost intensive, but it will certainly be cheaper than the long-term effects of outsourcing skills. Creating an organization that facilitates learning and utilizes existing skills means that dependency on individual knowledge is reduced, further strengthening the ability of that company to compete. Equally, setting up programs to attract younger people who can be trained and will develop long-term expertise will prove invaluable as the population ages and becomes increasingly mobile. In this period of transition both domestically and internationally, the only way to ensure sustainability is through investing in the true assets of a company: its people.

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## Chemtura Amends and Restates Terms of Sale of its Antioxidant and UV Stabilizers Business

Chemtura Corporation has entered into an amended and restated asset purchase and contribution agreement with an affiliate of investment group SK Capital Partners for the sale of its Antioxidant and UV Stabilizers business for $200 million. The terms of the purchase now provide for approximately $97 million of cash payable at closing, the receipt of $9 million in preferred stock and the assumption of pension, environmental and other liabilities totaling approximately $93 million.

The purchase price is subject to a post-closing net working capital adjustment. The transaction remains subject to customary closing conditions and is expected to close in the first quarter of 2013.

Chemtura announced plans to sell its Antioxidant and UV Stabilizers business, including dedicated manufacturing plants in the U.S, France, and Germany, to an affiliate of SK Capital Partners mid-November.

"This divestiture simplifies our business portfolio as we continue to invest in businesses with less economic sensitivity that make greater contributions to our strategy of focusing on specialty products and applications with greater growth potential in our strategic industry segments and in faster-growing regions," said Craig A. Rogerson, Chemtura Chairman, President and CEO. "The purchase price for the Antioxidant and UV Stabilizers business represents a 6.4-fold multiple on adjusted EBITDA for the 12 months ended Sept. 30, 2012. The revenues of the business in the same period were approximately $390 million." ■

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# Driving Innovation in the Supply Chain

## The European Association of Chemical Distributors (Fecc) Sets Out on an Ambitious Journey

**On The Move** – The European chemical distribution industry has constantly been an example of unity, as the work of the European Association of Chemical Distributors (Fecc) shows, working together pays off.

Dr. Uta Jensen-Korte
director general, Fecc

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Fecc recently introduced an ambitious plan for the coming year through the publication of its Business Plan 2013. The document highlights the priorities and key objectives for 2013, and summarises the achievements of the Working Committees in diverse subjects. Fecc's efforts and activities focus on their most vital asset: the members.

One of their most important goals being to ensure that Fecc is the representative of the chemical distribution industry, developing the membership of the association plays a key part in all of Fecc's activities. The past year Fecc welcomed Lanxess Distribution as company member, and the Turkish Fuchs Kimya as an associate member; the work plan ahead is sure to bring more. This will strengthen the association's position as the voice of the industry in Europe.

### Closely Following Industry Market Trends

Fecc is positive about the future, while remaining vigilant and making sure to identify how best to respond to the challenges being experienced across the economy. Closely following industry market trends and emerging markets Fecc regularly produces sets of factsheets containing macro-economic and chemical industry related data in the focus regions and invites external experts who give presentations for the members on how to facilitate business in these areas.

Fecc and its members work closely together with evolution and innovation in mind as they continue to align efforts to offer tailored solutions for the chemical distribution industry, like the Responsible Care Programme, their flagship on safety and sustainability. Fecc emphasises the link between sustainability, high performance and opportunity by encouraging chemical distributors to include sustainability and environmental programs in their business strategy. The active communication of these actions is crucial; as Fecc believes that an open conversation increases public knowledge and improves the image of the industry.

The past year saw much stronger committees that provided a clear understanding to Fecc's members on issues that affect their businesses. Fecc's 2013 plan will surely maintain this level of expertise and focus, to help the members prepare to positively confront the demands of the coming year.

### 2013 Will Be an Active Year

On the legislation front 2013 will be an active year to say the least. With the REACH 2013 deadline, the obligations of the Biocidal Product Regulation and the new Seveso Regulation Fecc advice to the industry is to continue to dedicate resources to comply with the challenges linked to these regulations. Judging for the plans ahead, members can be sure that the association will do the same.

Fecc is clear that to truly have a transformational impact, collaboration between all stakeholders is needed. The strategic partnerships in place across the supply chain have strengthened the distributors' relationships with other sectors of the chemical industry.

These alliances saw launch of several accomplishments in the past year. Projects like EXCiPACT, the joint Cefic/Fecc Product Stewardship guidelines and the close work together with DUCC on extended Safety Data Sheets related issues.

### Fecc Annual Congress 2013

Turning plans into action Fecc will host its annual congress in Hamburg, Germany on June 17-19, 2013. With evolution and leadership in mind, Fecc chose "Distribution: Driving innovation in the supply chain" as this year's theme. The association is keen to provide the delegates with tools to move forward despite the demanding times ahead.

With a refreshed programme the Fecc congress honours its theme by introducing different elements to the schedule. This year's novelties include parallel sessions on the first afternoon, when delegates have the chance to attend a panel focusing on legislation and how it affects the industry, or one focusing on how to promote their business including presentations on marketing, corporate communications and social media.

As the European economy endeavours to sustain growth, distributors turn their heads beyond our frontiers. The first session of the congress will tackle how to do business in emerging markets, covering the challenges and competition in chemicals and circumstances to take into account when entering these markets.

The leaders of the distribution industry are an example of positive adaptation to diverse situations, customers and stakeholders. Fecc strives to give them resources to continue developing their business strategies; this will be the core of the last portion of the congress, where experts in finance, management and leadership will share their knowledge with the delegates.

Fostering cooperation within the industry is one of Fecc's objectives, and the congress offers the perfect opportunity to encourage this. Various social activities are part of the programme specially thought to offer the participants chances to meet colleagues and build the future of the industry.

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## Brenntag Buys U.S. Water Chemicals Distributor

Acquisitive German-based distributor Brenntag has taken over Altivia Corporation, a water treatment chemicals distributor based at Houston, Texas in the U.S. In addition to Houston, Altivia has facilities at St. Gabriel, Louisiana, and Marlow, Oklahoma. The company's aluminum polymers manufacturing business and its ferric and ferrous sulfate production facilities at Pasadena, Texas, are not part of the deal. Altogether, Altivia expected sales of $83 million in 2012. ■

## High-Performance Compounds Made in the USA

Lehmann & Voss & Co., a producer of high-performance compounds based in Hamburg, Germany now has a direct representation on the North American market. The subsidiary company Lehvoss North America has been founded and a specialized sales and development team is in place to support users and customers. A local partner has been qualified for the production and is able to implement the high requirements for Luvocom compounds for the American market as well. The U.S. subsidiary is headed by Alfred Bartkiewicz as General Manager. ■

## Caldic Completes Acquisition of Sollaari

Caldic, Dutch-based distributor and producer of chemicals and food ingredients, has completed its acquisition of Finnish Sollaari, expanding its business in the Nordic and Baltic markets. Following the takeover of Nealanders in October 2012, Caldic now employs around 1,110 people in Europe, Asia and North America. Food ingredients represent around 45% of the company's total sales. ■

## Sabo Appoints Biesterfeld as HALS Distribution Partner

Effective January 1, 2013 Italian chemical manufacturer Sabo has appointed Biesterfeld Spezialchemie, Hamburg, Germany as distribution partner for their Hindered Amine Light Stabilizers (HALS) in selected countries located in Central and Eastern Europe.

Sabo, a privately held company is a leading producer of monomeric and polymeric HALS, developed and manufactured in Levate near Bergamo. Besides additives for plastics and coatings Sabo produces cosmetic ingredients, and specialty chemicals for industrial applications. Sabo's strengths include a high level of flexibility and strong chemical process expertise.

The product portfolio of Sabo expands Biesterfeld`s existing portfolio of additives for the plastic industry and strengthens its presence in the European market. ■

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# A Numbers Game

## A Sale Isn't Complete Until You Get Paid - a Survey Analyzes the B2B Payment Practices in the NAFTA Zone

**The Final Score** – Revenues, profits, assets, liabilities, cash flow — looking after your financial statements is sometimes sport, sometimes science and sometimes plain arithmetic. But while sales may be the trigger that sets the game in motion, the back end of the sale, collecting payment, will determine the winners and losers.


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The math is the score, the science is the strategy and the game is the implementation of them. From a math perspective, we simply look at the numbers and the financial effect that sales have on them. From the scientific perspective, we can point to sales formulas or strategies designed by many companies to maximize the effectiveness of the sales process. With a focus on triggers that build stronger relationships with customers, the scientific perspective appears to be focused on orders, but with similar processes for receivables management it can be extended to the collections process as well. But this all folds into the game aspect of sales. In making the sale you have competitors to outmaneuver, you need to have a strategy to win the business (the science), and you need to keep the intensity up to maintain good sales volume. But the game doesn't end with a purchase or sale agreement. Once you have convinced your customers that you are the best supplier, you have to get them to pay you (the math). With the majority of your customers this is no problem, but for some, cash flow or other issues put them in a defensive position where they need to be creative in managing their payments.

### North American Weakness: Collecting Receivables

The Atradius Payment Practices Barometer, a survey looking at B2B payment behavior in Canada, Mexico and the United States in comparison with Europe found that, on average, 28% of receivables in North America are paid late. This has not changed much over the last year; about 26% were paid late in 2011, but the outcome of those late payments has changed. In 2012, on average, 5.3% of the receivables of B2B companies participating in the survey were written off as uncollectable, up from 4% one year earlier.

The level of uncollectable receivables in 2012 climbed in each of the three countries, growing in Canada from 2.9% to 5.2%, in Mexico from 4.3% to 5.2% and in the U.S. from 4.6% to 5.6%. In comparison, uncollectable B2B receivables in Europe averaged 3% in 2012, remaining pretty consistent with 2011.

In Mexico, the situation with regard to domestic receivables was more pronounced with 5.6% uncollectable compared with 4.1% of foreign receivables. In Canada and the U.S., foreign receivables represented a greater risk than did domestic receivables with the volume of receivables and the difference between domestic and foreign receivables greater in America. In the U.S., 5.1% of domestic and 6.6% of foreign receivables were uncollectable while the comparable numbers in Canada were 4.8% of domestic and 5.8% of foreign receivables.

So what are North American businesses doing wrong? North American economies appear to be doing better than European economies. Mexican GDP is forecast to rise 4% in 2012 and 3.6% in 2013. Although it is the slowest growing of the three, Canadian GDP is also forecast to grow 1.7% in 2012 and 2% in 2013. The U.S. economy, which many say has shown sluggish growth, continues to improve with growth forecasts of 2% in 2012 and 2.3% in 2013. In comparison, GDP growth forecasts for the Eurozone remain negative and uncertain. Expected default frequencies in 2012 have been improving in North America, but are trending in the opposite direction in Europe. There is no significant difference in average payment terms between Europe (36 days) and North America (39 days). So why are uncollectable receivables a bigger problem in North America than in Europe? Do European businesses play the game better?

### Europe Excels in Science Aspects of the Game

The answers may lie in the approach to receivables management. According to the Atradius Global Collections Review, a parallel study of global credit management practices, in both Europe and North America internal resources represent the bulk of the invoice collections effort. North American businesses tend to rely on internal resources to collect with 85% of European respondents. Except for Mexico, the focus of external support is more on foreign receivables, which normally account for a smaller percentage of sales. Almost twice as many North American respondents used external support exclusively for collection of foreign receivables than did European respondents.

Within the organization, receivables management tends to be more centralized in North America than in Europe. Of North American respondents to the Atradius Global Collections Review, 75% maintained centralized receivables management operations with the rest relying on local management of receivables. In Europe, only 61% were centralized and 37% managed receivables locally. This raises the question of who is in a better position to collect outstanding invoices: a local team with direct customer knowledge or a centralized team that may be able to act more systematically. Survey results suggest the local approach is achieving greater success.

There may, however, be an additional contributor to the greater success of European respondents to the Atradius Payment Practices Barometer in collecting receivables. North American respondents tend to rely on simple MS Office functions to manage receivables. European respondents are twice as likely as North Americans to use either standard credit management software or tailored tools to manage receivables. These resources can make the entire receivables management process more efficient and seamless.

