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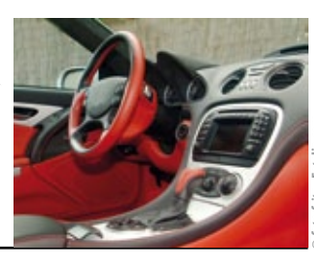

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Newsflow

M&A News

BP confirmed it is in advanced discussions with Russian energy firm Rosneft regarding the sale of its 50% stake in the venture TNK-BP. According to sources, Rosneft and BP are preparing to announce a deal worth over $25 billion that could give the British oil company a stake of between 16 and 20% in Rosneft, which is Russia's third-largest oil company.

Companies

Wintershall is substantially expanding its production and reserves of oil and gas in the North Sea. The BASF Group company will receive shares in three producing fields containing reserves of around 100 million barrels of oil equivalent from Statoil through an asset swap.

Investments

ThyssenKrupp Uhde has been awarded an engineering and procurement contract for the construction of one of the world's largest single-train liquid fertilizer plants. The plant, which will produce the liquid fertilizer urea ammonium nitrate will be built near Wever, Iowa/USA.

Evonik marked the roof-topping phase of construction for its hydrogen peroxide plant in Jilin, China. The plant will cost more than €100 million and is due to go online in late 2013 with an annual capacity for the production of 230,000 mt of hydrogen peroxide (H_2O_2).

Collaborations

Aveva has signed a Memorandum of Understanding (MOU) in Beijing with Sedin Engineering to enter into a strategic alliance. The MOU will position Sedin as an Aveva technology pioneer in the China chemical industry. Sedin will gain early visibility and access to new Aveva software technology, in exchange for its feedback towards product development plans.

People

Syngenta today announced that Sandro Aruffo, Head of R&D, will take medical leave. During his absence, Robert Berendes, Head of Business Development, will assume ad interim leadership of the R&D function in addition to his existing responsibilities.

The Ability to Create Value

Arkema's New Strategy in the Spotlight, CEO Thierry Le Hénaff Presents Profitability Enhancement Plan

Road Map – Outwardly, at least Thierry Le Hénaff is unruffled by the prospect that French chemical producer Arkema – along with similar sized-players in Germany and The Netherlands – could be in the crosshairs of a competitor's expansion drive. Speaking at an Investor Day in Paris in September, the chairman and CEO of the company with projected sales of €6.5 billion and earnings close to €1 billion in 2012 brushed aside headline-grabbing rumors. Rather than engaging in speculation, he said, management is focusing firmly on implementing its forward-looking strategy.

Six years after the split from oil and petrochemicals giant Total and its listing on the French Euronext stock exchange in 2006, Arkema, which currently employs 14,000 people in 40 countries, knows where it wants to go. Its detailed vision for the next four years includes a tangible plan for improving profitability while establishing a specialized presence in growing markets and emerging geographies.

"From the beginning, we have had a clear idea of where we want to go," Le Hénaff stressed. "Clearly we believe that our portfolio of businesses is a very strong one, and that we have demonstrated and will continue to demonstrate our ability to create value. Historically," he remarked, "we have been driven by technology, but in future we will be more market driven. It's a change of mindset to think outside the box."

The new "road map" to drive sales to €8 billion and the EBITDA margin to 16% by 2016 (up from 15% in 2012) also projects sales of €10 billion and an EBITDA margin near 17% for 2020. Some €900 million of the 2016 goal is expected to be delivered by organic growth, another €600 million is to come from small and medium-sized bolt-on acquisitions. Honoring Arkema's potentially firmer grip on profitability, speculation is raging in Paris over whether the company will move up into the CAC, France's blue-chip stock index. Here, too, Le Hénaff is holding his cards close to his chest. If the listing does happen, observers say, it will mark yet another similarity with Lanxess – the French and the German specialty chemicals are often compared. Both companies, led by determined younger managers, have successfully found their feet since emerging from the long shadows of their multinational corporate parents.

This September, Lanxess, which was spun off from Bayer in a 1-for-10 stock split in 2005, moved from the M-DAX index of medium-sized companies into the German blue-chip DAX index, aside its former parent. Arkema boasts that its own paper, which rose in value from €27.50 in mid-2006 to €72.60 in September, has performed better than shares of Lanxess or even chemical heavyweight BASF.

On Le Hénaff's watch, Arkema, which once sailed under the Elf Atochem and Atofina flags, claims more than €500 million in fixed-cost savings. Its portfolio also has been reshaped, underperforming bulk businesses with sales of €1.6 billion shed. Most recently, the PVC activities were passed to Swiss-owned Klesch Group and the tin stabilizers business to U.S. specialty chemicals and plastics producer PMC Group. The sell-offs have been balanced with bolt-on acquisitions of the same dimension, and "we now have the portfolio that we wanted when we created Arkema," the CEO said.

> *We will continue to demonstrate our ability to create value.*

In 2007, Arkema acquired Coatex, a manufacturer of high-end acrylic polymers from Switzerland's Omya Group and in early 2009 bought the North American acrylics activities of Dow Chemical. This year it added Chinese bio-based specialty polyamides producers HiPro Polymers, making it the only chemical manufacturer to claim the full range of ultra high performance bio-sourced PA 10, 11 and 12.

In product segments representing 90% of sales, Arkema lists itself among the top players. It claims global leadership in the exclusive 200,000 t/y specialty polymers "club," where it competes with Germany's Evonik and Switzerland's Ems, as well as in PVDF, currently experiencing impressive demand from photovoltaics applications. Here, Arkema vies with Solvay. The French player also claims the number one or two slots in thiochemicals and fluorogases, where DuPont and Honeywell are rivals.

In organic peroxides (where Akzo Nobel and United Initators are competitors), Arkema places itself in the number two position, as well as for PMMA (rivals include Evonik and Mitsubishi) and hydrogen peroxide (Solvay and Evonik). In acrylic monomers (where it competes with BASF, Dow and Nippon Shokubai) as well as coatings (BASF), the company sees itself fourth. Here the sights are on expansion to complete full-chain integration.

To better position itself on challenging global playing fields, Arkema's strategic focus has been streamlined into three reporting segments: High Performance Materials (polyamides, fluoropolymers, filtration/adsorption products and organic peroxides); Industrial Specialties (thiochemicals, fluorogases, PMMA and hydrogen peroxide) and Coating Solutions (acrylic monomers, resins and products for UV curing).

At present, the three segments command an almost equal share of revenue, with High Performance Materials, potentially the most profitable, accounting for 33%. Principally through bolt-on acquisitions, its share is planned to stretch to 38% by 2016. Coatings Solutions, now representing 34%, is projected to drop to 32% by 2016. Industrial Specialties' 33% share is seen to slip to 32%. Six years down the road, High Performance can expect EBITDA margin of 18%, Arkema says, with Industrial Specialties weighing in at 17% and Coating Solutions at 15%.

Europe today accounts for 40% of the French chemical producer's geographical trading activity. Here it has 44 production sites, six R&D centers and 8,700 employees. North America with six sites, two R&D centers and 2,800 employees accounts for 34%, Asia with ten sites, two R&D centers and 2,200 employees for 21%. Up to 2016, Europe's share is seen as shrinking to 35% of the then €8 billion in sales, with North America and Asia each having 35%.

Along with smaller acquisitions, as part of its new strategy Arkema wants to grow organically in booming emerging markets such as China and other Asian countries. "Our market-driven approach will be steered through long-tem partnerships and a wider product range," said Le Hénaff. Among the four budgeted "transformational projects" is a new €347m biomethionine and thiochemicals plant at Kerteh, Malaysia, in partnership with South Korea's based bioscience firm CJ CheilJedang

In China, Arkema is investing in the recently acquired HiPro Polymers to strengthen its PA 10 range. At Clear Lake / Bayport, Texas, in the U.S., capacity for acrylic acid and esters is being lifted and the production site optimized. In mid-2012, the company kicked off a major expansion project for its European "Kynar" PVDF business. More than €70m is to be invested at Pierre-Bénite, France, where output is being increased by 50%. At Changshu, China, a 50% capacity hike was completed earlier this year.

In the U.S., where Arkema hopes to become a "major player," Le Hénaff, like many other European managers, is impressed with the potential for fracking – the ecologically controversial technology for exploiting shale gas reserves giving U.S. producers new competitive drive. In Asia, Latin America and the Middle East, the French company hopes to achieve a better geographical balance. In Europe, it will focus on high-value products.

Other of Le Hénaff's "long-term thoughts" that could become reality between 2016 and 2020 include an acrylic monomer buildup in Asia, biopolymers production leveraging partner U.S.-based Elevance Renewable Science's methathesis technology and further development of Arkema's position in high-end polymers such as the ultra high performance polyether ketone ketone (PEKK) resin.

While honing its profile, Arkema is also spotlighting its innovativeness. Two-thirds of R&D expenditure presently goes toward finding solutions for sustainability as well as the so-called megatrends of population growth, renewable raw materials, new energy efficiency, water treatment and lightweight materials. The new blue-and-red signature logo with the prominent sassy K in the middle is underscored by the subline "Innovative Chemistry". As a sign of Arkema's global approach, this is written in English – perhaps unthinkable for a French firm 20 years ago.

> *Historically, we have been driven by technology, but in future we will be more market driven.*

Thierry Le Hénaff
Chairman and CEO, Arkema

The Pierre-Bénite site, Rhône / France is one of Arkema's 44 European production sites.

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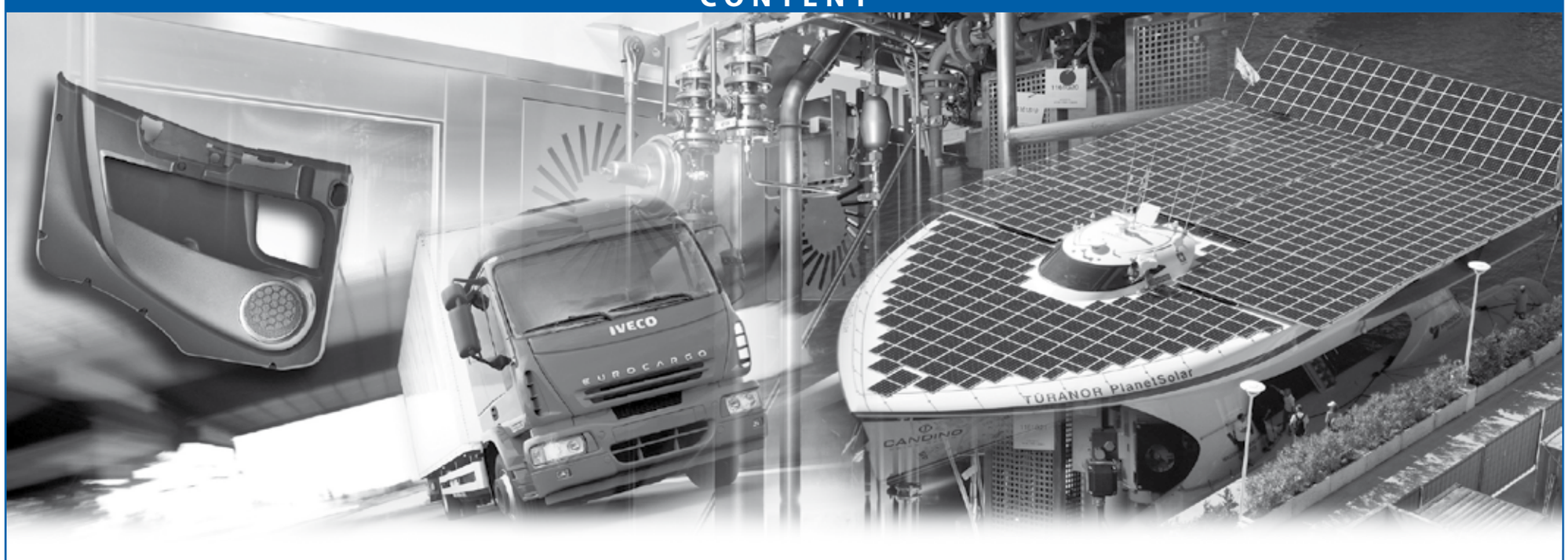
CONTENT



BASF Buys Becker Underwood And Expands Fungicide Capacity

In its biggest deal since the takeover of personal care products manufacturer Cognis in 2010, BASF has agreed to acquire U.S. agrochemicals firm Becker Underwood for €785 million ($1.02 billion) from buyout specialist Norwest Equity Partners. BASF's Chief Executive Kurt Bock said in July that ample liquidity and cash reserves were available for deals.

The US company based at Ames, Iowa, expects sales of $240 million in 2012 from its business in chemical seed treatment, biological crop protection agents, gardening products and animal nutrition.

The acquisition, scheduled to close at the end of this year subject to antitrust approval will help BASF close ranks to some of its major agrochemical competitors, including Syngenta, Bayer and the Pioneer unit of DuPont. Norwest Equity Partners has owned Becker Underwood since 2004

Although the Iowa company's business is based mainly in the US, BASF plans to use the company's technology to boost its global portfolio in other word markets, in particular South America, Europe and parts of Asia. Most of Becker Underwood's assets will be merged into BASF's crop protection division.

In its existing agrochemicals business, BASF is spending over €200 million to scale up and further integrate production and formulation capacity for several key fungicides, including F 500 and Xemium.