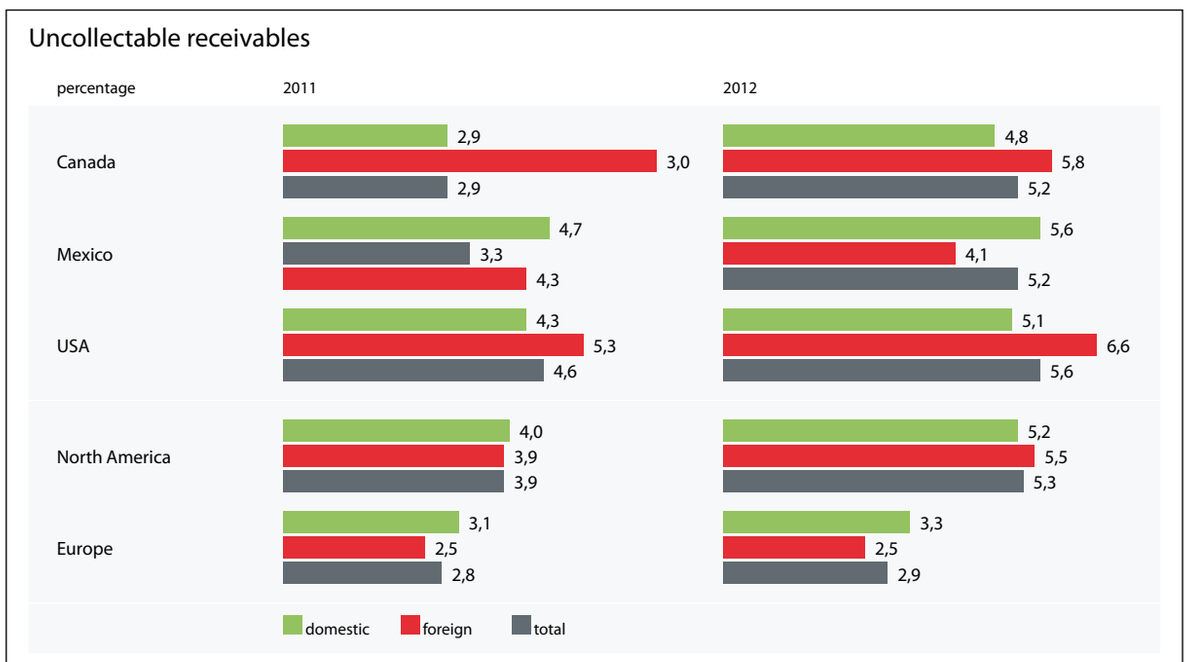
### Chemicals Industry Doing Reasonably Good Job of Finishing the Sale

On average, payments in the chemicals industry take between 45 and 60 days, and payment delays have decreased since 2008. While we expect fairly steady performance, the sector is cyclical and heavily tied to the overall health and strength of the economy. Therefore, any deterioration could lead to increased payment delays and defaults. However, insolvencies have not increased in 2012, and assuming the situation in the housing and motor industries does not worsen, this should continue. Danger of a downturn persists; therefore caution remains the rule of the day. Access to financial information can be difficult, but it is essential when considering large deals. At Atradius, we are reviewing more accounts on a quarterly basis and are adding more buyers to our watch list.

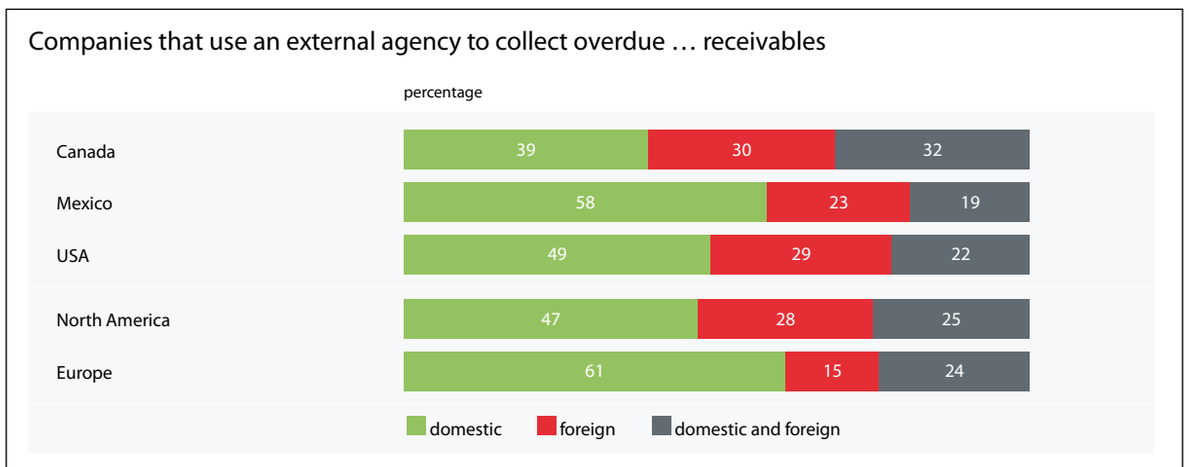
In the end, maximizing the effectiveness of the receivables management process is largely a balancing act. The business needs to employ a number of factors including checking the payment default risk of buyers before the sale; regularly reminding customers about outstanding invoices coming or being due; and using the most effective internal credit management structure, tools and resources to manage the process and collect the debts.

While the bottom line may not pinpoint one specific factor that is responsible for the higher occurrence of uncollectable receivables in North America than in Europe, it is clear that the combination of multiple factors will influence the ability to complete sales and increase profitability.

The complete reports highlighting the findings of the North American edition of the 2012 Atradius Payment Practices Barometer can be found in the Publications section of www.atradius.com. The Atradius Global Collections Review can be found in the presentations and reports section of the Atradius Collections website at www.atradiuscollections.com.



Source: Atradius Payment Practices Barometer



Source: Atradius Global Collections Review Autumn 2012

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## Lanxess Signs New €1.25 Billion Credit Facility

Lanxess has signed a new €1.25 billion syndicated credit agreement with a 15-member international banking consortium. The new agreement, which has a five-year maturity, contains two separate one-year extension options and replaces a €1.4 billion credit line due to mature in November 2014.

The banks participating in the credit consortium committed a total of €1.8 billion to the transaction self-arranged by the German chemical producer. Lanxess said the strong demand for the credit facility, which will serve as long-term liquidity and as a financial back-up for the company's growth strategy, allowed it to close the transaction at the final amount of €1.25 billion. ■

## Momentive Buys into Dynea Australia's JV with Laminex

MSC Australia, a wholly owned subsidiary of Momentive Specialty Chemicals, has acquired Dynea Chemical's 50% stake in the Dynea Australia joint venture with the Laminex Group. The new joint venture, known as Momentive Specialty Chemicals Australia is owned 50% by Momentive Specialty Chemicals and 50% by Laminex. The JV, which supplies formaldehyde and urea formaldehyde resins to Laminex as well as other products to industrial customers in Western Australia, employs 30 people and had sales of $30 million in 2011. Laminex markets and manufactures decorative surfaces for markets in Australia and New Zealand and also produces the raw wood panels needed for the surfaces. ■

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# Lobbying For Chemistry

## SOCMA Launches First 100 Days Initiative as New U.S. Congress Takes Office

**Strong Together** – With more than 90 new members of Congress joining their elected colleagues to tackle key legislative issues in the coming year, the Society of Chemical Manufacturers and Affiliates (SOCMA) kicked off its "First 100 Days" initiative January 20 to educate Congress and regulatory agencies about issues important to the specialty chemical industry.

Forty-seven percent of senators are just in their first six-year term. Many others are now only days into serving their second term, so this initiative is vitally important in ensuring these legislators know about the importance of specialty chemical manufacturing.

SOCMA members met on the steps of the U.S. Capitol before discussing issues important to the specialty chemical industry with senators and representatives during SOCMA CONNECT's annual Washington Fly-In.

### Advocating for Policies to Support Competitiveness

Specifically, we plan to visit new members of Congress on Capitol Hill, as well as with new heads of various regulatory agencies, to introduce the organization and advocate for policies to help specialty manufacturers be more competitive and expand their markets. The government can do things that can severely harm our industry's competitiveness, such as overregulation and outdated tax systems, but it can also help us better compete by strengthening policies that make growth and innovation a top priority.

On the regulatory front, a number of agency leaders stepped down at the end of 2012, including Environmental Protection Agency (EPA) Administrator Lisa Jackson. Specialty chemical manufacturers are waiting to see who takes the helm of these organizations and how they will approach regulatory development and enforcement.

Specialty manufacturers are poised for further growth, but are held back by unanswered questions about the economy as well as undetermined costs of pending regulations.

### Voicing Industry Concerns

Within the industry, there are concerns the Obama administration is sitting on numerous significant regulations, from environmental to health to economic, that it will unleash this year. For example, EPA's Chemical Manufacturing Area Sources Rule is expected to cost hundreds of thousands of dollars per facility in return for minimal environmental or health benefit. These expenses will be taken from budgets that would otherwise be directed towards creating the next new innovation.

EPA has also been unsuccessful in the past two years in its attempt to reform the Toxic Substances Control Act, and the agency has proposed several regulations to address the concerns as a result. At least one of those proposals, if enacted, would severely compromise the competiveness of chemical manufacturers by requiring them to publicly disclose the most proprietary of information about their chemistry – the ingredients that make them competitive and innovative.

Besides voicing these concerns in face-to-face meetings during the First 100 Days initiative and to help publicly highlight the growing number of regulations imposed on our industry, SOCMA launched a website in 2012 – www.ReiningInRegulations.com. This website identifies several case studies to educate agency officials about the impact these regulations can have on the specialty chemicals industry in general and on how our membership is disproportionately impacted by regulation, both as a chemical manufacturer and as a small business.

### Building Relationships

On the legislative front, SOCMA CONNECT's 6th Annual Washington Fly-In, set for April 9–10, is also included in the First 100 Days initiative. The Washington Fly-In is an opportunity for SOCMA members to visit Capitol Hill and talk face-to-face with members of Congress and their staff to ensure that elected officials consider the issues and challenges facing the specialty chemical industry when voting on legislation. With so many new members of Congress, SOCMA members are eager to start building relationships with their newly elected officials. SOCMA members often continue strengthening their Congressional relationships after the Washington Fly-In by inviting members of Congress to visit their companies and learn more about how the specialty chemical industry works and its value to the states and districts these lawmakers represent.

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> *"The government can help us better compete by strengthening policies that make growth and innovation a top priority."*

### A Need for Legislative Action

One of the key issues SOCMA will advocate for during the 100 days initiative and Washington Fly-In is passage of the Miscellaneous Tariff Bill. For more than 30 years, Congress has supported American manufacturers by suspending duties on products not manufactured in the U.S. These savings have allowed the U.S. specialty chemical industry, as well as a number of other U.S. manufacturing industries, to keep their products at globally competitive prices and pass the duty suspension savings along to their customers. It also allows these manufacturers to keep jobs in the U.S. All duty suspensions expired at the end of 2012, so the need for legislative action is urgent, as American manufacturers are already dealing with a tax hike from increased duties.

In addition to the Miscellaneous Tariff Bill, SOCMA's Government Relations team will speak to Congressional offices about reforming our regulatory process, making the R&D tax credit permanent, protecting intellectual property and confidential business information , seeking new free trade agreements, reauthorizing chemical security standards and revising chemical risk management rules.

To amplify the Government Relations effort in Washington, D.C., SOCMA will also assist its members in scheduling site visits at their facilities with members of Congress and encourage them to write letters to elected officials regarding the sector's top priorities, among other activities.

*Author: Bill Allmond, Vice President of Government and Public Relations, Society of Chemical Manufacturers and Affiliates (SOCMA)*

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## Dow Agro Launch of New GMO Corn Held Up by Protest

Dow AgroSciences has rolled back the expected date for initial sales of its new GMO corn Enlist as regulatory approval has been delayed by protests from farmers, consumers and public health officials. The subsidiary of the multinational chemical group wants to launch Enlist corn and later soybeans in the U.S. to use in combination with its new herbicide herbicide of the same name, a blend of 2,4-D and glyphosate.

While the Dow arm hopes hopes the new product will wipe out an explosion of crop-choking weeds that have become resistant to glyphosate, the lone active ingredient in Monsanto's Roundup Ready, critics have challenged the launch, saying that adding another herbicide to already resistant weed populations will only expand and accelerate weed resistance. Some have likened the plan to a chemical arms race in farming country. The Weed Science Society of America is due to examine the problem in February. Dow's new herbicide is also controversial because 24-D was one of the ingredients in Agent Orange used by the U.S. Army as a defoliant during the Vietnam war. Although the devastating health problems suffered by Vietnamese citizens were attributed to other ingredients of the herbicide, opponents of Dow's move say 2,4-D has significant health risks of its own. The chemical group says the product is needed soon as croplands infested with glyphosate-resistant weeds have increased 80% over the past two years. ■

## New Oxea processes Expand Texas Production Capacity

Germany-based chemical producer Oxea has developed what it says several innovative processes to expand production at its Bishop Texas, site in the U.S. The innovations will expand capacity for potassium formate and trimethylopropane (TMP) beyond that previously announced, the company said. Potassium formate is used as a component of well-servicing fluids for oil and gas extraction and de-icing, TMP as a building block for polymers, in particular polyesters and polyurethanes, as well as in synthetic lubricants. ■

# Scottish Ingenuity

## Acquisition of Small Start-up Provides Technology for 99 % High Grade EPA

**A Raw Diamond** – Soon after BASF acquired Cognis three years ago in a €3 billion deal, it set itself the objective of becoming a major global player in the world market for omega-3 pharma and food ingredients. BASF needed ownership of a cutting-edge process which would give it a technological lead in the extraction from fish oil of high concentrations of the two key fatty acids at the upper end of the omega-3 sector—eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

Cognis had a presence in the omega 3 market but only with a process providing 30% concentrations. The answer to BASF's quest lay in Equateq, a startup at Callanish on the coast of the remote Isle of Lewis with a 20,000 population on the northwest periphery of Scotland. Over many years it had built up an expertise in the refining of EPA, DHA and other omega fatty acids to high levels of purity.

To scale up for commercialisation, it badly needed investment money for an advanced version of a high performance liquid chromatography (HPLC) process.

Within months of discovering the company with a staff of 25 people at the core of which was a world-class team of specialists in lipid chromatography, BASF took it over for an undisclosed amount in May of last year. By the end of last year a €22 million expansion had been completed which raised the annual capacity of the Callanish plant from 20 t to 250 t, using as raw material oils from anchovies, sardines and other fish from South America.

"The first I knew of Equateq was when a colleague came into my office and told me we had found what we wanted," Walter Dissinger, president of BASF nutrition and health division, told a press conference at the recent opening of the enlarged plant now called BASF Pharma Callanish. "We had to move quickly. Here was a valuable pocket of knowledge which had been created over a minimum of 20 years, if not 30 years." He said that Equateq's HPLC process was a global benchmark of lipid separation technology which was able to achieve a purity rate of 99 % EPA.

"When I was told about the company I had to look up where the Isle of Lewis is because I had no idea," explained Michael Heinz, member of BASF's executive board responsible for nutrition and health. "I had to be convinced and the rest of the board needed even more convincing. I now know we made the right decision. This technology – the most advanced in the world for separation of omega -3 fatty acids – fits in very well with our objective of a sustainable future. We are here to stay."

### Concentrated Know How

Equateq had built up considerable expertise in lipid separation because its history is rooted in that of Scotia Pharmaceuticals, one of its predecessor companies which was founded by the late Dr. David Horrobin, a pioneer in the development of lipid technologies for pharma and food ingredients. Equateq's chief executive was David Kelliher, Dr Horrobin's son-in-law, who is now managing director of BASF Pharma Callanish.

Scotia, originally based in Nova Scotia, Canada, and since closed after running into financial difficulties, set up a research centre and plant at Callanish in the 1980s with the help of Scottish regional development funds. A local doctor was a research colleague of Dr. Horrobin into high purity fatty acids for treatment of cardiovascular and brain health conditions. A major focus of Scotia's research at Callanish was on chromatography processes which Dr Horrobin considered to be the most efficient way of separating out individual compounds like EPA and DHA from other omega fatty acids.

### Simulated Mobile Bed (SMB) HPLC

Equateq concentrated on the development of a simulated mobile bed (SMB) technology, a variant of HPLC, which involves the use of multiple columns with moving feed and recovery entries.

Initially the company was able to create a sophisticated but expensive process. "We could not produce anything which anyone could afford," said Mr Kelliher.

The priority was then to bring down the operating and capital costs of the process under the guise of the technical manager Angus Morrison, described by Mr Kelliher as the "world's leading lipid chromatographer".

"The big breakthrough was creating a continuous rather than batch SMB process," said Mr Morrison, who was born and brought up on the Isle of Lewis before studying chemistry and lipid separation at Glasgow University. "We were also able to cut back considerably the use of solvents to parts per million. All this substantially reduced our costs."

"It's taken a lot of time and effort," he continued. "Separating one out of around 60 fatty acid is extremely complex. We now have a cost-effective process for doing that not just with EPA but with other essential fatty acids as well."

A major benefit of the process is that it gives BASF Pharma Callanish the ability to meet customer requirements for products with specific proportions of EPA, DHA and other polyunsaturated fatty acid such as gamma-linolenic acid (GLA).

BASF had to move fast with the takeover of Equateq because the development work at the Callanish site had alerted the interest of other chemical companies which also see chromatography as being the best means for tackling purity issues in the omega-3 market. At the upper end of the sector purity has become a crucial product differentiator.

### The Omega-3 Market

Competition is also intensifying with analysts predicting that omega-3 sales will at least double over the next five years and that there will be an even more rapid growth rate among premium products.

last year DSM took over in a $CAD 540 million (€410 million) deal Ocean Nutrition Canada, the world largest producer of omega-3 derived from fish oil. In 2011 the Dutch life sciences company had acquired Martek Biosciences (U.S.), the world's largest producer of omega fatty acids from algae.

BASF and DSM have looked set to battle for global leadership in omega-3 products when BASF in November last year announced a €664 million bid to take over Norway's Pronova BioPharma, the worldwide biggest supplier of pharmaceutical-grade omega 3. In 2011 the Norwegian company revealed plans to enter the omega food supplements market after expanding annual omega-3 capacity at its Norwegian and Danish facilities to 2,500 t.

The bid for Pronova, which supplies the active ingredients for GlaxoSmithKline's (GSK) Lovaza cardiovascular drug, underlined BASF's strategy of targeting the high and super-high concentration segments for EPA and DHA as well as other fatty acids like omega-6 GLA. These cover both pharmaceutical treatments and preventative health food supplements. Pronova uses a separation technology based on evaporation and condensation which is not considered a sophisticated Equateq's chromatography method.

Currently the high and super-high purity products make up only a relatively small proportion of the estimated $2 billion market for omega-3 ingredients. "With the help of chromatography technology we want to expand this upper end of the market," Michael Ceranski, senior vice-president at BASF's global business unit for human nutrition explained. "With 99-percent purity levels, we can encapsulate the fatty acids in much smaller pills and also achieve higher levels of bioavailability. By being able to vary the levels of EPA and DHA in each products we can target different groups according to their health needs."

### Outlook

With the takeovers of Equateq and Pronova, BASF has the production capacity and technology to gain a strong presence in the premium omega-3 segment. It is also developing a new source of raw material through a joint research project with the agribusiness conglomerate Cargill for genetically engineered strains of rapeseed containing EPA and DHA. This could be a useful supply option when fish oil resources are expected to come under big pressure after 2020.

*Author: Sean Milmo, freelance science and business journalist, Essex, U.K.*

chemanager-online.com/en/omega-3

## All Clear for New Bayer Material Science TDI Plant

Bayer MaterialScience (BMS) has received all the necessary permits for its new gas-phase TDI plant currently under construction at Dormagen, Germany, and the company said start-up is on track for mid-2014. The provisional go-ahead had been given by regional authorities in February 2012.

The 300,000 per year world-scale facility is part of a plan to upgrade European capacity for polyurethane starting materials and make Dormagen site a global technology centre for PU. Compared with a conventional TDI plant of the same capacity, BMS claims the patented innovative process allows energy input to be reduced by as much as 60% and solvent consumption by up to 80%.

As a concession to local citizen's initiatives and environmental groups who fear, among other things, that phosgene used in the process poses a threat to public safety, the plant contains enhanced safety features such as an earthquake and storm-proof housing

Meanwhile, the CO pipeline planned to link plastics production at BMS' Dormagen and Uerdingen sites faces yet another hurdle. An improved safety plan for the pipeline submitted by the company in August 2012 is now being challenged by opponents of the project in the neighbouring towns of Duisburg, Erkrath and Hilden. The latest complaint is tentatively scheduled to be heard this spring. ■

## Evonik Signs MOU for Amino Acid Plant in Russia

Germany's Evonik has signed a memorandum of understanding with the government of Rostov, Russia, to proceed with plans to build a plant at Volgodonsk for its L-lysine amino acid "Biolys" used in animal feed. Wheat grown in the Rostov region will be used as a natural feedstock. To implement the project, scheduled to go on stream in 2014 with annual capacity of around 100,000 t per year, Evonik will establish a majority joint venture, DonBioTech, with the Russian Varshavsky group as junior partner.

"The new Biolys plant is a windfall for our region and the city of Volgodonsk," said regional governor Golubev, adding that It will create about jobs and value to wheat as a regional resource as well as supporting sustainable pork production in Russia and contributing to meeting the country's demand for meat.

Evonik managing board member Patrick Wohlhauser said the plant will have a secure raw material supply, and the backward integration will cover a larger part of the supply chain. This, he said, is essential to its positioning in the important Russian market. The German group is currently expanding capacities for L-tryptophan as well as L-lysine amino acid in Europe and the U.S., as well as building a new methionine plant in Singapore. It claims to be the only global producer of all four essential amino acids for modern animal nutrition. ■

## BASF Widens German Capacity for PA 12 and HDO

BASF completed a 21,000 t per year expansion of capacity for PA 12 at its Ludwigshafen main site in December 2012. Herman Althoff, head of the group"s global business unit Polyamide and Intermediates, said the capacity upgrade reflects growing demand for sophisticated polymer applications in flexible food packaging. BASF also produces PA 6, PA 6/6.6 copolymer and PA 6.6 at facilities located in Antwerp, Belgium; Freeport, Texas, USA and Sao Paulo Brazil, in addition to Ludwigshafen.

The world's largest chemical company also recently announced plans for a global expansion of capacity for the chemical intermediate 1.6 hexanediol (HDO) to more than 50 million t per year by 2014 at a cost of €39 million. The investment, which will include portfolio optimization and enhancement of logistical processes as well as infrastructure works, is designed to strengthen BASF"s position as "the globally leading HDO supplier." The group has production plants at Freeport, Texas, and Ludwigshafen.

Mid-December, BASF has also opened a state-of-the-art production site for customer specific antioxidant blends (CSB) in the Kingdom of Bahrain. The new facility is part of a strong antioxidants production network comprising Asia, Europe and the Americas, which will be further optimized once the new capacity comes on stream. ■

## The Revival of Cassella – a Landmark of Germany's Chemical History

The chemical industry got one of its most traditional names back. In May 2012, the Cassella Farbwerke Mainkur, Germany would have celebrated their 60th anniversary since the refounding in 1952. The roots of the chemical company Cassella date even back to1870. Dr. Karl-Gerhard Seifert, owner of Allessa, is proud that the traditional name Cassella has been successfully revived.

At the end of June 2012 the parent company of AllessaChemie changed its name. Allessa Holding became Cassella. "This name change reflects our bond with the proud tradition of the "old" Cassella. Cassella has always been a medium-sized company, characterized by a personal style, inside and outside, and by a great social responsibility. Through many upheavals and rejections this has been maintained", says Seifert and adds: "I am pleased to continue this tradition".

On 1 October 2012 AllessaChemie, founded in 2001, became the new "Allessa – A Company of Cassella". Allessa is a production and development partner for innovative companies and is one of the most important European contract manufacturers of fine chemicals. The company is privately owned, employs around 900 employees and operates three production sites in Frankfurt, Germany. In November 2012 the subsidiary AllessaSyntec was also merged into Allessa. ■

## L'Oreal Opens R&I Center in India

French cosmetics producer L'Oreal has inaugurated its new R&D center in India, which will study Indian hair and skin specificities as well as the beauty routines of Indian consumers. The company plans to invest a total of €140 million in the country up to 2016.