The investment will take place at plants in Schwarzheide and Ludwigshafen, Germany, as well as at Sparks, Georgia, in the U.S. Based on launch plans for the products in more than 50 countries, BASF is predicting a peak sales potential of more than €200m for Xemium and a potential of €100m for F 500. ■

Evonik's new MMA Plant Will be Built in Alabama

German specialty chemicals producer Evonik has chosen its U.S. production complex at Mobile, Alabama as the site of a new 120,000 metric tons per year methyl methacrylate (MMA) production unit planned to start up in 2015. Budgeted investment cost is "in the triple digit range." The facility will employ 100 people. In announcing the investment plans two years ago, the group had pegged expected output at 150-200,000 metric tons (mt).

The U.S. facility will be the first to use Evonik's "Aveneer" process, which consists of various catalytic reactions steps and was tested at Worms, Germany, from 2007 to 2010. Like the C1 sulfo process employed in all of the group's plants except Shanghai, where a C4 process is licensed, starting material is acetone cyanohydrin (ACH). Unlike the sulfo route, however, Aveneer gets by without sulphuric acid, thus eliminating the need for an acid recovery plant.

Gregor Hetzke, head of the Performance Polymers business unit, said the location on the Gulf of Mexico "offers the advantages of a strong infrastructure and optimal availability of all raw materials and power" and also allows delivery by sea to customers all worldwide. The group said initially it was also looking at sites in Asia.

Evonik claims to be world's second largest producer of MMA – behind market leader Mitsubishi and ahead of Dow – with global capacity of 605,000 mt/y. The group is the largest producer of PMMA at 8 worldwide production sites. The latest market research forecasts that global consumption of MMA will reach 5.3 million mt/y by 2018.

In another news, Evonik has announced plans to increase capacity for 1-butene at Marl, Germany, by 75,000 mt/y bringing total capacity to 350,000 metric tons. Start-up is scheduled for 2015, subject to approval by the relevant authorities. ■

Syngenta Buys Belgian Seeds Company and U.S Biotech Firm

This autumn the European agrochemicals industry has been very active in rounding on its portfolio. World's largest agrochemicals producer Syngenta is paying €403 million to acquire Belgian seed producer Devgen and BASF has announced plans to buy Becker Underwood (see separate story). Analysts said the Swiss group's offer of €16 per share for the Belgian company is be a 70% premium on the September 20 closing price and far above the stock's €10.18 per-share peak last year. Devgen specializes in rice cultures, one of Syngenta's eight strategic crops.

Prior to the acquisition, in May of this year, the two firms signed a crop protection research deal that saw Syngenta pay €22m up front in addition to €4.8 million per year for the duration of the partnership that gives it access to Devgen's biological RNAi technology that controls insects and combats crop disease through regulation of specific genes. In August, U.S. giant Monsanto signed a strategic alliance with Cambridge, Massachusetts-based Alnylam to promote the use of that company's RNAi knowhow in agriculture. Up to now the technology has been used mainly in pharmaceuticals.

In a separate deal, set to close before the end of the year, Syngenta has announced that it will buy U.S. biotechnology specialist Pasteuria Bioscience in aggregate payments of $86 million with additional deferred payments of up to $27 million.

The new partners have sealed an exclusive technology partnership to develop and commercialize biological products to control plant-parasitic nematodes using the naturally occurring soil bacterium Pasteuria spp. The first product will be a seed treatment for soybean cyst nematode scheduled for launch in the U.S.market in 2014. ■

Reorganization of Azelis Continues

In a move it said is designed to "steer the next stages of Azelis' successful development," Belgium-headquartered specialty chemicals distributor has appointed Dr. Hans-Joachim Müller as new CEO of its holding company (c.f. page 19).

Simultaneously, Azelis announced a capital increase of €30 million and the sale of its composites business to Hamburg-based Velox.

Commenting on the sale of its composites business, the distributor said that following a strategic review, this market was judged to be "sub-critical" to its plans for future development. Industrial chemicals, coatings, rubber/plastics and Life Sciences have been identified as primary growth areas in Europe, and further expansion in Asia-Pacific is another "key pillar" of the company's strategy. ■

Arkema Finalizes Acquisition Of Brazilian Acrylic Emulsions Site

Coatex, a subsidiary of French specialty chemicals producer Arkema, has finalized its acquisition of an acrylic additives and emulsions production site in Aracariguama near Sao Paolo.

The site formerly belonging to Resicryl will be integrated into the local Coatex organization and converted gradually to manufacture Arkema's full range of rheology additives and waterborne emulsions.

The Arkema subsidary's sales in 2012 are expected to total some €15.4 million. In 2011, Coatex reported worldwide sales of €180 million. ■

Solvay and Sibur in Russian Surfactants and Oil Chemicals JV

Belgium's Solvay and Russian petrochemical giant Sibur have agreed to found a 50:50 joint venture for production of oilfield and process chemicals in Russia. The new company, which will trade as Ruspak, will be located at Dzerzhinsk near Sibur's petrochemicals base 400 km east of Moscow. Start of production is expected for 2015.

Demand for surfactants in Russia and the former CIS countries is said to be growing at more than 6% annually. The products will be used by the home and personal care sector as well as in oil & gas and other industries. ■

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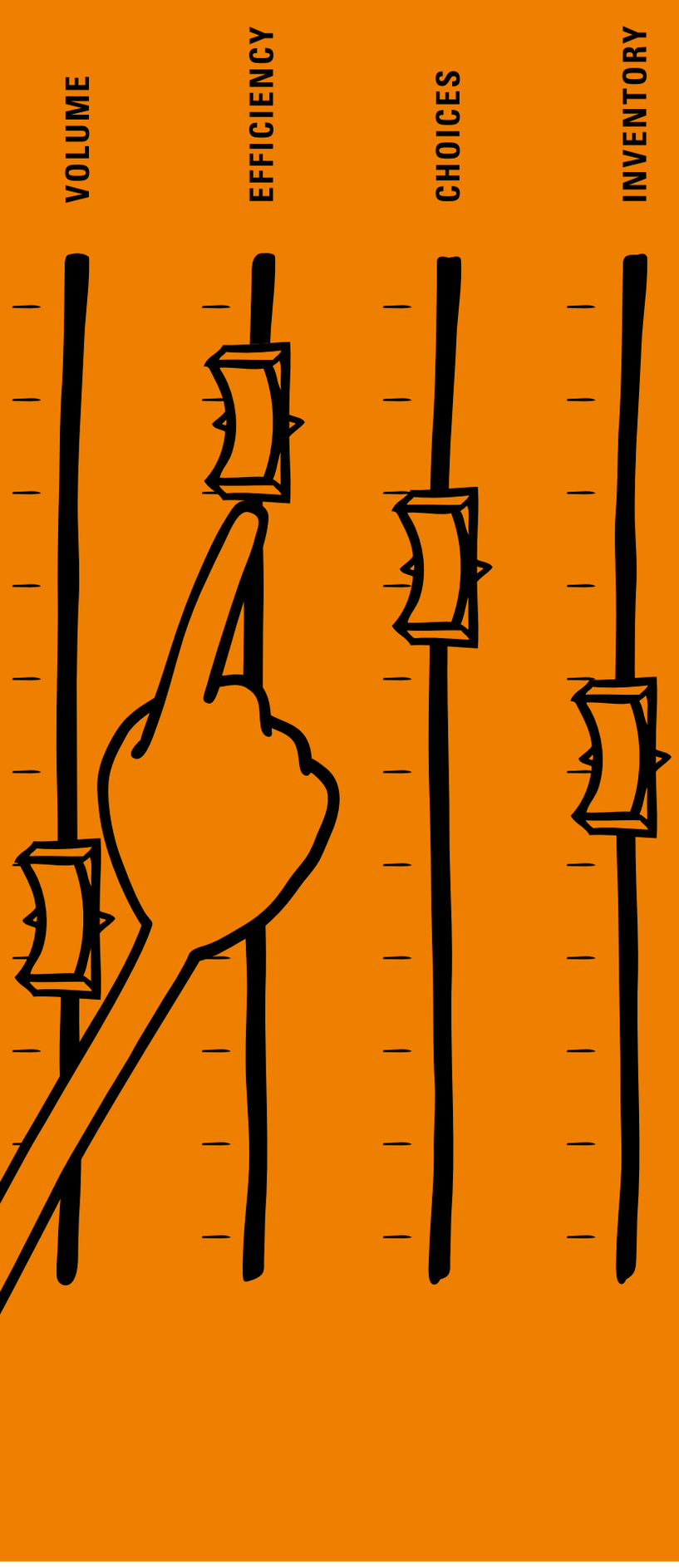

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EU Chemicals Sector Year-To-Date Output Drops

European Chemical Market – EU chemicals production fell by 2.4% in the first seven months of 2012 compared with the same period in 2011, according to the latest Cefic Chemicals Trends Report. Monthly data for July 2012 showed a 2.2% drop compared with the reading for the same month in 2011. Data for the first seven months of the year point to EU chemicals production remaining 5.9% below the 2007 peak levels.

Prices for chemicals in the European Union for July climbed on a year-on-year basis, up 1% during the month against the comparable period in 2011. The price increase was led yet again by the overall price hike in basic inorganics. Month-on-month price data for July 2012 show, however, a 1% decrease compared with June. Despite a one-month break in the upward price trend, overall prices for chemicals rose by 3% during the first seven months of 2012 against the comparable period in 2011.

Latest trade data show the EU chemicals net trade surplus increased further through the first six months of 2012 by €5.2 billion compared with the same period of last year, reaching €24.5 billion. Overall chemicals sector confidence improved in September, ending a four-month downward trend, analysis of most recent EU Commission data indicates.

June Chemicals Output Down Year-on-Year

The 2.2% year-on-year output decline in July was led by the polymers subsector, which fell 5.8%. Petrochemicals and consumer chemicals experienced falls of 2.7% and 1.6% respectively in July. Specialty chemicals production registered a small decline of 0.7% in July. Basic inorganic chemicals, however, was the only sector in which production increased in July, up 0.9% year-on-year.

EU Trade Surplus Up €5.2 Billion through June

June trade data show a year-to-date €24.5 billion overall EU chemicals net trade surplus with other markets, up €5.2 billion on the same six-month period the year prior. The EU net trade surplus with the NAFTA region contributed significantly to the bump in the January-June overall surplus, reaching €5.9 billion, up €1.6 billion compared with the same period in 2011.

The EU net trade surplus with the rest of Europe reached €7.3 billion through June, up €1.3 billion compared with the same six-month period the previous year. A €2.7 billion surplus occurred with Asia, excluding Japan and China, during the first six months of the year, down €0.2 billion from the comparable period in 2011.


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Prices for Basic Inorganics Climbed by 2.8% in July

Year-on-year EU chemicals prices rose in July by 1%, driven by the price for basic inorganics, which increased by 2.8% during the month. Prices for consumer chemicals rose by 1.2%, while petrochemicals and pharmaceuticals prices edged down by 3.2% and 1.7% respectively in July as compared with the year prior.

January-to-June EU Sales Up 5.4% from 2008 Pre-Crisis Period

Compared to full-year sales levels in 2008, the pre-crisis peak, the total value of EU chemicals sales through the first six months of 2012 was 5.4% higher. June sales were 2% lower compared with the same month the year prior.

First-half 2012 sales were 1.1% below the comparable period in 2011.

EU Chemicals Confidence Indicator (CCI) Increased by 4.0 Points in September

Based on data from the EU Commission business and consumer survey report published on Sept. 27, confidence in the EU chemicals industry improved, as the EU chemicals confidence indicator, or CCI, increased by 4.0 in September.

Managers' production expectations for the sector increased by 5.2%, and their assessment of the current level of overall order books improved slightly. The EU Commission report also showed a halt to the downward trend in confidence in the overall EU manufacturing sector.

To see the full set of slides from this month's Chemicals Trends Report, Cefic members can visit Cefic's click-in intranet portal at http://click-in.cefic.org.

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TDI Market Will Consolidate Further With BASF-Ciech Deal

Plans by BASF to acquire parts of the Ciech TDI portfolio in Poland appear to be setting the stage for further consolidation in the European isocyanates market. In a transaction expected to close in Q1 2013, the Polish group said the German chemical giant has agreed to pay €43 million to acquire its customer list and supply and support activities but not the 75,000 metric tons per year production facilities of subsidiary Zachem at Bydgoszcz, Poland.

According to unconfirmed reports, the agreement contains a non-competition clause that would lead Zachem to close its production facility and exit the TDI market. Analysts for Austria's Raiffeisen Centrobank have speculated that this could result in the loss of an estimated 530 of Zachem's 740 employees. The bank said it believed was willing to pay a premium for the unprofitable Polish production activity business to keep reportedly interested Chinese competitors out of the European market.

The Ciech subsidiary has been struggling with a mounting debt burden. The TDI business is said to have returned a narrow profit in the first half of this year but the outlook going forward is regarded as dismal, due to the economic cooling across Europe and the increasing pressure on smaller isocyanates production facilities stemming from plans by large multinational players such as BASF and Bayer to build new world-scale facilities.

BASF, which plans to start up a new 300,000 metric tons per year single-train TDI plant at its Ludwigshafen headquarters in 2014, will subsequently close its 80,000 metric ton plant at Schwarzheide, Germany. Bayer MaterialsScience is building a 300,000 metric ton TDI plant at Dormagen, Germany and will close its 125,000 metric ton facility at Brunsbüttel, Germany.

Analysts at Germany's Commerzbank estimate that BASF will have a 40% share of the European TDI market by 2015, with BMS accounting for 31%. ■

Machinery Maker KraussMaffei with New Private Equity Owner

In a deal set to close in the first quarter of 2013, Canadian private equity investor Onex will pay another private equity firm, U.S.-based Madison Capital Partners, €586 million for Munich-based plastics machinery manufacturer KraussMaffei. It is the first European acquisition for the Canadian investor that owns US machinery company Davis-Standard and from late 2007 to mid-2011 owned Canadian manufacturer Husky Injection Moulding Systems.

KraussMaffei had 400,000 employees and sales of about €1 billion in fiscal year 2010/2011 (September 30), the last period for which figures have been made available. Several Chinese firms are said to have expressed interest in the machinery group that also incorporates the brands Berstorff and Netstal. ■

BASF to Cooperate With Euroresin on Epoxy Systems Distribution

In a deal initially confined to Germany, BASF has agreed to share distribution of its "Baxxodur" epoxy systems for composites with Euroresins, a German-based subsidiary of DSM Composite Resins (Schaffhausen / Switzerland). Euroresins will supply BASF customers in materials in shipbuilding, transportation and construction while BASF will concentrate on the automotive and wind energy markets.

The "Baxxodur" range comprises includes resins and hardener systems for fibre-reinforced composites. If successful, the agreement is planned to be extended to other European markets, BASF said. The DSM group company is one of the largest European distributors of composite materials. ■

French Senate Passes Modified Ban On BPA in Food Packaging

The upper house of France's parliament, the Senate, has passed a bill that would widen the country's partial ban on bisphenol A (BPA) to apply to all food contact packaging. This modifies a bill passed last year by the lower house, the Assemblée Nationale, that sought to ban the chemical in beverage bottles. A law in effect since 2011 forbids the use of BPA-containing chemicals to manufacture baby bottles.

Because of the differences in the legislation, it must now go back to both parliamentary chambers for a compromise solution and is now scheduled to take effect from July 2015 instead of 2014 as initially foreseen. The Senate has also asked the French government to draw up a detailed report on the hazards associated with endocrine disrupters within one year.

PlasticsEurope, the plastics producers industry grouping, slammed France's latest move, arguing that it "has no safety benefit and disregards existing European law and risk assessment while disturbing the internal market." PlasticsEurope complained also that "by reversing the roles between the EU and member states regarding decisions on food safety and rules on medical devices, a dangerous precedent is set." The producers also urged France to delay its legislation until the European Food Safety Authority presents its full reassessment of bisphenol A, due in June of next year. ■

US Group Buys Germany's Coperion

German compounding and extrusion equipment manufacturer Coperion has been acquired by Hillenbrand of Batesville, Ohio, USA, from its private equity owner Deutsche Beteiligungs AG (DBAG, Frankfurt / Germany. The purchase price was €480 million for the company with sales of €520 million in fiscal 2011/2012 and EBITDA of EUR 38.7 million. It includes €76 million in debt and €100m in pension obligations.

Coperion will be integrated into Hillenbrand's Process Equipment Group (PEG) and will account for about two-thirds of the company's total sales revenue of over $1 billion. PEG currently consists of feeding and pneumatic conveying equipment manufacturer K-Tron, separation equipment manufacturer Rotex and TerraSource Global, which makes size-reduction equipment. The company's other business group manufactures funerary products. ■

Brenntag to Buy Latin American Distributor

German distributor Brenntag has signed a preliminary agreement to acquire Delanta Group, a specialty chemical distributor in Latin America with presence in Argentina, Uruguay and Chile. Active in distribution of paints and coatings, ceramics, construction and food chemicals, Delanta Group generated total sales of $24.3 million. The transaction is expected to close in November. ■

IMCD to Distribute Ineos' Cereclor

Dutch distributor IMCD Group has signed an agreement to distribute Ineos ChlorVinyls' Cereclor range in Italy, France, Belgium, the Nordic countries, France, Switzerland and the UK. The chlorinated paraffin is used in a wide range of applications including PVC, coatings, metal working fluids and polyurethane foams. ■

Wacker hires DKSH as Asian Distributor

Wacker has appointed DKSH Group as its distributor for biotech products in Asia. Since 1 October the Zurich, Switzerland-based company which focuses on Asia has been responsible for distribution of Wacker's fermenter cysteine and bioengineered cyclodextrine products in Southeast Asia, India and South Korea. The premium sugar-based compounds are used in food and personal care applications. ■

SABIC Q3 profit drops 23%

Saudi Basic Industries Corp (SABIC), the world's biggest petrochemicals group by market value, posted a 23% slump in third-quarter net profit, citing lower product pricing for the decline. The chemicals, metals and fertilizers conglomerate earned net income of 6.3 billion riyals ($1.68 billion) in the three months ended Sept. 30, compared with a record profit of 8.2 billion riyals a year ago.

Several SABIC units had already reported their quarterly results, with Saudi Arabian Fertilizer (Safco) saying its net profit dipped 5.1%, and Yanbu National Petrochemical (Yansab) reporting a halving of income.

In 2011, SABIC enjoyed a bumper year of record profits and growth as new production lines started up and world chemical prices were buoyed by demand in Asia. But as weak global economic conditions this year weighed on demand, product prices fell. SABIC also had temporary operational shutdowns at some plants. SABIC is particularly vulnerable to world economic conditions because its products are used in so many industries globally, including construction and car manufacturing. ■

Helm to distribute Reverdia's Bio-Succinic Acid

German chemical distribution giant Helm will distribute and market Reverdia's bio-based succinic acid in Europe under an agreement recently signed. The plant owned by a joint venture of DSM of The Netherlands and Roquette of France is due to start commercial-scale production in a 10,000 t/y plant at Cassano Spinola, Italy, near Genoa, by the end of this year. Feedstock for the unit, which has been in test production in France since 2010 is starch. The technology is based on yeast fermentation. ■

Azelis and Momentive Extend Partnership in Russia

Azelis has been appointed as distributor by Momentive to service the Coatings sector in Russia. From October 1st 2012, Azelis offers Momentive's high quality range of water based dispersions for paints, under the brand name Axilat. Azelis' Russian operations have grown since its formation in 2008. Azelis also plans to further invest in people and facilities and is building a new Coatings laboratory in Sankt Augustin (Germany). It is planned for completion by the end of 2012. ■

PPG Industries Cuts Costs

Pittsburgh-based chemicals producer PPG Industries posted a better-than-expected quarterly profit as cost cuts helped offset nearly flat revenue. For the third quarter, net income rose to $339 million from $311 million in the year-ago period. Net sales slipped less than 1% to $3.85 billion.

PPG cut its cost of sales 3% to $2.3 billion. "Looking to the fourth quarter, we are heading into a seasonally slower period in most end-use markets and expect little change in the inconsistent performance of economies outside North America," CEO Charles Bunch said.

During the quarter, PPG Industries sold its commodity chemicals business to Georgia Gulf for $2.1 billion in a complex transaction. The sale gives PPG Industries the cash to bolster its performance coatings and industrial coatings businesses, which make up more than one-half of sales. ■

Chemistry for the World of Tomorrow

Gaining the Future with Innovations

Development Paths of German Chemistry – Chemistry – as the third-largest industry in Germany – can look ahead to a bright future: Its products and services are central to a sustainable development and to all global megatrends driven forward by the growing world population. It seems possible to increase chemical production in Germany by 40% by the year 2030. This conclusion is drawn by the business research institute Prognos. Retained by the Verband der Chemischen Industrie (VCI) and relying on expert input from the VCI's member companies, sector associations and customers of the chemical industry, Prognos carried out a comprehensive study, analyzing development paths of chemistry.


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When presenting the study in Essen, the outgoing VCI President Dr. Klaus Engel stated, "If the politicians in Berlin are making the right decisions, chemistry in Germany will continue to grow over the next decades, the chemical industry will be successful economically, and it will make manifold contributions to a better quality of life and more prosperity for our society."

The integrated production called "Produktionsverbund" inside the chemical industry and strong industries with their interlinked value chains at the core of the German national economy can ensure solid growth. It is worth noting that chemistry has an essential role throughout these structures.

According to the Prognos study, German chemical companies can continue to benefit from the globally rising demand for chemicals, especially from Asia and Latin America. However, the shift in economic growth centers away from Europe toward Asia — with China as the center of gravity — also brings stronger competitive pressure for chemistry in Germany. The study predicts that the German chemical industry will respond with a multi-layer adaptation strategy, in order to remain competitive.

Response to Stronger Global Competition: The Four-Layer Strategy

Intensify innovation efforts: By 2030 the German chemical industry will raise its annual research budget by €9 billion to nearly €18 billion. This corresponds to an increase of 4% per year. VCI President Engel said: "Already now, the chemical-pharmaceutical industry ranks among the most innovative industries in Germany. But the global competition for new products calls for an even faster innovation speed."

Focus on specialty chemicals: Research-intensive and high-value specialty chemicals for paints, plant protectants, polymers and consumer goods will have yet more shares in production. As matters stand today, specialty chemicals are the largest segment in German chemistry, accounting for 43%. Also in the future, Germany's knowledge edge in specialty chemistry will make all the difference in the competition between chemical nations.

Produce even more efficiently: Since 1990 the energy input in the German chemical industry has dropped by one fifth, together with a rise in production by almost 60 percent. But this is not enough: The calculations by Prognos show that companies will set an even higher yardstick for resource efficiency because of global competition and rising energy and raw materials costs. Prognos forecasts a production increase of 40% by the year 2030, with absolute raw materials consumption climbing only 15% and energy consumption going up just 8%. Engel makes quite clear that it will not be possible for a long time to fully break the link between growth and primary energy input: "The EU's goal to limit energy consumption in absolute terms is irreconcilable with future growth in the chemical industry. For this reason, once more a realistic approach — and not wishful thinking — should be pursued in Brussels in the ongoing discussion about energy efficiency and industry."

Optimize the raw materials base: By 2030 the use of renewables in the processes of German chemical companies will have increased by 50%, as compared with today. There is a lasting qualitative change in the raw materials base, reducing the chemical industry's dependence on finite fossil resources. At present, the German chemical industry annually uses 2.7 million tons of plant raw materials, mainly for the manufacture of specialty chemical products.

It All Depends on Politics

Political framework conditions are among the imponderables in several ways. They can change the situation — for the better or for the worse. This is highlighted by two alternative development paths in the study. In the scenario "broken value chains," a restrictive industrial policy is taken as the basis. This would cause massive economic setbacks, especially in energy supplies for industry as a whole. In this deindustrialization scenario in Germany, Prognos calculates an overall loss of €440 billion for the national economy. Engel explained: "If the three cornerstones of energy policy — i.e. safe, clean and affordable — are no longer guaranteed, deep cracks will form in our economic system. Breaking the well-established value chains in Germany would mean serious damage to the industrial core. If we are unable to supply our customers with energy-intensive inputs from chemistry, important industries are bound to relocate elsewhere."

By contrast, the scenario "innovation-friendly environment" shows that suitable political measures can mobilize additional growth forces and give a strong positive thrust to the German national economy by 2030. Prognos calculates this positive extra effect at some €190 billion.

From the chemical industry's view, the following points can be concluded for the political side: Measures need to be taken to counteract staff shortages caused by demographic developments, and the education system needs to be improved. Also, more possibilities should be created for qualified persons to live and work in Germany. Publicly funded research, a better qualified workforce and more technology acceptance in society can enhance Germany's innovation potential — while research fields identified purely for political reasons and support for individual industries to the detriment of others stifle the potential for growth. It makes much more sense to strengthen Germany as a land of industry in its entirety. The energy transition — Energiewende — needs to be implemented in a cost-efficient manner. As long as there are no internationally competitive energy prices in Germany, it is essential that the VCI continues to represent the German chemical industry, to maintain the existing legal provisions that ease burdens on energy-intensive production.

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Lanxess Sets Ambitious Targets For Mid-Term Growth

Lanxess has set ambitious medium-term earnings targets up to 2018. Speaking at an investors' day in New York in September, CEO Dr. Axel Heitmann said earnings before interest, taxes and amortization (EBITDA) pre-exceptionals of €1.4 billion will be achieved by 2014, a year earlier than originally planned. By 2018, the figure is expected to rise to €1.8 billion. The company has increased its key-performance indicator by an average of 20% annually since 2004, the CEO said, while confirming that EBITDA will be 5-10% higher in 2012 compared with 2011.

Toward meeting its earnings targets, Heitmann said Lanxess plans to stick to its strategy of two-to-one organic and external growth and a focus on emerging, high-performance markets. He stressed that the company's "successful growth strategy is complemented by its prudent financial policies." Alongside a cautious approach to acquisitions and careful attention to investment grade ratings, management "is committed to maintaining a ratio of net financial debt to EBITDA pre-exceptionals in a band between 1 and 5 over a normal business cycle."

Heitmann underscored once again that, aided by its focus on premium products, the company spun off from Bayer and floated in 2005 has profited from its price-before-volume approach. Thanks to this, he said Lanxess has successfully managed the price volatility of raw materials and other input costs." Over the past two and a half years, the company has passed on "roughly €1.8 billion in added raw material and energy costs." ■

"We have transformed Lanxess into a growth company."

Dr. Axel C. Heitmann, CEO, Lanxess

AMRI and Shire Extend API Supply Agreement

Albany Molecular Research (AMRI), a global contract research and manufacturing organization, has entered into a multi-year supply agreement for an undisclosed product with Shire US Manufacturing. Shire is a global pharmaceutical company that focuses its business on behavioral health, gastro intestinal diseases, rare diseases and regenerative medicine. The agreement extends a previously existing agreement. "Our partnership lays the groundwork for AMRI to be considered by Shire for future development and manufacturing opportunities," said Thomas E. D'Ambra, Ph.D., Chairman, President and CEO of AMRI. ■

BASF Relocates Pharma Services to US

On October 1, BASF officially relocated the headquarters of its Pharma Ingredients & Services business unit from Evionnaz, Switzerland, to its US headquarters at Florham Park, New Jersey. This is the second relocation of businesses outside of Europe announced by the German group this year. This move, which will take place over a six-month period, will not affect the regional business and production units in Europe.