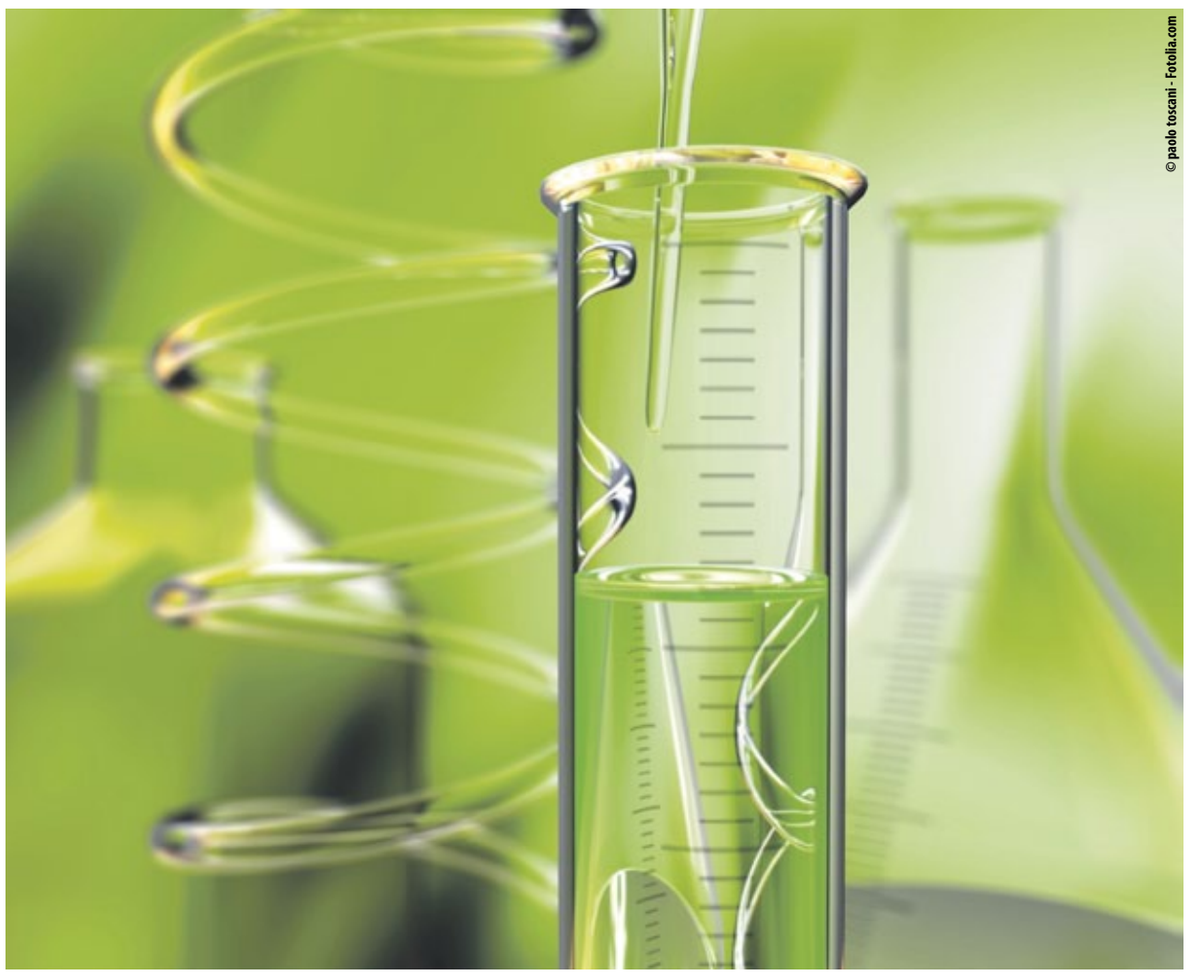
The Indian facility includes a product development center at Mumbai and an advanced research center in Bangalore. Altogether, more than 100 Indian researchers and scientists will be employed there by the end of 2013. L'Oreal, which has been present in India for 18 years, says its business there is growing by 20% annually. Sales of €230 million were projected for 2012. ■

# Changing Focus

## Codexis has Realigned the Company for its Forward Growth Strategy, Focusing Energies on the Pharma Unit

**Solid Development** – Codexis, headquartered in Redwood City, California, USA is a developer of enzymes and processes for the production of pharmaceuticals, biofuels and bio-based chemicals. Following the termination of a funding agreement for research in the biofuels field with Shell in 2012, Codexis went about the hard, but crucial work of strategically realigning the company for its forward growth strategy. This also included a restructuring of crucial management positions. In parallel, the company was encouraged by solid developments in the pharma business. For fiscal year 2011, the Codexis reported revenues of $124 million, including a 49% increase in Pharmaceutical Product Sales over the prior year. Dr. Michael Reubold asked Codexis' Senior Vice President, Pharmaceuticals, Dr. Peter Seufer-Wasserthal about his take on the business climate and business opportunities.

Dr. Peter Seufer-Wasserthal, Senior Vice President, Pharmaceuticals, Codexis



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***CHEManager Europe: Dr. Seufer-Wasserthal, will Codexis make changes to its strategy following the recent management restructuring?***

**P. Seufer-Wasserthal**: The new management and leadership team at Codexis reflects the changing focus of the business. Management is actively developing a new strategy to enter various markets following the business model successfully realized by the company's pharma unit. This unit has been serving leading pharmaceutical customers increasingly over the past years by providing screening tools and services as well as commercial scale enzymes and chemicals made through a network of contract manufacturing partners.

***Codexis is a provider of industrial enzymes for pharmaceuticals and biofuels. How do you evaluate the current business climate in these segments and how do you expect these markets to develop?***

**P. Seufer-Wasserthal**: The biofuels area has seen many changes over the past 12–18 months with great initial success, but also with delays and set-backs. Lack of clear guidelines from governments is adding to the uncertainty of the field. There continues to be great interest, but now paired with a healthy realism that is needed to succeed in such new market. Codexis is doing well in the pharmaceutical market based on two major factors: first, the outsourcing market in the pharmaceutical industry continues to grow and second, biocatalysis has become much more established as a tool that process chemists are using in development, scale up and production. Both areas are expected to expand the basis for Codexis products and services for future years.

> *Demand for chemicals continues to grow globally.*

***What are the main growth drivers in these markets?***

**P. Seufer-Wasserthal**: Both markets are driven by cost, and our products lower the production costs for pharmaceutical companies and biorefineries. For pharma, technology has always been a key tool to controlling cost. Codexis' established network of production partners for enzymes and chemicals and a proven ability to produce products at competitive pricing lends credibility to its technology and provides customers with an actionable advantage. Our technology and commercial operations are leading to new inquiries and projects every day. By supporting Contract Research Organizations – CROs – and Contract Manufacturing Organizations – CMOs – in the field with Codexis screening kits, enzymes and know how, we are increasing the number of projects that utilize Codexis technology and significantly widening our pipeline in the long term.

***Codexis has also positioned itself as a developer of cost-advantaged processes for the production of bio-based chemicals. The term "Green Chemistry" is currently en vogue. Do you expect it to become a long-term trend with substantiavl growth potential?***

**P. Seufer-Wasserthal**: "Green Chemistry" has become a common term over the last few years, especially working with the Pharmaceutical Round Table, part of the American Chemical Society's Green Chemistry Institute. However, there is no visible pricing premium for "green" products. Any new technology only gets adopted if it is commercially attractive. Green technologies for chemicals are geared towards minimizing waste, supporting catalytic conversions, using less energy, less solvents, and more benign solvents to create an economic advantage as well. Green Chemistry succeeds by providing more economically advantaged processes!

> *There is no visible pricing premium for "green" products.*

***Will the expected renaissance of the industrial chemistry sparked by the shale gas boom in the U.S. reduce the interest for bio-based chemicals?***

**P. Seufer-Wasserthal**: Unlikely. Demand for chemicals continues to grow globally. Chemical producers are looking at a variety of feedstocks to supply that demand and many believe it will be a mix of natural gas as well as biomass. Additionally, specific markets are better suited for biobased feedstocks. Detergent alcohol is a key ingredient in many personal care products like toothpaste, shampoo, and body soap. Consumers are demanding these products are "green" and Codexis is working to bring to market a second-generation detergent alcohol from agricultural waste to service this need.

***What processes and technologies are you currently offering for pharmaceuticals and biofuels applications and what new processes are you working on?***

**P. Seufer-Wasserthal**: On the biofuels end we are concentrating on converting cellulosic biomass to sugar and have shown comparable activity of our enzyme package to the leading packages sold in the market today. We are in the process of scaling up these enzymes to provide samples from commercial production in the first half of 2013.In the pharmaceutical industry, we sell optimized enzymes and intermediates made using the biocatalytic processes with a variety of enzyme platforms at commercial scale: ketoreductases, transaminases, hydrolases, monoamine oxidases, halohydrin dehalogenases and a number of others in development. We have optimized the enzymes, developed the chemical processes, and transferred production either to our customers or to production partners. We made and sold or used more than 10 metric tons of enzyme last year and sold hundreds of metric tons of enzymatically produced intermediates to pharmaceutical companies. We are working on enhancing a number of new enzyme classes so they can be used for development products, at commercial scale, or for second generation processes for existing APIs.

***What are your main customer markets from a geographical perspective?***

**P. Seufer-Wasserthal**: In biofuels, our efforts are global. For the pharma business, the main end users continue to be in Europe, U.S., Japan and India for our pharmaceutical market. Innovative pharma companies are starting to shift into the generics markets, holding on to their products for much longer and looking at competitor's products to offer them once off patent. This is a great opportunity for Codexis to speed up development by providing our technologies, services and products.

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## Production Efficiency to Boost Novozymes

Danish industrial enzymes producer Novozymes is investing heavily in research and development, while building platforms making it difficult for competitors to pressure its profitability, said Peder Holk Nielsen, who will assume the role of CEO with effect from 1 April 2013.

Alongside maintaining its 20% R&D investment, rate, the executive, who up to now has led the enzymes business, said the company also will spend on efficiency measures to keep margins above 24%.

Novozyme, which sells to consumer goods giants such as Procter & Gamble, Henkel and Unilever, recently has enjoyed strong demand for enzymes used in low-temperature detergents. The main driver of business in 2013 is expected to be household care enzymes, which account for 30% of the company's sales revenue. ■

## Philogen Signs Drug License Deal with Pfizer

Siena-based Italian biopharmaceuticals producer Philogen has signed a worldwide license agreement with U.S. drugs giant Pfizer to develop the biotech company's Dekavil, an experimental treatment for autoimmune diseases. Under the terms, which were not specified, Pfizer will retain exclusive marketing rights to any products developed while Philogen will receive an upfront payment and also will be eligible to receive milestone and royalty payments.

Currently in Phase I clinical trials, Dekavil is designed to be a so-called armed antibody, which selectively targets inflammatory sites in the body rather than suppressing the immune system. Philogen focuses on treatments for disorders related to angiogeneis, which can play a role in diseases such as cancer. ■

## Amgen Takes Process License from DSM and Builds in Singapore

DSM Pharmaceutical Products, the custom manufacturing and technology arm of the Dutch specialty chemicals group, has signed a non-exclusive license agreement with Amgen that gives the California biotech company, which bills itself as world's largest, access to DSM's proprietary XD high cell density process patents.

The technology pertains to a highly intensified cell culture process with typical titer achievement said to be 8-to-10 times higher compared to current standard biomanufacturing processes, with titer improvements of up to 15 times claimed in some cases.

Amgen meanwhile has announced plans to invest around $200 million in a new plant in Singapore's Tuas Biomedical Park to produce antibody-based drugs. Construction is expected to begin in the next few months. ■

## Merck & Co. Withdraws Cholesterol Drug Tredaptiv after Negative Study

U.S. pharmaceutical producer Merck & Co.was preparing to suspend sales of its cholesterol drug Tredaptiv after it failed to prevent heart disease in a large study involving more than 25,000 patients in Europe and China for almost four years. The drug is sold in about 40 countries.

Tredaptiv, which combines an extended-release form of niacin with another drug meant to reduce the side effect of facial flushing, has annual sales of around $200 million and makes a very small contribution to Merck & Co.'s global annual revenue of about $50 billion.

In addition to not having the targeted effect, the company said the medicine significantly raised the incidence of some types of nonfatal but serious side effects in the study. These included blood, lymph and gastrointestinal problems as well as respiratory and skin issues. Tredaptiv was approved in the EU in 2008 but the U.S. Food and Drug Administration had made its approval contingent on the outcome of the study. ■

## Lonza Signs Two Agreements with Biotech Partners

Lonza concluded a long-term agreement to cooperate with Sartorius Stedim Biotech (SSB) on cell culture media. SSB will assume global sales and marketing of Lonza's media and buffers used to make protein-based therapeutics and vaccines.

Lonza, which generated revenue of around €20 million with its cell culture business in 2011, will continue to carry out development, manufacture and logistics operations for the products. New product development will be mutually performed, the culture media will be co-branded and SSB will take Lonza's commercial team of some15 media specialists.

Separately, Lonza has signed a non-exclusive technology and license agreement agreement with BaroFold, a U.S. protein technology developer based at Aurora, Colorado. The terms call for the Swiss group to evaluate BaroFold's PreEMT high pressure refolding technology used in biological development refolding processes. ■

## Bayer Healthcare CEO Reinhardt Will Move to Novartis

For the second time in only a few months, Bayer faces the challenge of finding a new CEO for one of its three sub-groups. Following the departure of CropScience CEO Sandra E. Peterson to Johnson & Johnson on 1 December 2012, HealthCare CEO Jörg Reinhardt will end his active service at the end of February.

Reinhardt (56), who joined Bayer in August 2010 from Novartis plans to return to the Swiss pharmaceutical rival and stand for election as director (chairman of the supervisory board) of Novartis on 1 August. He would succeed Daniel Vassella, who is stepping down after 25 years with the drug maker. According to reports, Reinhardt was previously a contender for the Novartis CEO job that went to current officeholder Joseph Jimenez.

Bayer managing board member Wolfgang Plischke, who previously headed the pharmaceuticals segment under a different management structure, will act as interim chief of Bayer HealthCare. ■

# Chemical Industry's Expectations fo

## Industry Experts Assess the Market Situation Relevant to their Respecti

**A Look into the Future** – Where is the U.S. economy heading in 2013? Industry leaders predict their companies will navigate uncertainty, including changes in pharmaceutical regulations. Many executives expect growth, albeit subdued. CHEManager Europe asked industry experts to share their views on how their U.S. concerns will fare in the coming year. We wanted to know what they expect from the U.S. economy in 2013, whether they are optimistic or pessimistic for the business climate relevant to their respective activities in the U.S., and how they plan to expand their businesses in the U.S. Here's what they have told us.

**David DeCuir**
**Director,**
**Albemarle Fine Chemistry Services**

**Dr. Thomas W. Büttner**
**President and CEO,**
**Allessa**

**Cornell Stamoran**
**Board Member,**
**Catalent Applied Drug Delivery Institute**

**Dr. Rudolf Hanko**
**CEO,**
**Siegfried**

**Dr. Hendrik Baumann**
**Commercial Director,**
**CU Chemie Uetikon**

**D. DeCuir (Albemarle)**: The economic outlook for growth is somewhat muted for 2013 given recent predictions that the EU zone likely will experience a recession, and growth in Asia, particularly China, is forecast to be below historic levels. This combined with uncertainty about the U.S. growth rates has many economists predicting slow growth worldwide. Albemarle's Custom Services business unit, however, expects to have a good year. While sales will likely slow from the torrid growth rates of 2010–12, I still expect good growth because we have positioned ourselves in multiple markets. Casting this wide net in the marketplace allows us to grow with our customers in the pharmaceutical, agricultural, lubricants and specialty chemicals markets and avoid the cyclicality that many of our single-market competitors face periodically. In addition, Albemarle has a relatively uncommon offering to the North American market where we are primarily located. We are one of the few companies that can perform lab chemistry development, process development and scale-up, as well as commercial manufacturing at commercial volumes from 5 kg/year to 25,000 mt/year. This capability along with Albemarle's expertise, financial security, and excellent safety, environmental and regulatory compliance record draws customers to us for their long-term custom manufacturing needs. We recently completed an expansion at our Tyrone, Pennsylvania, site that doubled capacity for a proprietary product. Other customers' products and new custom projects are also growing at that site, which will necessitate an additional expansion in the near future. Other Albemarle sites that support our Custom Services business are also operating at high rates and may need debottlenecking/expansion to allow for growth in already contracted products. As the economy picks up in 2014, we will be poised for growth and continued success.

**Dr. T. W. Büttner (Allessa)**: In 2013 we expect a quite positive business climate in the U.S. for our activities. At the end of 2012 we formed the new Allessa by combination of the former AllessaChemie and AllessaSyntec. Now we are looking forward confidently to the development of the American economy. Our business in the U.S. is on a robust growth path, driven by the line products, custom manufacturing for the agrochemical industry and innovative oilfield polymers. We see a certain "reshore" tendency to relocate production and products that had been in Asia for many years back to the U.S. and Western Europe, driven by price and reliability issues. Since there is not enough custom manufacturing capacity in the U.S., Allessa as a Western European company does indeed profit from this reshoring movement. The chemical commodity production will be growing again in the U.S., based on affordable energy prices. This will very positively influence our stabilizer business, especially phenothiazine, which is tied into large-scale production of monomers. Our core business, custom and toll manufacturing, is currently driven by a booming agrochemical industry, capacity in high demand and much increased volumes compared with the past two years. Allessa does supply intermediates and actives mostly to the multinational and innovating companies in the agrochemical market. Pharma remains a challenging environment for custom manufacturers, because of the lack of new innovative products, long delays in registration and many products failing in the pipeline. In the past year a certain upswing in the early development stages could be seen. Whether this transfers into real growth in the later stages remains uncertain. We expect that the amount of products introduced in the markets will remain lower than in the past. For the oilfield industry, Allessa has developed a line of proprietary high-performance polymers, which are used in high-temperature drilling and fracking. These products are increasingly needed in these challenging environments. We expect, therefore, a more than average growth rate in these markets. Also, Allessa does act as custom manufacturer for specific polymers in the oilfield industry.

**C. Stamoran (Catalent Applied Drug Delivery Institute)**: Health-care delivery in the U.S. continues to evolve in 2013, with implementation of reforms in health insurance mandated by the Patient Protection and Affordable Care Act, passed in 2010, which combines the current private-public hybrid of employer coverage plus government-funded coverage for the elderly and low-income with an individual mandate for those not already covered by these programs. The coverage mandate will be subsidized by the government for lower income individuals. It is expected that 32 million people will be newly insured under this program starting in 2014. Funding for this is to come from insurance provider and pharmaceutical company fees, taxes on medical devices, and other corporate and individual tax changes, once fully implemented. Other recent legislation imposes substantial additional fees and requirements on the pharmaceutical and med tech industries. The FDA Safety and Innovation Act of 2012 imposes new fees on generic drug filers, manufacturers and API (active pharmaceutical ingredients) producers, with the proceeds to be used for added resources to clear up some of the FDA's extensive backlog of generic drug filing reviews, and reduce review times for new filings. At the same time, medical device-related fees were levied on a broader range of companies in the supply chain, and new biosimilar fees were set. These additional fees are further affecting profitability of and investments by the pharmaceutical industry, both in the U.S. and globally. These companies were already dealing with the wave of generic conversions, escalating single-payer market access and pricing pressure around the globe, and increased regulatory expectations for product approval and safety. Companies are likely to push to develop more clinically differentiated products, to increase use of outsourcing for development activities to stretch limited R&D funds, and to focus on less reimbursement constrained areas such as consumer health products. The U.S. market volume growth in pharmaceuticals is to be in the 1%–2% range in 2013, combined with middle-to-high single digit price increases by both brands and generics. A majority of volume growth likely will be driven by generics, with a majority of value growth coming from biologics. The likely near-term winners in the U.S. drug market include generics marketers starting in 2014, as the FDA backlog begins to clear, and as generics volume begins flowing to the newly insured. The FDA has also recently provided initial biosimilar regulatory guidance, and product filings (but not approvals) will most likely come in 2013. We believe Catalent is well positioned to help the industry respond to these changes, and are investing in capacity, capabilities and technology to support our customers in this challenging environment.

**Dr. R. Hanko (Siegfried)**: Siegfried is upbeat on the development of its U.S. business in 2013.

First, there is Siegfried's business model. We offer a back-insurance-like service to the research-based pharmaceutical industry. Thanks to our offer as a high-performance and flexible outsourcing partner, customers are able to reduce capital expenditure and to lower their risk of asset non-utilization. Considering the challenges the drug industry is currently mastering, this represents an extremely valuable offer. Second, our unique capability to provide combined services for active pharmaceutical ingredients and finished dosage forms is drawing increasing interest, especially in the United States of America. Third, Siegfried stands to benefit from the acquisition of Alliance Medical Products AMP in Irvine, Calif. With this unique company in our group, Siegfried enters into new dimensions in the field of sterile filling and advanced medical devices, an ideal complement to our existing product range.

**Dr. H. Baumann (CU Chemie Uetikon)**: The U.S. pharmaceutical market will still be the largest single market for pharmaceutical products and is still one of the most attractive markets for our business. We do not expect a significant change of the business climate in the USA after the election of the president. However, the political climate in the USA is not as good as it could be. A major challenge is the confrontation between the president and Congress. We hope that both parties will solve their issues finally and will move forward together instead of working against each other. Furthermore, it is foreseeable that the U.S. government must cut spending in the future and this might include spending for the health-care system (Medicaid) and veterans' benefits. Such cuts might have a direct influence on the generic market and at the end on the sales of generic APIs in the USA. A significant input to the costs of APIs and finished dosage forms (FDFs) is the Generic Drug User Fee Act (GDUFA). There is no doubt that the market will be consolidated and the number of registered drug master files (DMFs) will be decreasing, because holding a DMF without sales in the USA will be unattractive in the future. On the other hand, all active producers are under pressure to "digest" these additional costs and it is predictable that the costs for the patients will increase. The positive rationale behind GDUFA is higher safety for patients.

**M. Blanc (Novasep Synthesis)**: We are experiencing strong business growth in the U.S. The ever-increasing complexity of the molecules reaching the market has resulted in a higher demand for the synthesis and purification solutions that Novasep provides. As a result, Novasep has strongly reinforced its U.S. team over the last years, most recently with the appointment of Jean-Baptiste Agnus as head of sales in North America for Novasep's Synthesis Business Unit. Novasep's strategy, based on an offer combining advanced purification with smart synthesis, from development to commercial scale, is paying off. We are seeing an increasing level of interest from our U.S. customers in our core technologies, i.e., chiral separations, hazardous chemistry, large-scale preparative chromatography for the purification of complex mixtures, highly potent active pharmaceutical ingredients (HPAPIs) handling in confined areas; and in many cases more than one of these technologies are required. The need for combinations of these state-of-the-art technologies is best illustrated by the boom of antibody-drug conjugates (ADCs). Because of the mechanism of action of ADCs, targeting malign cells, very powerful toxins can be re-evaluated and ADC toxins often present very low occupational exposure limits as a result. In addition, these molecules have to meet stringent purity criteria, and large-scale preparative high-performance liquid chromatography (HPLC) is almost a must for their complex purification. Within its Safebridge-certified site in Le Mans, France, Novasep combines a strong expertise in HPAPI manufacturing as well as industrial preparative chromatography. This synergy is a token of quality in this domain, and the trust our customers have put in our capabilities has recently led us to invest $4 million to increase our ADC toxin production capacities. The need for high purity APIs has also triggered the decision to invest at the Mourenx, France, site in a $40 million facility Novasep will design for the world's largest chromatography system ever built for the pharmaceutical industry. This is a sign that our offer perfectly responds to the market needs: advanced synthesis combined with state-of-the art purification. Based on these successes, we definitely expect the business growth to carry on through 2013.

# or the U.S. Business Climate in 2013

## ive Activities in the U.S., Opinions Range from Uncertainty to Optimism

**Michel Blanc**
**Sales and Business Development Director, Novasep Synthesis**

**Dr. Matthias Grehl**
**Vice President, Umicore Precious Metals Chemistry**

**Dr. Ana Maria Cano Sierra**
**Director Global Marketing Specialties, Rockwood Lithium**

**Jordi Robinson**
**Global Head, Technical Sales, Manchester Organics**

**Dr. Pete C. Michels**
**Senior Director, Chemical Development, Fermentation and Biocatalysis, AMRI**

**Dr. Theodore Iliopoulos**
**Chief Scientific Officer, Euticals Group**

**Dr. M. Grehl (Umicore Precious Metals Chemistry)**: The economic climate in the U.S. shows signs of recovery since the peak of the downturn in 2008 but there is still room for more improvement. With that said, we see different kinds of opportunities for our catalysts in different sectors. For example, the industrial chemical sector in the U.S. is expected to grow around 2-3% in 2013, but we see increased opportunities for petrochemical and agrochemical companies. We expect that energy sector will continue to be a growth market in the U.S., so chemical companies in the downstream markets will benefit. Drug companies are also experiencing a modest improvement from recent years. Large pharma companies have undergone significant restructuring and cost reduction in the U.S., including a reduced domestic manufacturing footprint. Small pharma companies with solid pipelines have been able to secure funding either from private investors or through partnerships. This has helped the specialty chemical companies in the U.S. attract new projects, but competition for these projects is intense. All of these types of companies are potential users for our products. We are quite optimistic about our potential for growth in the U.S., so much so that we have decided to invest a significant sum of money to construct a new and larger manufacturing facility on the our campus in Tulsa, Oklahoma. This plant will give us the opportunity to manufacture the entire Umicore product portfolio including our newest and most advanced catalysts. As chemical manufacturing becomes even more global in nature, it is critical to have exceptional manufacturing facilities throughout the world, whether in the U.S., Europe, Asia, and now South America. For example, our customer's project may start in the U.S. for early development and may then transition to Europe or Asia for later stage manufacturing. Alternatively, a process may be developed in one location and then implemented in a variety of our customer's manufacturing plants around the world to service their local market. At Umicore, we are fortunate to have the necessary infrastructure in place to support our customer's projects wherever they start and to wherever they may migrate to.

The Umicore PMC catalyst business had one of its best years in 2012 and we expect that 2013 will be even better. This increase has been driven by steady growth in one of our key existing business segments but also by new opportunities identified for our advanced catalysts. One of our primary strategies is to transition our business from products that support the commodity chemical sectors to value-added catalysts used in new applications and technologies. We have an experienced business team in the U.S. that is identifying the right opportunities for us and the new manufacturing plant will allow us to supply product to our customers efficiently and cost-effectively.