Scott Thomson has been appointed senior vice president in charge of the pharma services unit succeeding Martin Widmann, who now heads the Fuel & Lubricant Solutions unit in Ludwigshafen.

In a move that raised eyebrows in Europe, earlier this year, BASF announced plans to move its Plant Science headquarters from Germany to Research Triangle Park in North Carolina, USA. It is also in the process of moving the global headquarters of its Dispersions & Pigments division to Hong Kong. ■

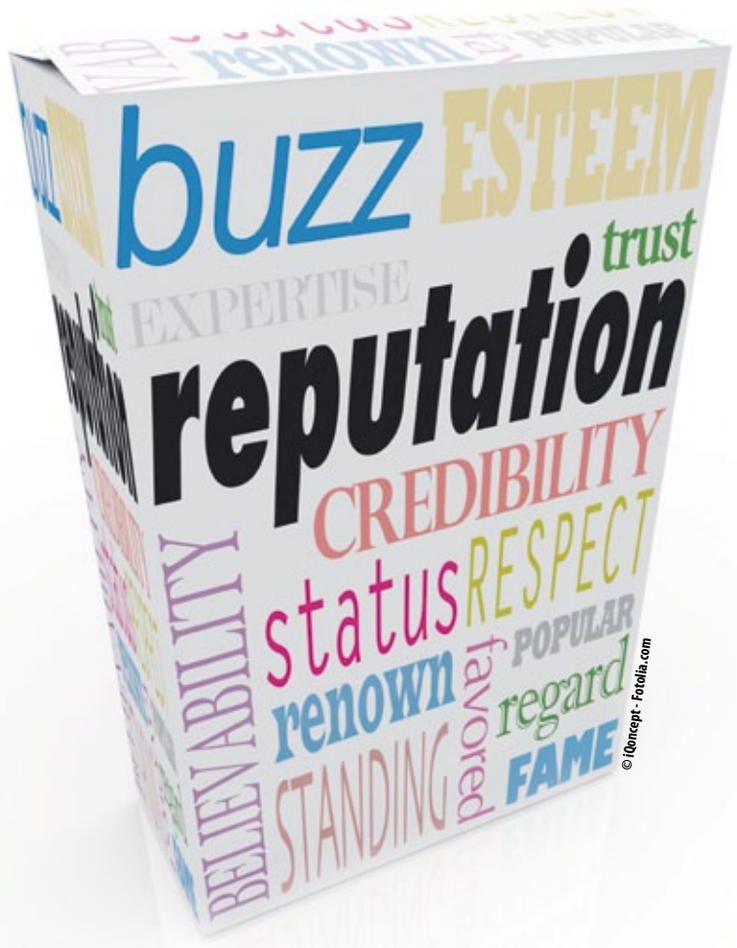
German Merck Withdraws Erbitux filing for NSCLC

Germany's Merck has withdrawn its plans to file a marketing authorization with the European Medicines Agency (MEMA) to extend approval of its Erbitux (cetuximab) cancer drug to treatment of advanced or metastatic non-small cell lung carcinoma (NSCLC)with high epidermal growth factor receptor (EGFR) expression. The company said its decision to withdraw reflected notification by the EMA that further data would be required. Erbitux is already being marketed for metastatic colorectal cancer and squamous cell carcinoma of the head and neck. ■

Public Image

A Cefic-Commissioned Survey Paints a Fair Picture of the Chemical Industry's Reputation across Europe

Room for Improvement – The chemical industry seems to be improving its reputation across Europe among the general public and opinion leaders, according to the results of a survey commissioned by the European Chemical Industry Council (Cefic).



The study which covered almost 6,000 people in Brussels and 10 European countries found variations in levels of reputation of the countries among the populations of different states and their opinion leaders. In Brussels, policy makers, such as members of the European Parliament and European Commission official, and policy influencers, mainly NGOs and non-chemical trade associations, had a more positive view of the industry than the general public and opinion leaders in most of the countries.

Despite its apparent better public image, however, the industry still lags behind other sectors with Europeans having overall a more favourable view of segments like computers and biotechnology.

The survey, conducted by APCO Insight, a US-based polling company, comprised around 40 questions covering innovation and competiveness, safety, co-operation with governments, community involvement and the environment. Participants were asked how they rated from a scale of 1 to ten the industry's performance on aspects of each of these areas. They were also questioned about aspects like what products they associated with the industry and their awareness of the industry's Responsible Care programme.

Satisfying Expectations

From the answers APCO calculated a reputation index of 1-100 with 'reputation' being defined as the industry's perceived ability to meet people's expectations. Scores above 50 were regarded as positive because they showed that the industry was closer to satisfying expectations than otherwise.

Among the general public in the 10 countries, the reputation index averaged 56.5 with the UK having the highest at 63.8 followed by Germany with 60.1 and France and Italy the lowest at 52.2 and 51.6 respectively.

With opinion leaders, including politicians, activists and journalists, the average across the selected countries was 58.6 with the UK and Germany having the highest scores and France the lowest. In what Cefic called the Brussels 'Bubble', opinion leaders had a score of 57.7, policy makers 61.1 and policy influencers 62.7.

A Platform for Further Upgrades

Cefic sees the results of the survey as providing a platform for further upgrades of the industry's reputation across Europe. "Our reputation is better than we felt it was," Ben van Beurden, head of Cefic's Programme Council on Communication, said at a press conference in London during Cefic's annual general assembly. "But there is still room for improvement if we compare our image with that of other industries," he continued. "There is a clear need to address key concerns more transparently. The survey is an incentive to communicate more positively on our achievements and aspirations and to keep the conversation going with our stakeholders, including the press."

One major effect of the study may be that the industry will now be less defensive because of a new belief that the benefits of its operations are being appreciated. "We have tended to be more self-critical than we needed to be," said Mr van Beurden, Shell's executive vice president, chemicals, who will become a member of Shell's Executive Committee effective January 1, 2013. "We have tended to be too tough on ourselves. It's a little surprising that on quite sophisticated issues there is a very positive impression of the industry."

The Levers behind the Industry's Reputation

The study was based on a polling model which was different from previous opinion surveys commissioned by Cefic and which have shown that the industry had a generally poor image across Europe. So its results cannot be directly compared with past polling figures. "Due to this survey we have more insight into what are the levers behind the reputation of the industry," explained Mr van Beurden.

Among the chemical industry's strengths in terms of reputation were its involvement with what is regarded as quality-of-life products. When the general public was asked with what they associated the chemical industry, the highest proportion (35%) said cleaning products and 23% pharmaceuticals.

Another area of high scoring in the survey was innovation in which people were asked to rank the industry as a facilitator of the development of chemicals "essential for the creation of new products and processes."

The industry also performed well on energy efficiency, both in relation to its own energy usage and its creation of products which encourage better use of energy among its customers and further downstream.

There were lower scores, however, on issues related to the environment and safe use of products. "Dealing with environmental matters and use of natural resources were seen as a weakness of the industry," said Mr van Beurden." These are a potential Achilles heel for the industry and something we need to work on."

"There is still room for improvement if we compare our image with that of other industries."

Ben van Beurden, Chairman of of Cefic's Programme Council on Communication

Risks versus Benefits

Nonetheless, more people appear to be acknowledging that chemicals are essential to their standard of living. More are emphasizing the importance of the benefits of chemicals against their risks. When people were asked in the 10 countries surveyed whether the benefits of the positive aspects of chemicals outweighed their risks, 65% opted for the benefits while 35% thoughts the risks were more important.

In the Brussels Bubble there were two separate questions on benefits against risks, one on the environment and the other on health. On the environment there was a 62-38% gap in favour of the benefits and with health 69-31%, possibly because a lot of people categorise pharmaceuticals as chemicals.

On the whole the more informed people were about chemicals, the more likely they were to have a favorable view of the industry. Opinion leaders, who had to be daily readers of printed or online news, including that on issues affecting the chemical industry, to participate in the survey, tended to give higher scores than the general public.

The exceptions were France and the Netherlands were the reputation index scores among the opinion leaders was marginally lower –51.6 against 52.2 and 57.4 against 57.9 respectfully. The biggest divide between the two groups was in Italy in which the general public's score of 51.6 contrasted with the opinion leaders' 57.3.

Responsible Care

One key question in the survey turned out to be that covering Responsible Care, the industry's voluntary programme on health, safety and environmental improvement and sustainable development. The results showed that the more the respondents were aware of the initiative the more likely they were to have positive views of the industry.

In the 10 countries in the survey 18% of the general public and 33% of opinion formers were aware of Responsible Care. In Brussels the proportion was 41% among opinion leaders, 42% among policy influencers and 37% among policy makers.

Among those aware of Responsible Care at the country level, the Reputation Index of the general public was 57.6, over 1 point higher than the average total score, while the margin of difference was similar with opinion leaders –59.7 against 58.6. The difference was even bigger among Brussels stakeholders with those aware of Responsible Care giving a 6 points higher score than the average.

"It is now very clear that there is a clear correlation between knowledge about initiatives like Responsible Care and the reputation of the industry," said Mr van Beurden. "It is a lever which can move the reputation needle forward by several point among certain groups. It will help us target our communications messages more effectively."

Cefic will now be adapting its communications strategy in the light of the results of the survey. It will be hoping then to achieve even higher Reputation Index scores when it conducts its next survey, likely to be in 2014.

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

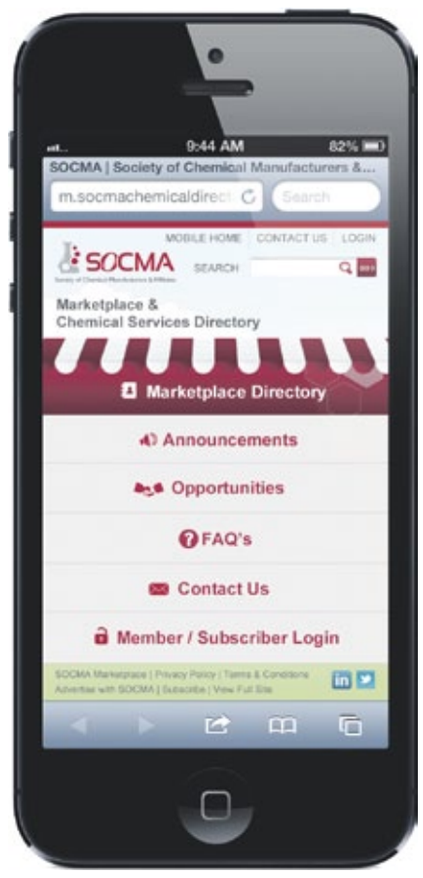
▶ www.cefic.org

chemanager-online.com/en/tags/cefic

The Latest From SOCMA

Mobile Website for Chemical Services Directory

In response to the growing popularity of its Marketplace & Chemical Services Directory, the Society of Chemical Manufacturers and Affiliates (SOCMA) has launched a mobile website to help chemical companies market their products and find new business with greater ease and frequency.



"The reality is that our members and their customers probably spend more than half their time on the road instead of in front of their PC's at the office," says Dolores Alonso, Senior Director of Member and Marketing Services. "They stay connected via their smartphones and tablets. With this mobile version, they can easily navigate through the directory and find business opportunities while they're sitting at the airport gate or in between business meetings."

SOCMA's directory allows users to search a network of chemical companies based on more than 400 types of reactions and chemistries. Site visitors can narrow their search by choosing from more than 200 capabilities and services, as well as equipment and markets served. They can verify a company's certification in SOCMA's ChemStewards program, as well as other performance improvement programs. The directory also allows visitors to buy and sell equipment, share documents and exchange ideas.

The mobile website (http://m.socmachemicaldirectory.com) offers the same information as the online directory that can be found on the website www.SocmaChemicalDirectory.com.

"SOCMA's goal in developing this site is to offer mobile-friendly content to the widest possible audience," said Ana Penaranda, Senior Manager for Web Project Management. "We've modified the full-site template so it's now designed for the smaller handheld display and touch-screen interface, allowing site visitors to find information easily. Visitors can also access mobile-specific features such as click-to-call and location-based mapping."

"SOCMA is the only chemical trade association providing a tool of this kind to the industry," added Alonso. "Both products were developed with our members in mind and are part of the broad portfolio of benefits we offer."

The directory is free for members as part of their benefits package and at a cost for non-members.

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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.

HaloPolymer Opens Warehouses in South Korea

Russian fluoropolymer producer HaloPolymer Trading, an overseas office of the HaloPolymer Company holding, has opened its warehouses in Busan (South Korea) in order to optimize sales of PTFE of different brands in the region.

The economy of South Korea is one of the fastest growing among the OECD countries, and has been consistently demonstrating an annual GDP growth rate of 4% over the last 10 years. HaloPolymer Trading supplies to South Korea various brands of PTFE. Meanwhile, the company's warehouses provide services to customers not only in South Korea, but also in Taiwan and other countries in South-East Asia.

"The opening of our own warehouses in South Korea is the next step towards implementing the strategy of "convenience" of the products manufactured by HaloPolymer. Taking into account the geography of sales, the opening of the warehouses in the region will significantly improve the quality of the service and reduce delivery times. When working with our clients, we focus on maintaining a stable product quality, as well as on the formation of a differentiated product portfolio and on the development of partnership projects to work out new products which are "customized" for the specific needs of our clients", said Maxim Doroshkevich, CEO of HaloPolymer. ■

Sinopec Buys Vesta Terminals to Strengthen Oil Trading

Sinopec's purchase of half of oil tank firm Vesta Terminals takes China one step closer towards creating its own super majors as the state uses its $3.3 trillion cash pile to increase its influence over the world market. The deal with Swiss trading house Mercuria helps state-owned Sinopec increase the profitability of its oil products and gives it extra leverage in the vital Amsterdam-Rotterdam-Antwerp (ARA) trading hub at the heart of northwest Europe.

Sinopec and its powerful trading unit, Unipec, will use the tanks to optimize trade in gasoil (heating oil and diesel) and gasoline and position itself for future oil flows. The Vesta purchase is one small piece of a giant jigsaw slowly being fitted together to allow Sinopec and fellow Chinese state oil company CNOOC to compete against Western traders and majors such as ExxonMobil and Royal Dutch Shell.

"Chinese companies (are) seeking to build access to European trade as part of their attempt to replicate the global reach of IOCs (international oil companies)," said Robert Turner, a director specializing in refining at consultancy PwC. "This is an example of traders and oil companies seeing value in owning physical assets as a way of securing market access to support their trading positions," he added. The Chinese state oil companies are still some way from matching the worldwide reach of an Exxon or a Shell and are still acquiring oilfields and transport infrastructure, but little by little the picture is coming together.

A senior oil industry consultant with knowledge of Sinopec's acquisition strategy said Chinese companies, directed from Beijing, were methodically creating a global supply network. Sinopec's $4.8 billion purchase of 30% of Petrogal Brazil from Portuguese oil company Galp was the single biggest Chinese overseas deal in Q1/2012. It has also invested in a $10 billion refinery in a joint venture with Saudi Aramco near Yanbu/Red Sea. ■

Songwon Additives Technology

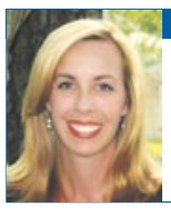
Songwon Industrial Group of South Korea, Pan Gulf Holdings of Saudi Arabia and Polysys Industries of Abu Dhabi have officially established the joint venture Songwon Additives Technology for manufacture and sale of Songnox One Pack Systems (OPS). This follows a memorandum of understanding signed in December 2011. The Switzerland-based holding owns 100% of manufacturing company Songwon ATG.

Future plans call for establishment of subsidiaries in the Middle East and the U.S. Songwon recently doubled its OPS capacity at Additives Technology Greiz, the German company acquired in late 2011, to 14,000 metric tons per year. ■

Staying Competitive

In Specialty Chemicals Business Challenges are Enormous, Companies Need to Be Agile

Players and Slayers – The economic picture for the specialty chemical industry remains uncertain. Numerous complex challenges continually threaten to 'slay' the business of chemicals operators on a day-to-day basis. To be a leading 'player' today, overcoming these challenges is crucial to stay competitive and ensure the entire supply chain is optimized.



Laura Rokohl
Supply Chain Manager, AspenTech

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Expanding portfolios have caused the number of products to grow, thereby requiring the responsiveness of manufacturing plants to improve. Supply chain leaders need to evaluate issues affecting their business where operational 'slayers' can kill profitability, so they must make adjustments to keep the operation sustainable and be able to respond quickly to customer demands. It is important to identify some of the main challenges that harm the business in order to put in place appropriate measures to safeguard commercial targets.

Regulation Through the Chain

Government regulation results in strict controls being implemented to assure precise batch and lot traceability, as well as stringent quality control and testing procedures. In the specialty chemicals sector, major and minor cleaning is required to ensure that no contamination exists between batches. The quality control effect is further exacerbated because stringent control procedures are not only required on finished products, but also for raw materials and packaging materials. Compliance is, therefore, essential in the industry.

Lack of Decision Support Tools – Manual Planning and Scheduling

Many organizations still utilize manual methods to complete planning and scheduling functions. Significant levels of automation exist in transaction support systems and in the control or execution area. An overwhelming number of chemical producers use Microsoft Excel or Access to manage aspects of their supply chain. This results in an environment where planners are saddled with manual data gathering, which can increase the risk of errors. Without a sales and operations planning (S&OP) process in place, companies have limited ability to profitably align supply with demand. They lack the ability to evaluate scenarios and respond quickly to unplanned events, spending more time managing data and fighting fires instead of performing meaningful analysis. The use of spreadsheets for tracking data, performing data manipulation or assisting with analysis through the use of reports and graphs has been extensive. This has led to the creation of "islands of automation" where decision support tools have been used to address specific issues. However, these tools are often "stand-alone" with data either entered manually or through a spreadsheet front end. A significant weakness is that these tools are often only understood by the primary user. The resulting "silos of automation" often fail to meet planning and scheduling function needs. The inability to see the whole future operational picture results in an inconsistent strategy and decisions are sometimes only based on current hot issues.

Forecasting Uncertainties

Major shifts in demand patterns are often caused by major events. This might include launches of new products, the expiration of patents, the appearance of generics and announcements by regulatory boards. Most of these events are known in advance by all players in the market. Pricing can also create major swings in both short and long-term demand. An adversarial relationship could then develop between manufacturers and distributors – the distributors may order maximum quantities prior to a price increase or producers may attempt to time price increases at the precise point when distributors have maximum inventories, leaving the latter little room to stockpile products at the original price.

Hedging Behavior

Hedging is possibly the most damaging and costly part of current planning and scheduling practices. This involves the build-up of safety stocks due to the uncertainty of future demand, the lack of understating capacity or a lack of ability to provide catch-up capability if an equipment failure occurs. Planners and schedulers avoid risk by preparing for the worst case scenario. The downside of this strategy is that it can result in both under-production of product required and over-production of unwanted product.

Overcoming the Slayers – Investing in Technology

The best tools available on the market today offer specialty chemicals companies the opportunity to carry out the full spectrum of 'what if' analysis. These capabilities help them streamline workflows, reduce costs and reach faster, more informed decisions. Operational planning models can have a significant impact on sourcing transportation and inventory policy decisions. In every supply chain, there are activities that must be initiated in anticipation of future demand. To maximize performance, these activities must be planned with the best available information. Improvements in forecasting and demand planning can reduce the need to carry excess safety stock or have spare capacity sitting idle. In a fully integrated supply chain, production operations should be closely linked with demand management, so a company's operational plan can adapt quickly as demand changes.

Demand management encompasses several different time frames. At one end of the spectrum are new product planning, marketing, product positioning, product consolidation and other activities that create demand in the marketplace. At a more operational level is the challenge of predicting short-term requirements and using assets to effectively satisfy demand. The process of developing accurate projections of market demand and continuously updating them as circumstances change is known as operational demand management. Companies deploying software tools can typically realize significant margin improvement of 4% – 20% by increasing capacity 3% – 5%, improving customer service 5% – 10%, improving first quality production 5% and reducing costs 4% – 6%. Many leading specialty chemical companies have adopted aspenONE Supply Chain to drive operational excellence by addressing inefficiencies in end-to-end processes to achieve first quality production, minimize inventory and allow rapid innovation. These tools enable companies to optimize trade-offs between customer service, inventory levels and manufacturing costs, accelerate process innovation and time-to-market for new products through improved collaboration between process development and manufacturing.

Advanced Process Control enables manufacturers to optimize production operations, providing greater agility in responding to market demands. The solution set facilitates process and product consistency by minimizing variability and facilitating consistent manufacturing execution with a solution that features both commercial and technical scalability. Companies deploying aspenONE Advanced Process Control can increase throughput, improve product quality, reduce energy and raw material usage and increase overall operational efficiency while keeping the process between safe limits of reliable operation. Using better supply planning strategies and tools will overcome the limitations of commercial demand visibility and help develop staff talent with easy to use tools. Crucially, supply planning must integrate with scheduling at the operating level and the key 'player' in the game is to ensure that the final supply plan flows through to the formation of a principal schedule that enables detailed execution plans.

Better Sales & Operations Planning

The role of an effective supply chain planning tool in the S&OP process is to focus on business-wide supply and inventory planning, specifically determining "where to make what." It involves allocating production across various plants while minimizing transportation and operating costs. As volatility increases in the market and lead times shrink, chemical manufacturers must increase their focus on the value of supply planning and support the sales and operations planning decisions. The best tools provide web-based S&OP analytics for enterprise-wide reporting and access to data and analysis during the planning process. These capabilities allow users to attain visibility into their current situation by combining data from their ERP and production systems, as well as results from their planning and scheduling tools for a complete picture of their supply chain.

Players Maximizing Profit

In today's specialty chemicals industry, business challenges are enormous. To be a successful player, companies need to be agile and responsive to fluctuations within the market, as well as react quickly to disruptions within their own operations. Get the business model right and you will achieve targets and make significant profit – get it wrong and you stand to lose money and miss the commercial opportunity. Through leading-edge software technology, the players can combat operational slayers to optimize performance, align processes, maximize profit and achieve competitive advantage.

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Social Media in Pharmaceutical Companies

Is the Pharmaceutical Industry Making the Most of Facebook , Twitter & Co?

Getting in Touch – Big, diverse and powerful, social networks have transformed the way we communicate. With four out of five Internet users actively using social media, industries are discovering the huge potential these networks offer for communicating with their customers. For the pharmaceutical industry, social networks are an opportunity to bridge the gap between them and end users.

Bhaskar Sambasivan
Cognizant

Approximately 74% of pharmaceutical companies have adopted social media – perhaps surprisingly, this is a far higher take-up than in financial services and retail. Many routinely post press releases and the like on Twitter and Facebook. Others go a step further, using social media to promote awareness of health issues, share corporate social responsibility initiatives and engage with end users (the patients) while providing them with efficient service in real time.

The Opportunities

Social media offer unique opportunities, coherent with a larger reputation management strategy, to cast a wide net for data collection and analysis. Listening to what customers are saying on social media is a way to capture baseline sentiment about brands that are already on the market, collect data on patient needs and physician treatment habits. This intelligence can complement the data-driven approaches of business models, providing for a more agile, customer-centric approach. Social media presence empowers organizations to demonstrate leadership, and mitigate the reputation vulnerability of research transparency by articulating a commitment to product safety, transparency and pricing.

The Regulatory Challenge

So why are so many companies reluctant to spread their social media wings? The pharmaceutical industry is one of the most regulated industries. Strict regulatory and compliance demands – and fear of upsetting regulators with social media campaigns – prevent companies from fully embracing the platforms. Pharmaceutical companies in the US, for example, must adhere to the guidelines of the FDA's Division of Drug Marketing, Advertising, and Communications (DDMAC), which aims to ensure that prescription drug information is truthfully conveyed to the public. While the guidelines for print and broadcast media are explicit, they fail to properly accommodate fast-evolving social media channels and their power to educate and engage with patients.

Social media communication is also at odds with reporting obligations. Manufacturers, packers and distributors are required to submit all known reports of adverse drug side effects to regulatory bodies. Given the free-for-all approach of social media, there are real risks of inaccurate, unverified data being shared in a public domain by patients – and in such cases it is hard to verify authenticity.

While waiting for clear, revised guidance from regulatory bodies, companies have been attempting to adopt social media within existing rules. Taking a few proactive measures can mitigate the risks:

- Develop clear policies for engaging in social media.
- Be sure you understand current legal restrictions.
- Communicate with your legal team and keep an eye on the news for any regulatory changes
- Encourage regulatory bodies to research and resolve – with industry support – issues relating to social media

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Social Media: Pandora's Box?

One widespread concern of using popular social media in a commercial or professional context is the inability to moderate possibly factually incorrect and inappropriate comments. All social media brand pages leave companies vulnerable to negative comments from disappointed customers, or from activists or groups with vested interests. Pharmaceuticals, in particular, have major reservations about social media if they know they cannot balance the "bad" or misleading information in the public domain. For example, in August 2011, many pharmaceutical companies were forced to shut down their Facebook pages, especially those devoted to particular drugs, after Facebook stopped offering the companies an option to moderate public comments.

Another caveat is the completeness of the data captured in specific therapeutic areas. Social media user engagement can vary depending on type and stage of illness. For example, evidence suggests that breast cancer patients are 12 times more engaged than diabetes patients, as diabetes may be considered more manageable and less life threatening than cancer or HIV / AIDS. The risk of inconclusive analysis is something pharmaceuticals should bear in mind when collecting data through social media channels.

Making it Work

Despite all the constraints, some pharmaceuticals are already using social media innovatively and to great effect. Pfizer has the best reputation for its customer engagement on Facebook and Twitter. It has the most followers on Twitter and is the third most 'liked' pharma company on Facebook. Johnson & Johnson has created an active social presence with a blog that blends stories of employees with wellness information, and corporate content, complemented by YouTube and Facebook pages on corporate social responsibility initiatives and its involvement in social causes. And the Twitter feed of German drug maker Boehringer Ingelheim is filled with articles and tweets about more than prescription drugs, featuring celebrity tweeters such as Lance Armstrong and Stephen Fry, blogs and promotions of YouTube video interviews. It has more than 10,000 followers.