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**Dr. A. M. Cano Sierra (Rockwood Lithium)**: Since the mid-1980s Rockwood Lithium has a long term experience in research and development, production and sales of tailor-made organometallic compounds mainly for the organic synthesis in the pharmaceutical industry. We have been collaborating with our customers to develop unique premium solutions: customized products and services combined with integrated process solutions are the foundation of our success and that of our customers. During the last five years we saw that these kinds of compounds experienced an increased demand from the polymer industry too. Rockwood Lithium has used its large experience to respond this demand offering standard and tailor-made customized products, sustainable solutions that help our customers to enhance product quality, increase process and cost efficiency, and improve health and environmental protection. Rockwood Lithium is proud to be the first address for our customers to develop tailor-made customized solutions and be recognized as a reliable source of supply. We have invested in new capacities and cost-effective technologies. Besides the development of new products we are aware that a comprehensive customer service is required and will be provided by our company too. Rockwood Lithium is the world's leading supplier of Lithium compounds like Butyl lithium, Lithium hydrides, alkoxides, and amides. With our expertise in this field of chemistry we also supply other organometallic compounds such as Magnesium reagents. Our product portfolio is based on continuous research and development of leading edge technologies. Headquartered in Germany, Rockwood Lithium serves its customers with a worldwide network of sales offices as well as with production sites in Germany, both South and North America, India and Taiwan. With laboratories and research centers in different regions of the world, we can respond quickly and flexibly to the needs of customers, developing and testing custom-made solution close to their locations.

**J. Robinson (Manchester Organics)**: At Manchester Organics, around 50% of our sales are to the USA, so the health of the U.S. economy is extremely important if our growth targets for the business are to be achieved. After several years of sporadic growth, we do expect to see more consistent expansion from the U.S. economy in 2013 and, with the threat of recession from the "fiscal cliff" now apparently receding, we expect to see solid, if unspectacular, growth in 2013. We do, however, expect to see stronger growth in the U.S. biotech and virtual pharmaceuticals sector and we will be working hard to expand our growing presence in this sector in 2013. The overall economic outlook has significant bearing on this sector, principally because it is so dependent upon venture capital, and similar forms of high-risk investment, for its funding. A stronger outlook for the economy overall is essential if the levels of investment of the past few years are to be maintained and, we hope, increased. It has been widely reported that many venture capitalists have been looking to shift their investments to later-stage, and thereby lower-risk, projects as a result of the financial uncertainties of recent years, but this can be very difficult to do in the drug discovery space, due to the inherent risks and uncertainties of bringing a new drug candidate to market. With the "patent cliff" replacing the "fiscal cliff" as the primary concern for analysts in the pharma industry, increased investment in the biotech/virtual pharma sector is crucial if the U.S. is to maintain its position as the key innovator in new drug development.We are optimistic that economic conditions will allow increased investment in this sector in 2013 and we are also optimistic that Manchester Organics is well placed to take advantage of any opportunities that arise as a result.

**P. C. Michels (AMRI)**: Contract research organizations (CROs) are evolving from tactical providers into strategic partners as the pharmaceutical and biotechnology industries continue to seek solutions aimed at improving both R&D innovation and productivity. The challenges faced by these industries are creating a paradigm shift, with greater value coming from outsourcing strategies that provide more comprehensive, adaptable and tightly integrated solutions that are tailored to drug discovery and development challenges. Adopting a collaborative and integrated approach to drug discovery and development from an early phase can reduce overall time, effort, risks and costs. This is imperative for patent life and value, considering increased drug approval requirements. The most effective integration strategies coordinate the best experts from multiple disciplines and global locations within an organization to strive toward and adapt better ways to solve problems or accelerate projects for customers. AMRI has long coordinated cross-site, cross-discipline expertise for customers in order to tackle tough synthesis and production problems, and generate unique outcomes within a simple and confidential framework. Moreover, AMRI Smartsourcing offers a versatile and strategic way of partnering that includes full access to all our resources, including leading technologies, global facilities and a record of accountability. Integrated solutions need to utilize the strongest component parts; this includes knowing when to seek mutually beneficial partnerships and alliances, or introduction of new business models, like insourcing. Insourcing is a collaborative model that is designed to foster improved decision-making, cycle times, problem solving, communication, and the quality of products and reporting. Increasingly, research alliances include collaborations with government entities and universities — typically to turn leading-edge research ideas into tangible, practical health treatments, as rapidly and cost-effectively as possible.Ultimately, this refocusing on collaboration, co-creation and value, rather than simply cost in outsourcing, is starting to have a real effect on products to the clinic and market.

**Dr. T. Iliopoulos (Euticals Group )**: The world merchant active pharmaceutical ingredient (API) market is expected to grow at an average 6.5%-7% per annum over the next five years, with generic APIs outpacing the overall growth. Integration among pharmaceutical companies and consolidation is going to continue and will create free capacities and fewer and fewer API manufacturing players. Biologics and generics are the fastest growing segments. The highly potent API (HPAPI) market in North America has been highly developed with 44.8% share in the overall market for HPAPI in the world.In 2013 demand for generic APIs in the BRIC countries will reach 37% to 38% of the world generic APIs demand, with China at the top, while the U.S. will remain the largest world APIs market and second as a generic APIs consumer after China. North America has the most advanced and highly developed health-care system with the largest spending. This factor alone attracts API manufacturers, including development and manufacture of HPAPIs. Italy ranks second after China as an API manufacturer. Its market share on world API sales has been decreasing over the years, however Italian manufacturers have seen an increase in their sales to the U.S. with a market share of approximately 29%. The main challenge for the Italian industry remains the competition from India and China although only a few hundred API manufacturers in these countries have had inspections from international authorities, including USFDA. The challenges and rising costs of doing business in the East (India and China), compounded by the new EU laws, which will come into effect on July 2, and by which APIs imported into the EU must comply with EU good manufacturing practice (GMP) standards as stipulated by the ICH Q7 guideline, will dramatically affect API sourcing decisions. Euticals' business model is revolving around manufacturing in the mature Western markets such as Italy, France, Germany, U.K. and U.S. where it has an established manufacturing footprint. As an increasing number of products losing patent protection over the next decade will be highly specialized, Euticals believes that focusing on innovative and cost effective processes and in niche technologies is the winning card for sustainable sales growth in North America and "pharmerging markets" regardless of the economic crisis in Europe.

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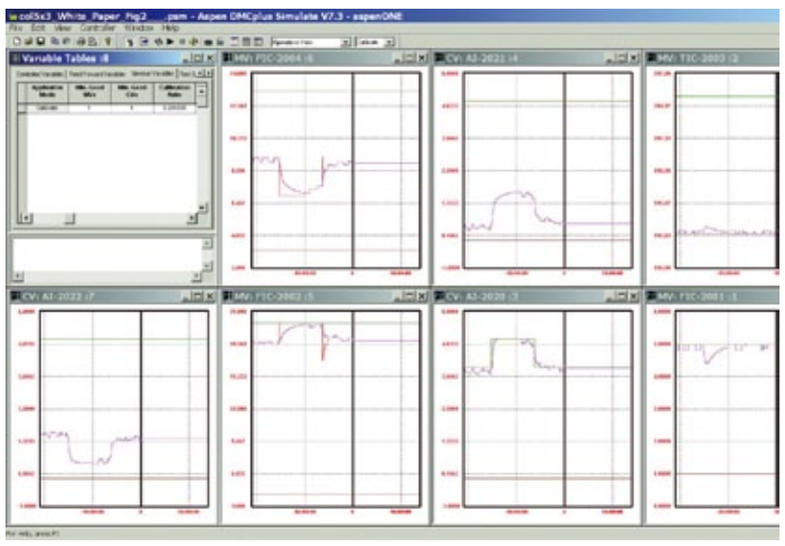
# Optimizing The Operation

## Advanced Process Control Increases Manufacturers' Competitiveness in a Dynamic Marketplace

**Computer Aided Production** – Process manufacturers are under constant pressure to optimize their operations and meet customer demand. Along with market volatility, refining, chemicals and petrochemicals companies are also creaking under the encumbrance of overcapacities and the threat of shrinking margins. With the underlying economic driver to improve plant performance and overcome strong competition, the ability to precisely control the plant and optimize the operation has always been an important priority. With this in mind, many companies have turned to software technology to help address these perennial challenges.

**Francois van Niekerk**
**AspenTech**



Configure Aspen DMCplus applications for automated testing in around 3 minutes.

Automatically identify PID loops with improved data slicing.

Too often companies experience quality variations, inconsistent throughput and high energy costs, which can cause operations to not run to their actual limit. A combination of unreliable operability and manual processes contribute to this problem. A change of strategy can help maintain optimum quality across a range of products and operating conditions.

Instead of operators manually adjusting control units for specific variables in the plant, advanced systems provide models that automate regulatory and constraint control, as well as deliver process optimization. Hence, Advanced Process Control (APC) is a general term used to describe different types of process control tools and methodologies frequently used for solving multivariable control or discrete control problems. It helps improve the operation of production processes, resulting in the continuous management and optimization of complex process interactions. A dynamic, multivariable interaction model is designed with empirical control software to predict the future path of the process; compare the information to operating constraints and implement an efficient transition to the optimum operating point. The resulting benefits of APC are optimum profits, increased capacity and improved operational performance. Studies have shown significant annual operating cost savings with payback in less than six months.

### Steps to Identify the Opportunity

APC is about real-time data processing to positively impact the overall optimization of the production process in order to operate in the most profitable way. The project starts by identifying the business opportunity and developing a plan to deploy the multivariable predictive control within the operation. Once the business feasibility study has been carried out, a pre-test is conducted to ensure the process is understood by all stakeholders. A functional design specification outlines what the controller will do, what process parameters APC will manipulate and where the process will generate the highest profit from the plant.

The next step is to collect data from the process in order to build the process model. The software vendor will plan step-testing typically over two visits – the first being the pre-test and time will be spent in the control room to ensure all relevant regulatory controllers (PID controllers) are tuned as required. Once laboratory data has been collected appropriately and verified, the process engineers will run a series of single variable step-tests (setpoint changes) one at a time, observe how the process responds and record electronically the process changes that have been made to help optimize the specific area of the operation.

This data will allow the engineers to build a preliminary model of the process. Simulations will be carried out and the software vendor will know what further tests need to be conducted to finish the proper step-testing phase. At the same time, the functional design will be edited once more towards its final state. Step-testing can now be quickly completed without causing production loss or process interruptions. Recent innovations in step-testing technology also allow data to be generated in a non-invasive manner where an intelligent controller is implemented using the models generated from the pre-test data (realizing immediate benefits), which then balances robust closed loop control against making setpoint moves that will generate data with suitable characteristics for model identification. This unique capability saves time and does not cause costly disturbances to the operation. Modern software tools know all the interactions in the process and use the preliminary process model to process simultaneous calculations, elicit information and refine the model with the minimum interruptions to the plant, while at the same time achieving constraint control of the process. This process can uniquely reduce the implementation timeline from months to weeks helping to manage the efficiency and time constraints set by the customer.

### Breakthrough Flexibility

The process industries encompass an incredible range of products, processes and plant configurations. Therefore, a range of APC solutions are needed to address such a diverse set of production processes. Many companies have utilized aspenONE Advanced Process Control software, which provides several approaches for advanced control applications.

Multivariable model-predictive controllers maintain processes at their optimal operating point. They interface to processes directly with the distributed control system (DCS) or indirectly through process information management systems, capable of safely pushing processes to multiple constraints simultaneously. The APC software efficiently scales to the largest control problem size and can be successfully applied to virtually every linear control problem in refining, chemicals and petrochemicals processing.

Adaptive software modeling provides functionality that incorporates the non-aggressive step-testing while preserving the economic benefits of applications. The software automatically slices out bad data resulting from problematic PID loop conditions, including valve saturation, PID mode changes, process upsets and bad measurements. This improves control model fidelity and the synergy between multivariable predictive control, intelligent data selection and closed loop model identification. This makes it easier to maintain highly-accurate models as plants change over time.

Control platform software is a consolidated, user-friendly environment that provides a new level of flexibility, efficiency and ease-of-use for engineers. It allows engineers to build, deploy and manage APC solutions for a broad range of processes from simple linear to non-linear. The software provides a complete set of features for loop and controller monitoring, process and product performance management and sustained value. The results are improved quality, reduced energy consumption, increased throughput, higher product yields and a lower cost of ownership.

Prediction and inferential measurements are essential for operators today. These software applications are powerful for the modeling of inferred product qualities. Inferentials are a supplement for infrequently measured qualities or critical sensors and are also used to support environmental compliance. APC provides a rich choice of model types, making it possible to implement linear or non-linear inferential sensors on-line. Flexible analyzer and laboratory modules automatically adjust the inferred qualities to ensure accuracy. APC enables the use of on-line simulation based on both empirical and rigorous models. Typical applications include improving controller models, generating shadow targets for operators, providing what-if simulations to aid operators and engineers in identifying and resolving process problems and generating KPIs for real-time performance management.