Most companies understand that social media are important, but the challenge lies in making the platforms work for the business – and in transferring current experience into measurable data and results. Using Twitter feeds and Facebook pages to engage with and educate customers, raise brand awareness and manage brand perception is just the start. Few companies have a complete grasp of exactly how to use social media to interact with consumers, improve products, services and brand recognition and, ultimately, drive sales and profitability. The next step is therefore to actively work and invest in the following areas: Attracting and retaining talent; prospective employees may be more inclined to apply for jobs at companies that use social media in creative and innovative ways.

- Crowdsourcing; for example Boehringer Ingelheim has partnered with Kaggle, the platform that uses gamification to solve complex scientific problems
- Cross-industry collaboration, through tools like Cognizant 2.0, which allows employees to interact in real-time, boosting efficiency and productivity.
- Creating online communities where customers can interact with each other to discuss their experiences of pharmaceutical brands – and interact with the brand itself in real time without the burden of email or customer service calls. In turn, organisations can better understand customer preferences and who influences those preferences online.

Pharmaceutical companies already have the experience required to manage data collection, apply analytics and generate businesses insights. New, flexible processes such as adaptive design provide frameworks that can be applied to other business areas and enable more cost-efficient and decision-oriented ways of operating.

Like other new technologies, social media tools need to be managed into the workplace to release the innovation potential and new ways of working within regulatory constraints. The new 'millennial' workforce is a generation of employees that are accustomed to using social media applications on an everyday basis. By giving these digital-era people the right tools to replicate their digital lives in the workplace, an organisation stands to truly improve its overall performance.

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Safe Use of Chemicals in the Supply Chain

The chemical industry assumes a leading role when it comes to ensuring best practice with Responsible Care, regulatory conformity and the safe use of chemicals. Agenda New Compliance defines an innovative approach to assist enterprises in meeting the stringent new health and safety requirements and providing for trouble-free transaction operations in the chemical supply chains. This innovative approach stems from the successful cooperation between the Compliance Footprint AG (CFP) and Intertek. It provides for the program CFP Quality Label and system, which ensures global regulatory compliance for products in the chemical industry.

CFP is a unique and innovative assessment system that delivers the practical tools for the inspection of the Safety Data Sheets of hazardous materials, of the related labels and of the dangerous goods transport management. CFP defines a new standard to carry out the compliance review in the chemical supply chains – in accordance with prevailing laws and regulations. Companies which are in need for ensuring the regulatory compliance of their products and which have to manage HSE concerns (Health, Safety, Environment) can benefit from this simplified and innovative rating system, since it:

- allows companies to comply with global chemical regulations such as REACH and GHS
- provides companies with the direct online accessibility to the information on the Safe Use of their chemical products
- reduces the conformity costs with the help of innovative IT and supported by integrated processes
- secures enterprise and product operations, and
- improves competitiveness.

With the access to the conformity certificates at all times, the program supports globally positioned buyers and sellers of chemicals. CFP provides for a faster and simplified global trade.

The process of the CFP Quality Label and System consists of the following key steps to help ensuring legal compliance: First, a gap analysis of the correct regulatory content is carried out on the basis of a structured portfolio. Then, the level of conformity, based on defined criteria and methodology is assessed and rated. The potentials for improvement are then described and prioritized, thus leading to best-in-class solutions. Finally, in a conclusive step the CFP Quality Label is issued.

For companies seeking this best-in-class status a series of valuable benefits derive:

- With the purchase of CFP certified products new market incentives are being set that enhance the responsible use and handling of dangerous substances and products.
- With the increase of consumer interest in chemistry based products and articles, companies gain the opportunity to operate with transparency whilst meeting existing and forthcoming standards.
- Simplified and faster customs clearance.
- Engagement and strengthening of the marketing and sales organisations.
- Much simplified search for preferred supply partners that comply with prevailing laws and regulations.

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The complete version of this article can be found as a whitepaper on www.chemanager-online.com/en.

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Saltigo Realigns Strategy

Custom Manufacturing – Saltigo, the custom manufacturing business of Lanxess' Advanced Intermediates segment, which achieved total sales of €1.5 billion in 2011, has realigned its strategy. The company says it will focus its future activities primarily on three areas, i.e. the global expansion of the agrochemicals segment, the active development of attractive phase III projects in the pharmaceuticals sector, and the strengthening of the business with non-exclusively manufactured, multi-customer products. "We are currently in the face of repositioning Saltigo more towards Agro and Fine Chemicals", explained Wolfgang Schmitz, Saltigo's Managing Director.

Wolfgang Schmitz
Saltigo

A large proportion of Saltigo's activities is already devoted to the agrochemicals business. "Driven by the megatrend agriculture, we see greater growth opportunities in this area", said Schmitz.

According to Schmitz, the pharmaceutical market is characterized by market consolidations, the replacement of original preparations by generics, a shrinking number of new product licenses and rising research costs.

As part of the realignment, in July 2012 the company already closed its U.S. pharma custom manufacturing site in Redmond near Seattle, Washington, whose set-up with a small-volume unit and pilot plant was designed for Phase I and II. Schmitz stressed: "While in the past we have supported all stages of the product development pipeline with our offerings and resources, in the future we want to dedicate ourselves more strongly to the later development phases." This means that Saltigo will concentrate on active ingredients for drugs that have already been granted regulatory approval and for clinical studies of Phase III instead of active ingredients for early clinical tests. Saltigo announced plans last year to build a new production plant for highly potent active pharmaceutical ingredients (HPAPI) at the Redmond site. But this project has been abandoned. Saltigo currently operates production facilities in Leverkusen and Dormagen, Germany.

Profitable and sustainable growth on a global basis will remain unchanged the central strategic objective of the company. To achieve this, Saltigo will continue to attach importance to a high level of flexibility in the deployment of its intellectual and technical resources and to the ongoing optimization of its services. "Our project management, for example, is valued highly worldwide. What helps as well is our ability to reliably achieve the ambitious targets of our customers, such as sustainably shortening product development, thus creating value added," said Joerg Schneider, Head of Marketing. For this purpose, Saltigo has access to flexibly configurable production capacities of around 2,500 cubic meters in total.

Talking about the general market situation, Schneider added that it has developed positively this year. "As one of the leading suppliers of exclusive synthesis services we have been able to initiate a large number of new project partnerships on the basis of our longstanding experience and extensive technology portfolio. I am convinced that this trend will continue", he said.

It is in the pharmaceutical sector in particular that Saltigo aims to highlight the value added aspect more strongly in the future. "While in the past we have supported all stages of the product development pipeline with our offerings and resources, in the future we want to dedicate ourselves more strongly to the later development phases," stated Tony Jones, head of the newly established Fine Chemicals (FCH) marketing unit at Saltigo. Jones sees such projects in the direct environment of the commercial product use to be an outstanding opportunity to bring the value-creating expertise of his company more efficiently to the table by way of cooperative partnerships.

Speaking about the global strategy of his company, Schmitz said that Asia is becoming more important: "The increasing market globalization and the growth markets of Asia offer excellent prospects for Saltigo. Especially in the agricultural segment, where we already hold an excellent market position, we intend to establish ourselves as a global development and project partner. In conjunction with our agricultural customers, it is important to face up to the challenges of the future, which include an ever-growing world population, mounting food shortages in many parts of the world, a rising demand for renewable raw materials for industry, and mobility. Against the backdrop of these and other mega-trends, I see attractive development potential for Saltigo wherever innovative strength, know-how, flexibility and reliability are considered key customer expectations."

In Japan, well-known for its commitment to new technologies and innovative products, Saltigo already enjoys a good level of business activity across all market sectors, especially crop protection, pharmaceuticals, specialty chemicals, and others serving the life science industries.

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Watson Wins US Approval for Actavis Takeover

Watson Pharmaceuticals, one of the world's leading generics suppliers, has won approval from the US Federal Trade Commission for its planned $5.9 billion takeover of Swiss drug maker Actavis, on condition that that the two companies sell the rights and assets of 18 drugs to Sandoz International and Par Pharmaceuticals. This was the last anti-trust approval needed to close the deal. EU authorities gave their blessing on October 5. Closing is now planned for late October or early November.

Drugs to be divested include the generic anti-smoking drug Zyban, the generic hypertension drug Cardizem CD and the generic version of the fentanyl patch system for chronic pain. Products in the pipeline that must be divested include the generic version of attention deficit drug Adderall XR. Fourteen of the drugs are being sold to Par Pharmaceuticals, four to Sandoz.

Actavis said revenue would rise to more than €2 billion ($2.6 billion) this year, driven by patent expiries in Europe and strong demand in the United States. Sales would increase by a double-digit percentage rate in 2012, Actavis CEO Claudio Albrecht told Reuters, also citing growth in Far Eastern markets such as Indonesia. "In terms of profits we are growing even faster than sales," he added.

Actavis posted 2011 sales of $2.5 billion, Watson said in April, when the tie-up was announced. The combined group is on track to have pro-forma 2012 sales of €6 billion ($7.8 billion), Actavis said. This compares with pro-forma generic-drug sales of $5.7 billion in 2011, according to Watson.

Albrecht also said he would leave the company as soon as the tie-up, announced in April with a takeover price of at least $5.6 billion, is finalized. The outgoing CEO, who oversaw a successful restructuring at Actavis including the relocation of headquarters to Switzerland from Iceland, said he did not have any specific plans for the future. ■

Four New Healthcare Innovation Centers for J&J

Johnson & Johnson has established new healthcare innovationcenters in the world's biotechnology capitals of California, Boston, London and China. Staffed with 15 to 20 professionals, each of the centers will be tasked with seeking partnerships across the portfolio of drugs, medical devices, diagnostics and consumer health. Moves by healthcare companies to set up innovation centers with deal-making capacities is said to reflect increasing competition for partnerships with biotech firms.

J&J already has made 80 investments in biotech companies worldwide and adds about ten partnerships annually. The company estimates that about 50% of its products come from external collaborations. Plans for a Chinese healthcare innovation, center, probably at Shanghai, are currently on the drawing board. ■

Holding F.I.S. Buys into Biotech Business

Holding F.I.S., a privately owned Italian Holding company, acquired a stake in a promising Italian biotech business. Holding F.I.S. is the parent company of Fabbrica Italiana Sintetici (F.I.S.), the largest Italian API manufacturer.

Capitalizing on the business growth of the group driven by the two-digit yearly increase of F.I.S. turnover, the holding moved further into the multidimensional diversification process by completing two major acquisitions since the beginning of the year.

After consolidating its presence in North America with the acquisition of Montreal-based Delmar Chemicals, a Canadian company engaged in the scale-up and cGMP manufacture of APIs, Holding F.I.S. is now strategically positioning itself in the field of biotechnology. Recently, the company bought a stake in private-held Areta International, an Italian biotech company, which focuses on contract development and manufacturing of biotechnology and advanced therapy products.

This deal creates new opportunities for Holding F.I.S., broadening the group's expertise and adding to the existing know-how the invaluable experience in research and development and manufacturing of biotechnological and innovative therapeutical products that Areta and its team built in more than ten years in the biotech domain.

Although representing a challenge, Areta fits perfectly into the group's growth strategy, aimed to increasingly establish Holding F.I.S. and its affiliates as the ideal partners for innovative and reliable development and manufacturing solutions. ■

Sanofi to Cut 900 Jobs in French R&D Reshuffle

French pharmaceutical producer Sanofi has announced plans to cut around 900 jobs in France by 2015 as part of an R&D reshuffle. The company said staff reductions would be achieved through early retirement, mobility proposals and repositioning within the company. The plans do not foresee any of changes at production sites or any site relocation.

Development activities at Vitry/Alfortville, Chilly-Mazarin-Longjumeau and Lyon are planned to continue "in their current configuration, with activity at the latter two sites increasing. The Montpelier site is to "progressively evolve" to a strategic development center and the Strasbourg site remain a collaborative platform open to academic research and biotechs. A global center of excellence is to be established at Lyon. The future function of the Tolouse site is yet undecided. ■

AstraZeneca Suspends Share Buyback Program

UK-based pharmaceutical producer AstraZeneca has suspended its share buyback program as it concentrates on reinventing itself amid a string of clinical trial failures and patent expirations. Prior to the suspension, the company had repurchased shares worth $2.3 million, about half its initial target of $4.5 billion.

Despite the problems it currently faces, the drug maker is maintaining its full-year 2012 core earnings target of $6-6.30 per share.

New AstraZeneca CEO Pascal Souriet, who assumed his responsibilities on 1 October, termed the share buyback scheme "a prudent step that maintains flexibility while the board and I complete the company's ongoing annual strategy update."

Hopes are riding on the new chief executive who has been charged with steering the company back to growth. ■

Fosters Growth by Growing Itself

Ceresana Analyzes the Global Ammonia Market

From Farm To Factory – Ammonia is one of the world's most produced chemicals. Because of its high nitrogen content, ammonia is mainly used as a fertilizer or as the base material for the production of other fertilizers, such as urea or fertilizer mixes. Additionally, ammonia is used in industrial applications, including refrigeration engineering, cleaning, textile finishing and the manufacturing of various other chemical products.


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Increased Demand in Industry and Agriculture

The market research institute Ceresana is forecasting the global ammonia market to generate revenues of about $102 billion in 2019. Continuous population growth in developing and emerging countries is likely to cause demand for foodstuffs to increase even further. As the amount of arable land declines, ammonia-based nitrogen fertilizers will continue to gain importance. The industry as well is likely to increase ammonia demand once the effects of the global economic crisis have worn off.

New Technology as Basis for Cost-Effective Production in the U.S.

Production locations are undergoing a geographical shift toward Asia-Pacific and the Middle East. "Global ammonia capacity of currently about 198 million tons is likely to increase by about 35 million tons," said Oliver Kutsch, CEO of Ceresana.

About two-thirds of these additional capacities are to be created in these two regions. The Middle East in particular is able to profit from substantial natural gas resources that allow for ammonia production at comparatively low costs. An exception to this tendency to geographical reorientation of production is the United States' likely increase in both production volume and production capacities. Utilizing fracking technology, this country is able to exploit its shale gas resources at economic prices and thus becomes a competitive location for ammonia production.

Urea As Growth Engine

This comprehensive worldwide report depicts development in the agricultural as well as the industrial sector. Plants need nitrogen as their primary nutrient, and ammonia, often in processed form, is an efficient fertilizer. Thus, the agricultural sector consumes a far larger share of ammonia (80%) than industry does.

Strong Growth Impulses from Populous Countries

The most important sales market for ammonia is Asia-Pacific, which consumes about half of global demand. Populous emerging countries such as China and India in particular are likely to continue to increase demand for ammonia at dynamic rates. However, the Middle East is also expected to generate above-average growth rates because of the construction of facilities in downstream industries, e.g., urea production.

Urea made from ammonia is processed in both application areas. Industry utilizes ammonia for the manufacturing of urea-formaldehyde resins, melamine, and the urea solution AdBlue that is designed to reduce nitrogen consumption.

The Study In Brief

Chapter 1 provides a presentation and analysis of the ammonia market, including forecasts up to 2019. In addition to revenues, demand and production are explained in detail. This chapter also explores the development of individual regions and global market dynamics.

In chapter 2, 25 countries are analyzed in detail: ammonia demand, revenues, production, capacities, as well as imports and exports in the past eight years. In addition, this chapter provides forecasts up to 2019 for selected countries.

Chapter 3 offers a useful directory of producers covering the most important producers of ammonia, clearly arranged according to contact details, turnover, profit, product range, summary profile, associated companies and production sites as well as current and future capacities. Detailed profiles are given for 125 ammonia producers, such as Agrofert, EuroChem, GPN, Koch Fertilizer, OMIFCO, Orascom Construction Industries, Ostchem, PCS, SINOPEC, Togliattiazot, Yara and Zaklady Azotowe Pulawy.

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Chemtura to Acquire Indian Bromine Assets

Chemtura has signed a definitive agreement to acquire the bromine assets of Solaris ChemTech Industries, an Indian manufacturer of bromine and derivatives and integrate the business into its Great Lakes Solutions business. The deal, still subject to regulatory approval, includes two new manufacturing facilities, an R&D center and a multi-products facility in the state of Gujarat. Headquarters of the new Chemtura subsidiary will be New Delhi. ■

Air Products in Saudi Gases JV (DW-CME)

US industrial gases manufacturer Air Products has agreed to form a joint venture with The Arabian Company for Power and Water (ACWA Holding) of Saudi Arabia to develop large-scale gases opportunities in the desert kingdom. Air Products said the new jv complements its existing engagement in Saudi Arabia and the other Gulf Cooperation Council (GCC) member states. ACWA is active in power and water supply, water desalination, sewage treatment and waste management, among other things. ■

SABIC Signs Research Pact With Cambridge University

Saudi Arabian chemical giant SABIC has signed a multi-year strategic agreement with the University of Cambridge in the UK that is said is aimed at developing advanced technologies into innovative solutions, with a "clear focus" on meeting key global market objectives. The R&D pact with the renowned British university focuses on topics including chemical engineering, biotechnology, energy, functional materials and modeling.

During 2012, SABIC has signed additional research collaborations with think-tanks such as the Dalian Institute of Chemical Physics in China, ETH in Switzerland, National Research Council in Italy and Fraunhofer Gesellschaft in Germany. ■

AkzoNobel Takes Hit on Dulux

Cash-strapped Europeans are cutting back on decorating, leading Dutch group AkzoNobel to take a €2.5 billion writedown on its 2008 purchase of Dulux paint maker ICI and plunging it to a quarterly net loss.

The world's biggest paint manufacturer, which bought Imperial Chemical Industries (ICI) for about $13 billion, said it was looking for more cost cuts on top of the €500 million of savings announced last year to cope with weak consumer and construction markets.

"We can't escape the fact that the end market, which is construction and housing, in the U.S., in Europe, in the mature markets, is slow," chief financial officer Keith Nichols told reporters on a conference call.

"The principal concern remains the decorative paint markets in Europe. The impairment taken in this quarter is a reflection of these concerns and our realistic assessment of the markets going forward," he said, adding a quick recovery in the economy was unlikely. ■


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Metal Fluorides

New Perspectives to a Broad Range of Applications – Coatings, Ceramics, Catalysts

Fine Chemicals – A recently developed fluorolytic sol-gel route to metal fluorides and their specific chemical properties open a broad range of scientific and technical perspectives: they allow highly effective coatings that are thin, deflective and stable; they have proved to be useful in the generation of high-performance ceramics; last but not least, they are powerful catalysts and a suitable alternative to the strongest Lewis acids and their complicated handling.

As a supplier of specialty chemicals for pharmaceutical and chemical companies worldwide, ABCR has always focused on fluorochemicals and sponsors research in this field. The fluorolytic synthesis developed in our institute is a versatile method and opens up promising new fields of applications.

Metal Fluoride Sols: Coatings for Optics and Photovoltaics

According to the latest techniques, effective de-mirroring requires alternating multi-layer coatings constituted of high and low refractive materials. However, a glass surface could be totally non-reflective if coated with just a single layer holding a refractive index (n550) of just 1.23. This can be produced by introducing controlled porosity to the coated layer – unfortunately followed by a decrease of mechanic stability. If the coating material already shows a very low refractive index less porosity will be needed and higher mechanic stability will be ensured.

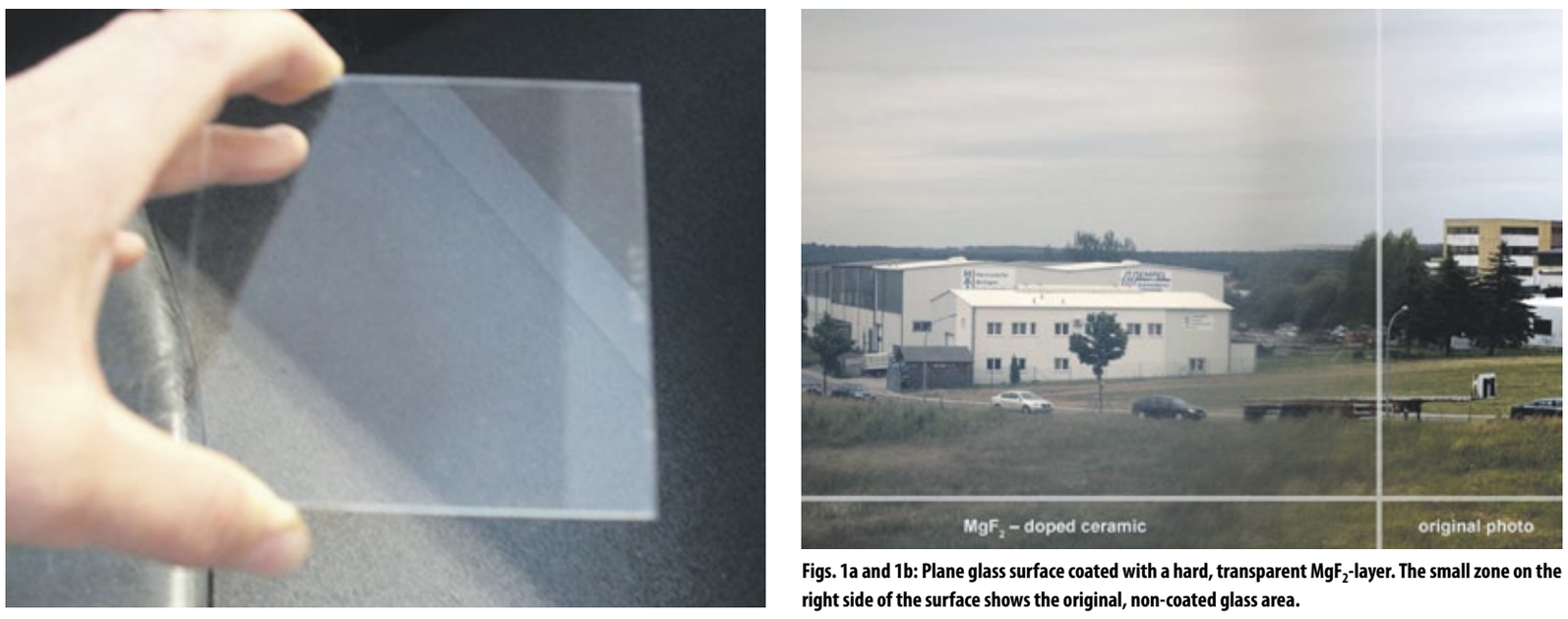
The pictures (Figs. 1a and 1b) display a plane glass surface coated with a hard, transparent MgF_2-layer. In the pictures, the small zone on the right side of the surface shows the original, non-coated glass area. Based on these promising results – by further modification of MgF_2-sols prepared – a further decreasing of the refractive index up to 1.23 should be possible.

Inorganic-Organic Hybrid Materials

Organically functionalized nano-metal fluorides can show excellent dispersion behavior in organic systems. Polymerized methacrylates containing up to 40% modified MgF_2 are transparent, exhibit a glass transition temperature increased by ca. 25°C and moreover have a mechanic hardness 2.5 times higher than the unmodified polymer.

Ceramics

Nano-materials show significantly higher reactivity drastically altering their sintering behavior. The potential of nano-metal fluorides as sintering additives has been investigated in cooperation with the Fraunhofer Institute for Ceramic Technologies and Systems (Fraunhofer-Institut für Keramische Technologien und Systeme, IKTS): The addition of only 0.1 % MgF_2 resulted in a decrease of the final sintering temperature by approximately 100°C. Besides improving its mechanical properties the modified coating showed an almost perfect transparence in contrast to opaque "normal" corundum ceramics (pict-high-transparency-ceramic).



Figs. 1a and 1b: Plane glass surface coated with a hard, transparent MgF_2-layer. The small zone on the right side of the surface shows the original, non-coated glass area.

This innovative approach opens new dimensions for the production and application of high performance ceramics, such as lightening technologies, hard tools or ceramics for artificial limbs, which all are topics of ongoing research.

Catalysis

Fluorine compounds belong a priori to the strongest Lewis acids. But Nano-AlF_3 – obtained from the synthetic route mentioned above – exhibits Lewis acidic properties which are comparable to the strongest Lewis acid known, SbF_5. With Nano-AlF_3 an extremely strong Lewis acid is now available that can be handled under normal atmospheric conditions without hydrolyzing. Furthermore, it is opening new options for the application of solid Lewis acids for many reactions in organic chemistry.

Nano-MgF_2 exhibits both Brønsted and Lewis acid functionalities. This new class of bi-acidic solid catalysts can be very precisely tuned regarding their surface Lewis and Brønsted acidic properties and already exhibit better activity and selectivity than even the best currently existing homogeneous catalysts.

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A Gas Future for Petrochemicals?

A Look at Global Investment Projects in the Face of Diversifying Petrochemical Feedstocks


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Technology – Growing chemicals demand from Asia and the need to reduce exposure to fluctuating oil prices continue to drive petrochemicals expansion in the Middle East. In the past decade, countries such as Saudi Arabia, the UAE and Qatar have moved downstream to establish world-scale chemical facilities. In other parts of the world, petrochemical companies look at diversifying their feedstock base due to the availability of new sources and technologies.

Middle East

In Saudi Arabia, Saudi Aramco and Dow Chemical announced last year that they will build a huge chemicals complex in Jubail Industrial City. The $20 billion Sadara Chemical Company project, expected on-stream in 2016, will be the largest integrated chemical facility ever built in a single phase, with 26 units producing over 3 million metric tons/year.

By 2016, Qatar may be producing 6 million metric tons/year of ethylene, analyst Business Monitor International has said. At Ras Laffan, an expansion will take the Qatari RLOC cracker to 1.6 million metric tons/year, while a joint venture between ExxonMobil and Qatar Petroleum (QP) will create a new cracker of the same size, as well as polyethylene and ethylene glycol plants. A QP joint venture with Shell at Ras Laffan will create the world's largest ethylene glycol plant, at 1.5 million metric tons/year. At Mesaieed, Qatar Petrochemical Co. (QAPCO) has a new 300,000 metric tons/year low density polyethylene (LDPE) plant, while Qatofin plans to raise its linear low density polyethylene (LLDPE) capacity from 450,000 to 600,000 metric tons/year.

More radically, two projects in the Middle East have proven the technical feasibility and large-scale economics of gas-to-liquids (GTL), which converts methane and natural gas liquids (NGLs) into high-quality synthetic fuels, lubricants and chemical feedstocks. Shell's Pearl GTL project at Ras Laffan started up smoothly last year and is showing a good return despite its massive $19 billion cost, with a capacity of 140,000 barrels/day of synthetic liquids and 120,000 barrels/day of NGLs.

Sasol, Shell's main competitor in GTL technology, is also doing well after a rocky start. Teething problems at Qatar's first GTL project, the Oryx joint venture between Sasol and Qatar Petroleum, are now fixed. Escravos in Nigeria, a joint venture between Chevron and Nigerian National Petroleum Corporation using Sasol GTL technology, is finally expected to start up next year after serious delays.

India and China

Rising prosperity in many Asian nations will require huge growth in chemicals such as plastics and detergents, while imported oil should become cheaper thanks to the US shale gas boom (see below).