### Leading By Example

Today, APC can significantly help manufacturers to lead by example and reach the limits of the operation by optimizing performance, whilst also squeezing out the last drop of profit from the business. This real-time technology and implementation will handle complex changes to all process parameters in a way that the operation is aligned to realize the benefits of operational excellence. The adoption of APC software tools will keep manufacturers compliant with industry regulations and ensure the business is sustainable to remain competitive in a dynamic marketplace.

*Author: Francois van Niekerk, Business Consultant Europe & Africa – Advanced Process Control, AspenTech*

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## Lanxess Expands Dichlorobenzene Capacity at Leverkusen Facility

Specialty chemicals company Lanxess has increased its dichlorobenzene capacity by more than 15%. It has done so by installing an additional crystallizer at the Leverkusen site, thereby enabling it to produce more high-purity para-dichlorobenzene for the global market. Some €3 million have been invested in the capacity expansion. Dichlorobenzene is an intermediate for the manufacture of high-performance plastics.

The Leverkusen production network of the Advanced Industrial Intermediates (AII) business unit converts toluene and benzene into chloroaromatics by adding chlorine. In addition to low chlorinated aromatics such as monochlorobenzene, this process also produces higher chlorinated aromatics such as dichlorobenzene (DCB). "Our aromatics know-how focuses primarily on demand-based isomer management and we are one of the few manufacturers worldwide to offer this capability," states Dr. Hubert Fink, head of the Advanced Industrial Intermediates business unit.

DCB production involves high-purity isolation of the isomer para-dichlorobenzene (p-DCB) from a melt in a crystallization process downstream of distillation based on cooling and solidification that takes place in crystallizers. The high-purity p-DCB obtained is used to produce the high-performance semi-crystalline plastic polyphenylene sulfide (PPS), which features excellent mechanical properties, resistance to chemicals, temperature resistance and flame retardance. PPS has applications in the electrical/electronics, automotive and aviation industries. Some 90,000 mt of p-DCB were needed for the approximately 60,000 mt of PPS produced worldwide in 2012.

"Based on our estimates, the market for PPS will continue to grow by six to eight percent each year. We have expanded our capacity for dichlorobenzene, a very important starting material for PPS production, to grow along with our customers and ensure we are even better able to meet their requirements when it comes to reliability of supplies," says Dr. Dirk Möckel, Global Marketing Director Chlorobenzenes, Derivatives & Monoisocyanates in the AII business unit.

Another isomer that occurs during dichlorobenzene production is ortho-dichlorobenzene (o-DCB). Downstream processes at Lanxess use this to produce high-grade monoisocyanates for the production of crop protection agents. ■

## Invista HMD Plant Receives Approval

Plans by U.S. nylon intermediates and fibers producer Invista to build a 215,000 t/a plant for hexamethylene diamine (HMD) in the Shanghai Chemical Park have received approval from the Shanghai Environmental Protection Bureau. First announced in 2006, with start-up tentatively scheduled to start up in 2011, the project was put on ice due to the economic crisis and later revived.

The company that owns the former DuPont nylon franchise said it will begin production at the new HMD facility in 2015 as part of an integrated PA 6.6 and polymer complex, which will position it to supply the rapidly growing Asia-Pacific markets for a variety of applications in nylon as well as polyurethanes.

According to senior vice president Steve Kromer, who has responsibility for Invista's investment strategy in Asia, the new HMD plant will be "the most energy efficient in the world." Over the past year, he said the Kansas City, Missouri-based company has invested more than $100 million in the region. It is currently working on the next phase of its Chinese PA 6.6 complex, including facilities to produce adiponitrile (ADN), PA 6.6 polymer and engineering polymer compounds. ■



Marco Toscano

**Marco Toscano** has been appointed Innovative Vinyls COO and member of the Kem One executive committee on January 1, 2013. Formed in July 2012 when the Klesch Group acquired Arkema's vinyl products, Kem One is Europe's third-largest producer of PVC with revenues in excess of €1 billion. Toscano, 49, is a graduate of the University of Milan (Italy). From 1989 to 2004, he held different positions at Sika Group in research and development, quality and operations. In 2004, he joined Fiscatech as CEO. In 2008, he joined Arkema as Resilia General Manager.


Heinrich Meintrup

**Heinrich Meintrup** took over his new role as Group Managing Director of GEA Pharma Systems on January 1, 2013. In addition to his current role as Managing Director of GEA Lyophil in Hürth, Germany and Beijing, China Meintrup is now responsible for Buck containment technology in Bubendorf, Switzerland; Aeromatic Fielder products in Switzerland and the UK; Courtoy and Collette products from Belgium. He has taken over the operational role from Ron Youngs. Meintrup holds a degree in mechanical engineering and has, through various technical and management positions, gained extensive experience in the supply of pharmaceutical technology.

**Martin Pugh** will become Senior Vice President and Business President, Plastics of Styron effective March 1, 2013. He will also be a member of the Executive Leadership Team. Pugh has a Bachelor of Science degree in Industrial Chemistry and Management Studies from Loughborough University, U.K. He most recently worked at Styrolution where he served as President for Europe Middle East Africa (EMEA) and a management board member. Previously, he was Managing Director Europe of Ineos Nova and spent 20 years with Dow Chemical serving as global business director for Specialty Polyethylenes and in a variety of sales and marketing roles working in the UK, Dubai, Sweden and Switzerland. Pugh will be located at Styron's European Regional Operating Center in Horgen, Switzerland.


EVENTS

**ME-TECH 2013, 18 – 20 Feb. 2013, Dubai, UAE** The Middle East Technology Forum for Gas Processing, Oil Refining, Residue Upgrading & Petrochemicals (ME-TECH) is a forum for decision makers in oil, gas and petrochemicals. Delegates will learn about the latest technology developments and meet and network with technology providers, EPCs and producers. Cutting-edge technology presentations including case-studies will be given by companies such as: UOP, Honeywell, Shell, Foster Wheeler, ExxonMobil, Endress & Hauser, Albemarle, DuPont, Emerson, Air Products, Technip Shaw, Siemens, Praxair and others. ME-TECH 2013 is supported by the Gulf Petrochemicals & Chemicals Association (GPCA).

► www.me-tech.biz

**European Coatings Show 2013, 19 - 21 Mar. 2013, Nuremberg, Germany** Engineers, developers and decision-makers meet in Nuremberg at this year's European Coatings Show - the exhibition for the paint and coatings industry - to update on the latest developments for the production of high-quality coatings, paints, sealants, construction chemicals and adhesives.

► www.european-coatings-show.com

**Chemspec Europe 2013, 05 - 06 Jun. 2013, Munich, Germany** Munich will host this year's 28th Chemspec Europe, which will see over 400 exhibiting companies and in excess of 5,000 attendees. Europe's only dedicated fine and speciality chemicals event is focused on providing attendees access and networking opportunities to blue chip and SME suppliers from around the globe. With many attendees representing manufacturing and consumer companies servicing multiple industries, Chemspec Europe provides an opportunity to connect and network with other visitors. The event will be showcasing a series of conferences, seminars and workshops held over both days of the show for both exhibitors and visitors to attend.

► www.chemspecevents.com

**China Downstream Technology Forum, 19 - 20 Jun. 2013, Beijing** Following a successful first event in Tianjin in 2011, which attracted 400 delegates from across China and worldwide, China Downstream will be held in Beijing in 2013. Co-hosted by the China Petroleum and Chemical Industry Federation (CPCIF), the event is dedicated to bringing together regional operating companies such as CNPC, Sinopec, Petrochina or CNOOC with the leading technology suppliers, contractors and equipment manufacturers to discuss the latest developments in Coal to Chemicals, Gas Processing, Refining, Residue Upgrading and Petrochemicals. Delegates will obtain an insight into the current performance, future outlook and best investment opportunities for each industry sector from prestigious speakers and enjoy unrivalled networking opportunities.

► www.europetro.com/en/china_2013

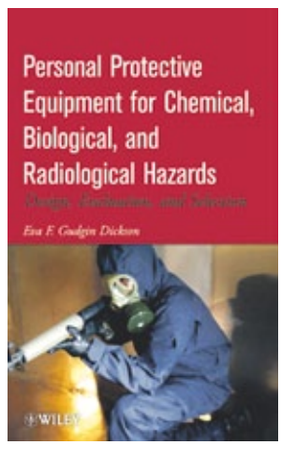
## Advances in Materials Science for Environmental and Energy Technologies

With contributed papers from the 2011 Materials Science and Technology symposia, this is a useful one-stop resource for understanding the most important issues in advances in materials science for environmental and energy technologies. The articles cover the themes of the symposia: Green Technologies for Materials Manufacturing and Processing; Materials Science Challenges for Nuclear Applications; Materials for Nuclear Waste Disposal and Environmental Cleanup; Energy Conversion/Fuel Cells; and Energy Storage: Materials, Systems and Applications.


► Advances in Materials Science for Environmental and Energy Technologies
Tatsuki Ohji, Mrityunjay Singh, Elizabeth Hoffman, Matthew Seabaugh, Gary Yang
John Wiley & Sons
Price: € 109,-
ISBN: 978-1-118-27342-5

## Personal Protective Equipment for Chemical, Biological and Radiological Hazards

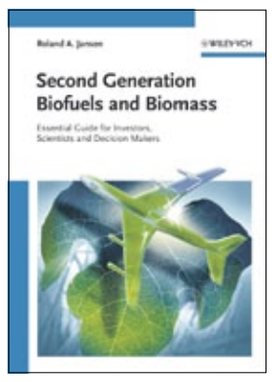
Personal protective equipment (PPE) is critical for those dealing with toxic, infectious, and radioactive materials. An easily accessible guide for professionals and researchers in all PPE fields, this book takes a look at how PPE is designed, selected, and used in today's emergency response environment where users may need to be protected against deliberately used chemical, biological, or radiological agents in terrorism or warfare scenarios as well as more traditional hazards. Covering the physics, chemistry, and physiology of these hazards, the book explains how PPE protects from various forms of hazards as well as how to use this information to select PPE against these highly hazardous substances. The design of PPE and components plus relevant performance and evaluation standards are also discussed.




► Personal Protective Equipment for Chemical, Biological, and Radiological Hazards
Eva F. Gudgin Dickson
John Wiley & Sons
Price: €69,90
ISBN: 978-0-470-16558-4

## Second Generation Biofuels and Biomass

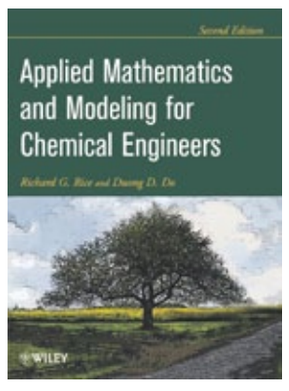
This guide to investing in the bioenergy market covers the topic from both a scientific, economic and political perspective. It describes the increasing number of second generation biodiesel projects which are now emerging in anticipation of growing sustainability concerns by governments, and in response to market demands for improved process efficiencies and greater feedstock production yields. The book closely examines the science and technology involved in second generation biofuels and gives examples, such as in the aviation industry .The result is an essential guide for scientists, investors, politicians and decision-makers in the energy sector.




► Second Generation Biofuels and Biomass
Roland A. Jansen
Wiley-VCH, Weinheim
Price: € 69,90
ISBN: 978-3-527-33290-8

## Applied Mathematics and Modeling for Chemical Engineers

This Second Edition combines the classical analysis and modern applications of applied mathematics for chemical engineers. The book introduces traditional techniques for solving ordinary differential equations (ODEs), adding new material on approximate solution methods such as perturbation techniques and elementary numerical solutions. It also includes analytical methods to deal with important classes of finite-difference equations. The last half discusses numerical solution techniques and partial differential equations (PDEs). The reader will then be equipped to apply mathematics in the formulation of problems in chemical engineering. Numerous examples are provided as homework and worked examples.




► Applied Mathematics And Modeling For Chemical Engineers
Richard G. Rice, Duong D. Do
John Wiley & Sons
Price: € 109,-
ISBN: 978-1-118-02472-0


**Dr. Gary J. Nabel** has been named to chairman of the Strategic Development and Scientific Advisory Council (SDSAC) of Sanofi. Nabel, currently SVP, Chief Scientific Officer and Deputy to Dr. Elias Zerhouni, President, Global R&D, will succeed Dr. Richard Klausner. As part of his key responsibilities as Chief Scientific Officer for global R&D, Nabel will direct the activities of the SDSAC, including selection, appointment and evaluation of advisers. The role of the SDSAC is to advise Sanofi on new and emerging areas of science and technology as well as deepen Sanofi relationship with the external scientific world.

**John C. Reed**, 54, chief executive at Sanford-Burnham Medical Research Institute in California, will take over as head of Roche's Pharma Research and Early Development unit – known as pRED – on April 2, 2013. Mike Burgess, who has led the unit on a temporary basis since Roche revamped its research operations last June, will leave the company. Roche's pRED unit has languished in the shadow of Genentech's Research and Early Development (gRED) operations – the main driver of the company's pipeline. With Reed, a leading academic researcher has been hired to revive part of Roche's research operations which have struggled to shake off a string of high-profile and costly failures.


Doris Peters


Elena Scaltritti

**Doris Peters** has been appointed as Global Director of Marketing and Business Analysis of Songwon, effective January 1, 2013. Previously, Peters had key positions at Wacker Chemie, most recently as Global Business Development Manager for silicones in the solar industry and prior to that as Global Key Account Manager in the automotive industry. Also effective January 1, **Elena Scaltritti** has taken over the role of director of sales for Europe from Dieter Morath, executive vice president sales and member of the Songwon Industrial Group Executive Committee. Scaltritti started her career at Nalco in the water treatment business and from there moved on to Ciba Specialty Chemicals and BASF, becoming pricing manager in the performance chemicals division.

**Lars Eirik Nicolaisen** has been elected as a new partner at Rystad Energy. He has been with the Norwegian company since 2008 and has since served multiple clients, including E&P companies, oil service companies, and investors. Nicolaisen has a particular expertise within rig supply and demand analysis, well technologies and exploration performance analysis.


Steve Harrington


Kevin McQuade


Dr. Alexander Glueck

**Steve Harrington** has been appointed president of the newly formed global styrene monomer business unit of Styrolution effective February 1, 2013. Harrington has been working in the styrenics industry since 2005, holding various commercial roles within Ineos. Most recently, he led Styrolution's styrene monomer business in the Americas. The formation of the global styrene monomer business unit allows the regional business units to focus exclusively on strengthening Styrolution's market position in polymers. In this regard, **Kevin McQuade** has been appointed president, Europe, Middle East and Africa effective March 1, 2013. And **Dr. Alexander Glueck** has been appointed president, Americas effective June 1, 2013.


Graeme Armstrong

**Graeme Armstrong** will become managing director Surface Chemistry and country director for North America at AkzoNobel on April 1, 2013. Armstrong is currently executive committee member responsible for research, development, and innovation (RD&I). He succeeds Bob Margevich, who will go into retirement. Armstrong will work alongside Margevich during the first two months to ensure a smooth transition. Armstrong joined AkzoNobel in 2008 following the acquisition of ICI, where he led the company's RD&I function. Prior to joining ICI, Armstrong spent 19 years with Unilever and JohnsonDiversey.

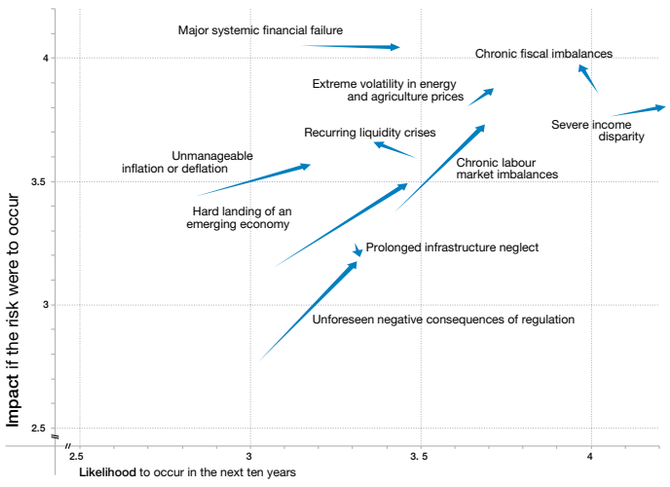
**Richard A. Saffee** has been promoted to the newly created role of vice president and general manager of Large Scale Manufacturing at AMRI. He will continue to report to Steven R. Hagen, Ph.D., SVP of Pharmaceutical Development and Manufacturing. Saffee will assume oversight for large scale manufacturing in Aurangabad, India in addition to his current responsibilities for leadership of AMRI's large scale manufacturing and GMP business in the U.S. in the Capital Region of New York. Additionally, he will work with AMRI's Holywell, U.K. site to assist them in their large scale manufacturing business. Before joining AMRI, Saffee led manufacturing activities for multiple U.S.-based operations for Pfizer.


Dr. Hartmut Schiemann

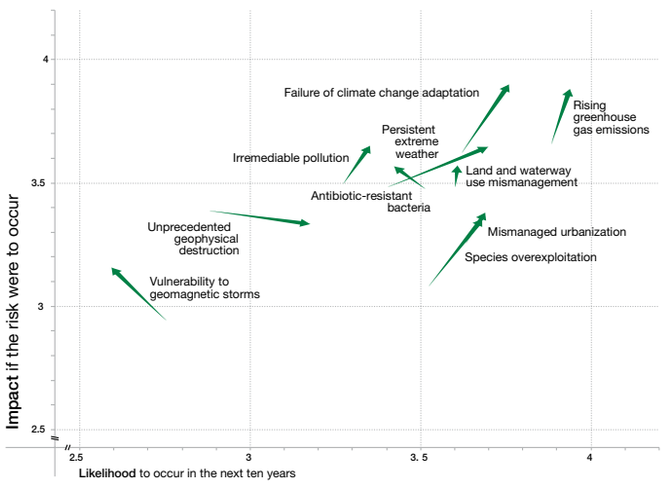
**Dr. Hartmut Schiemann** has joined the Surface Chemistry EMEIA group of AkzoNobel as Technical Manager Personal Care. His responsibilities include overseeing personal care product development and technical support for AkzoNobel customers in Europe, the Middle East, India, and Africa as well as managing the personal care applications laboratory located at the AkzoNobel Research and Technology Centre in Navi Mumbai, India. Schiemann studied Chemical Engineering at Friedrich-Alexander University Erlangen, Germany. He is based in Sempach Station, Switzerland. Prior to joining AkzoNobel, he worked for Procter & Gamble in Germany, Belgium and Brazil.

## World Economic Forum Global Risks Landscape 2013

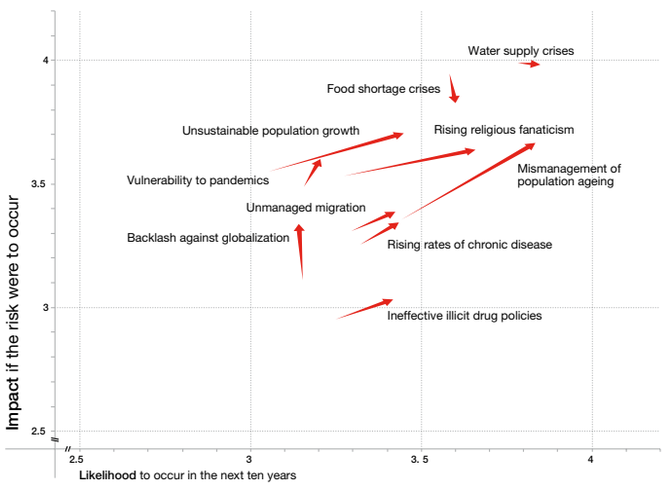
Economic risks, changes in perception 2013 vs. 2012 **Fig. 1**



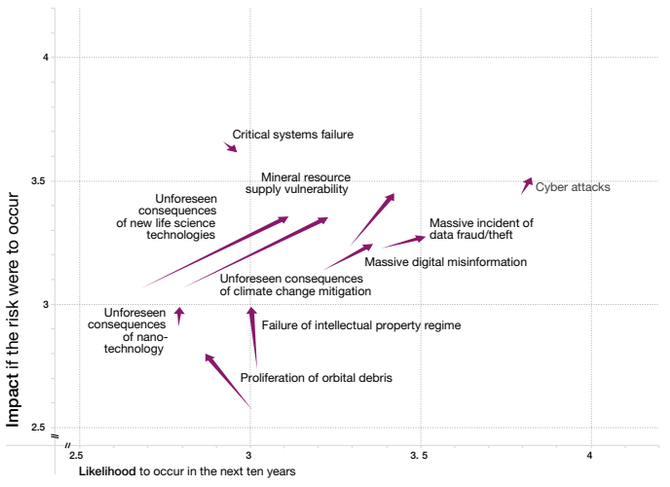

Environmental, changes in perception 2013 vs. 2012 **Fig. 2**




Societal, changes in perception 2013 vs. 2012 **Fig. 3**




Technological, changes in perception 2013 vs. 2012 **Fig. 4**




Sources: World Economic Forum, Marsh & McLennan – Some of the movements are due to changes in the composition of the sample. For more detail see the report.

### 50 Global Risks

The world is more at risk as persistent economic weakness saps our ability to tackle environmental challenges, according to the World Economic Forum's (WEF) Global Risks 2013 report. The report describes 50 global risks and groups them into economic (Fig. 1), environmental (Fig. 2), geopolitical, societal (Fig. 3), and technological (Fig. 4) categories. In a survey of over 1,000 experts and industry leaders conducted in Sept. 2012, respondents were asked to assess the likelihood of the risks occurring over the next 10 years and the impact if the risk were to occur.

### Most Prevalent Risks

The report highlights severe income disparity followed by chronic fiscal imbalances as the top two most prevalent risks (Fig. 1). Respondents rated rising greenhouse gas emissions as the third most likely global risk overall, while the failure of climate change adaptation is seen as the environmental risk (Fig. 2) with the most knock-on effects for the next decade. While the risks of water supply and food shortage crises (Fig. 3) are ranked among the top five overall risks in regard to their impact, a water supply crisis is also among the five global risks rated most likely to manifest.

### Biggest Movers

Unforeseen consequences of life science technologies was the biggest mover when assessing likelihood (Fig. 4), while unforeseen negative consequences of regulation moved the most on the impact scale compared with last year's results (Fig. 1).

### Constellations of Global Risks

The 2013 report introduces three risk cases that represent interesting constellations of global risks and explores their impact. The three risk cases are: "Testing Economic and Environmental Resilience" on the challenges of responding to climate change, "The Dangers of Hubris on Human Health" on the existential threat posed by antibiotic-resistant bacteria, and "Digital Wildfires in a Hyperconnected World" on misinformation spreading via the Internet.

### Economy and Environment

Economic and environmental systems are simultaneously under stress worldwide, and this is testing resilience at the global and national levels. The economic and environmental challenges (Figs. 1 and 2) require both structural changes and strategic investments.

### Human Health

Challenges to human health never cease to evolve (Fig. 3). Vaccines and antibiotics have helped us to survive leading causes of death from bygone eras, but we face rising rates of chronic illnesses. Although recent pandemics have been contained, they also show how easily deadly viruses can mutate. For all our successes, we are never far from the edge of catastrophe, as new biological mutations will eventually overcome a prior human innovation.

### Technology and Geopolitics

The global risk of massive digital misinformation sits at the center of a constellation of technological (Fig. 4) and geopolitical risks. This risk case examines how hyperconnectivity could enable "digital wildfires" to wreak havoc in the real world.

# China Slaps Duties on Some EU and U.S. Chemicals

China has imposed anti-dumping duties on European and United States exporters of two chemical solvents - glycol and diethylene glycol –, the Commerce Ministry said in the latest round of trade restrictions involving China and the West.

The United States and the EU have relied increasingly on anti-dumping and countervailing duty laws in recent years to halt what they say are unfairly priced and subsidized imports from China, the world's second-largest economy.

China has stepped up its own use trade remedies in the face of what it decries as rising trade protectionism on products ranging from ceramic plates to solar panels.

The five-year anti-dumping duties on glycol and diethylene glycol – widely used solvents imported from Europe and the United States – will come into effect January 28, the ministry said in a statement posted to its website. "The glycol and diethylene glycol produced in Europe and the United States is being dumped in China, which has caused substantial damage to China's domestic industry," it said.

The duties range from 9.3% to 18.8% on companies such as Eastman Chemical, Equistar Chemicals from the United States, and BASF from Germany.

A U.S. trade panel approved punitive duties for five years on hundreds of millions of dollars of wind towers from China and Vietnam. U.S. producers have complained that unfair Asian competition was forcing them to close plants and shed jobs.

The U.S. Commerce Department earlier in January set preliminary duties ranging up to 154% on imports of a food additive and thickening agent from China, and Austria, to offset what it said were unfairly low prices. ■


**75 Years of Perlon –** In 1938, chemist Paul Schlack discovered the basic principles needed to develop a robust synthetic fiber that has become world famous under the name Perlon. The fiber first made its name through its use in stockings in the 1950s. Today the synthetic material has a very diverse range of applications. It no longer adorns women's legs but is instead used as a strong plastic filament in fishing lines, field fencing, lines for oyster baskets, and tough hawsers for ships. All over the world, such hawsers of up to 95 millimeters in thickness have been securing boats, yachts and ships to dry land for almost 50 years. Perlon as well as the Bayco and Atlas brands are manufactured by Perlon-Monofil, a 100% subsidiary of Lanxess. Each year, the company produces around 27,000 kilometers of monofilament for use in the shipping industry.

## Index

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