India's 12th Five-Year Plan (2012–2017) sets a 12% annual growth target for basic organic chemicals, well ahead of current 7% GDP growth. Indian polyethylene production will rise from the current 2.8 million metric tons/year to 4.71 million metric tons/year in 2015, according to Indian Oil. Olefins demand will be met by a slew of projects such as the cracker awarded to engineering company Technip by Reliance Industries in June. The world-scale plant will be built at Reliance's Jamnagar refining and petrochemical complex in Gujarat.

China too will scarcely be able to keep pace with demand for ethylene during its 12th Five-Year Plan (2011–2015), says the China Petroleum and Chemical Industry Association (CPCIA), and even by 2020 the country will still have to import 48% of its ethylene needs. With its large coal reserves, China is building on existing success in coal-to-methanol (CTM) plants by developing methanol-to-olefins (MTO) technology. China has three demonstration CTO projects totalling 1.56 million metric tons/year, with another nine expected by 2013 and more than 30 CTO projects proposed.

Brazil

Brazil's success with bioethanol as a transport fuel makes the country a natural testbed for the emerging concept of biorefineries. In September 2010, Braskem opened a plant to make 200,000 metric tons/year of "green" polyethylene from sugarcane ethanol at its Triunfo complex in southern Brazil. Braskem says the product has the same processing characteristics as traditional polyethylene, and that it is considering ethanol-based ethylene and polypropylene too.

USA and Canada

In the USA, the shale gas boom is shaking up petrochemicals as much as it is the energy sector. "Wet" shale gas provides ethane that can be used locally or even exported, while "dry" gas (methane) could potentially be used for GTL projects.

Drillers facing low natural gas prices have tried to increase profits by focusing on wet gas, to the extent that the price of ethane has collapsed, the Wall Street Journal noted earlier this year. In May, Chevron Phillips Chemical chief executive Peter Cella said it could take US chemical companies four or five years to catch up with the oversupply of NGLs, with three or four new crackers needed in the next decade. Analysts at energy investor Tudor Pickering Holt estimated the potential for new petrochemical investment at $20 billion.

Chevron Phillips Chemical plans to invest $5 billion in a new cracker and two polyethylene plants in Texas, for start up in 2017. Formosa Plastics USA says it will spend $1.7 billion on an 800,000 metric tons/year cracker, a 300,000 metric tons/year LLDPE plant and a 600,000 metric tons/year propane dehydrogenation plant scheduled for 2016. Occidental Petroleum, Braskem of Brazil and Saudi Arabia's SABIC are all considering new crackers in the USA. So too is new entrant Aither Chemicals, which claims its catalytic ethane cracking technology uses 80% less energy than a conventional steam cracker of the same size.

Last September, Sasol said it was starting an 18-month feasibility study for a GTL plant in the USA. The plant, with a capacity of either 2 or 4 million metric tons/year, would be built at Sasol's existing Westlake site in southwestern Louisiana. Shell, too, has indicated that it is considering a GTL plant in the Gulf of Mexico.

Taking the more conventional option, in March this year Shell signed an option on a site near Pittsburgh, Pennsylvania, for a petrochemical complex based on an ethane cracker plus polyethylene and ethylene glycol plants. If this goes ahead, it will start up in 2019–2020. "Building an ethane-fed cracker in Appalachia would unlock significant gas production in the Marcellus region by providing a local outlet for the ethane," said Ben van Beurden, Shell Executive Vice President Chemicals.

Nova Chemicals has had the same idea, announcing in September 2011 that it would upgrade its Corunna cracker near Sarnia, Ontario, to run entirely on NGL by the end of 2013. Nova also plans to use ethane from the Bakken shale in North Dakota at its Joffre complex in Alberta, which has an ethylene capacity of 2.2 million metric tons/year.

Some ethane will travel further. The 2,000 km Appalachia-to-Texas (ATEX) Express pipeline, expected to start up in 2014, will carry ethane from the Marcellus and Utica shales to the petrochemical plants of the Gulf Coast. In September, Ineos Europe signed a 15-year deal to buy US ethane transported by pipeline to a terminal at Marcus Hook, Pennsylvania, and from there by ship to Europe. Supply is expected to start in 2015. Although Ineos has not said how much it will buy, at full capacity the pipeline is expected to provide 70,000 barrels/day of ethane and propane combined.

Europe

European ethylene is traditionally made from naphtha and other relatively heavy feedstocks, so the decision by Ineos to import US ethane is ground-breaking. Ineos produces more than 40 million metric tons/year of petrochemicals at Grangemouth (UK), Cologne (Germany), Lavéra (France, in a joint venture with Total), and Rafnes (Norway). Other companies may follow Ineos's lead: with US ethane priced at around $240/metric ton and European naphtha prices above $800/metric ton, importing ethane is likely to be profitable even after processors have paid shipping costs and taken an efficiency hit from running their naphtha crackers on ethane, analysts say.

For the moment, however, high oil prices are continuing to hinder the recovery of European petrochemicals. The Brussels-based Association of Petrochemicals Producers in Europe (APPE) puts European ethylene consumption in 2010 at 20.3 million metric tons/year, still down 10% from the peak of over 22 million metric tons/year in 2007.

In Germany, a 400,000 metric ton/year ethylene pipeline was finally completed this summer after considerable legal delays. Ethylen-Pipeline Süd (EPS) connects BASF's site at Ludwigshafen and the MiRO refinery in Karlsruhe with users in Bavaria, including LyondellBasell, Borealis, Clariant, OMV, Vinnolit and Wacker Chemie.

The UK's chemical industry has been hit especially hard by the financial crisis. CHEManager Europe reported recently that UK sales of basic organic chemicals, mainly petrochemicals, fell by 31% between 2008 and 2010, from a base of around €7 billion. Analyst IBISWorld confirms an average annual shrinkage of -11.3% since 2008. Lack of investment during the previous decade led to the closure of several ageing plants in north-east England, the heartland of UK organics manufacturing, once the recession struck.

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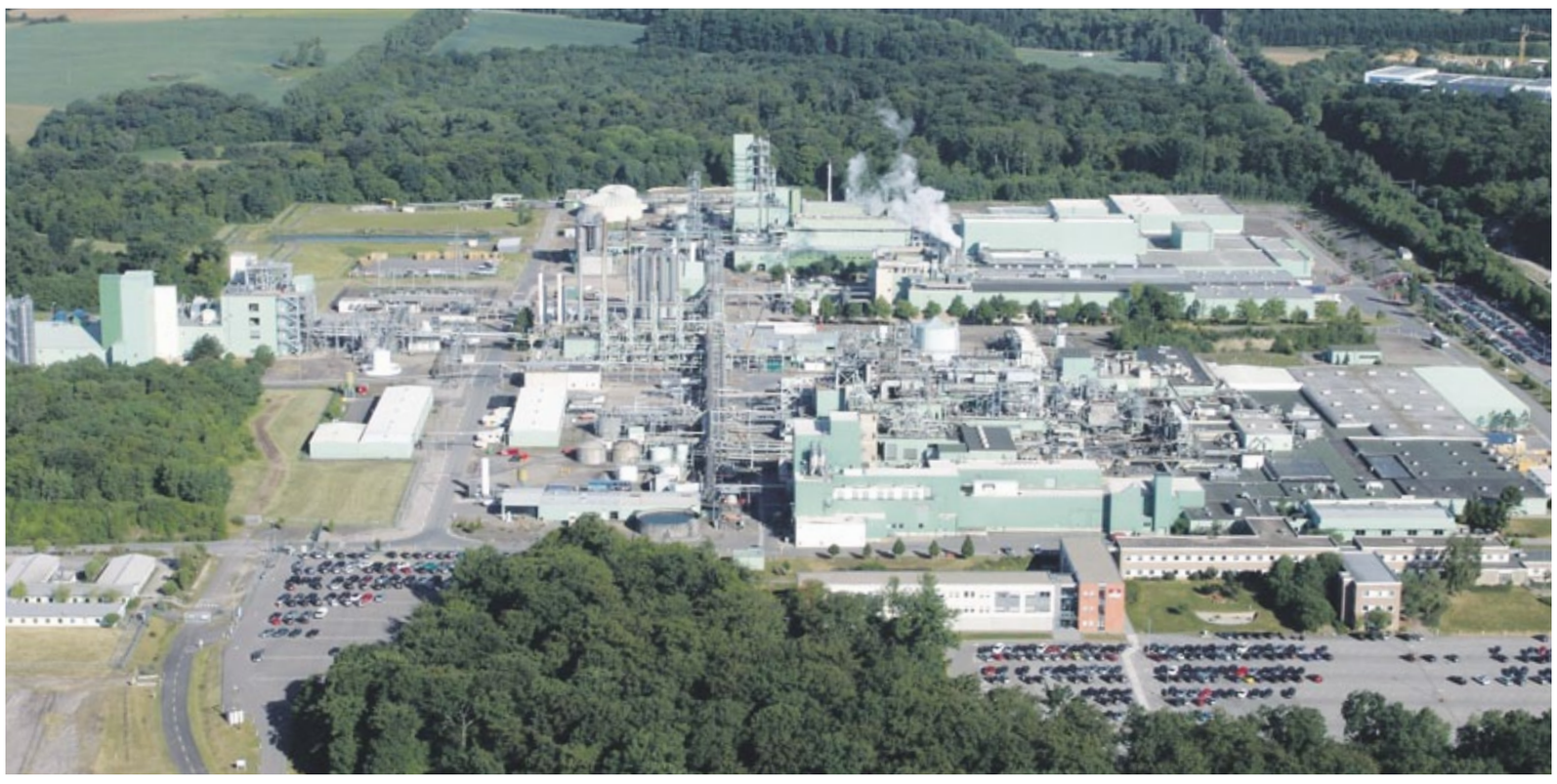
Sustainability in Industrial Production

DuPont Luxembourg is One of 39 DuPont Sites Operating along Sustainable Principles in Europe

Earth-Friendly Efforts – Sustainability, as an environmental concept, is an evolving approach to the protection of our planet. Over the past two decades, global science-based products and services company DuPont has undertaken its own efforts in sustainable growth.



The company has set clear sustainability goals for its entire organization to achieve by 2015:

Reduce greenhouse gas emissions by at least 15% from base year 2004.

- Reduce water use at sites where renewable fresh water is scarce or stressed by 30% from 2004. To hold total water use flat at all other locations.
- Ensure the entire fleet of company off-site vehicles is fuel-efficient.
- From the current 92% reduction in global air carcinogens achieved since 1990, DuPont plans an additional 50% reduction of remaining emissions by 2015. This will result in a total reduction of 96% since 1990.
- By 2015, 100% of the company's environmental efforts will be validated by independent third parties.
- Reduce energy intensity by 10% by 2020 compared with 2010. Intensity is defined as nonrenewable energy normalized by revenue.

With 60,000 employees of 80 nationalities operating in about 90 countries and manufacturing in excess of 500,000 products, this is an ambitious step.

Implementing Sustainability Goals

The goals apply to all company sites worldwide. DuPont Luxembourg, one of the company's largest investments in Europe, is no exception. Today, it employs more than 1,150 people. On 104 hectares the site runs four major production units for polyester films, spunbond fabric and elastomers producing building products, geosynthetics and spunbonded polyethylene such as DuPont Tyvek. The site also has its own power plant and wastewater treatment station with a population equivalent capacity of more than 50,000. Two big office buildings house a business center.

The Luxembourg site in 2000 had already begun focusing on improving energy efficiency, emissions and water usage, as well as biodiversity around its site. The site is Wildlife Habitat certified and was ISO 14,001 certified in 1997, but the corporate 2015 sustainability goals exceed the requirements for this certification and also national regulatory conditions.

Putting a Structure in Place

As a result, the site set up three networks. The energy, pollution prevention and waste committees meet regularly to identify new ideas and develop projects. They are peopled by a mix of product experts, engineers and managers from each of the production units. The site also has a responsible care committee composed of the site director; operations manager; and safety, health and environment professionals.

Energy Projects

In 2010 and 2011, Luxembourg's energy network set up a total of 29 energy reduction programs resulting in yearly estimated savings of more than 40,000 MWh of primary energy and annual CO2 reductions of more than 8,000 tons.

One of the big contributors to these savings was a project conducted on two of the casting lines of DuPont Teijin Films. By reducing the heating and ventilating air flow by half in one year from 210,000 m3/h to 105,000 m3/h, the Luxembourg site was able to save almost a thousand MWh in electricity, and cut down on low pressure steam to such an extent that CO2 emissions were reduced by more than 1,000 tons. Carbon dioxide emissions also were cut by recirculating hot exhaust air from H&V in the Typar production area, achieving savings of about 2,400 tons. The natural gas consumption needed to produce one ton of 12 barg steam is reduced from 71 to 65.4 Nm3/t by preheating the boiler feed-water with a heat exchanger in the exhaust gas stack.

"Although many of these programs seem minor in themselves, combined they added up to an overall 28% reduction on energy use by the end of 2011 compared to 2004," Alan Turner of the DuPont Energy Center of Competency said.

For 2012, the site has set its sights on achieving even further savings through similar projects: returning more steam condensate to the boiler feed-water tanks, recovering heat from a casting oven, installing more efficient steam jets, and using variable speed drives on compressors and pumps.

Focus On Water Reduction

Alongside the work on energy efficiency, DuPont Luxembourg has also made significant efforts to reduce its water consumption. By the end of 2011, the site had achieved a 35% reduction from 2004 levels and a 53% reduction compared with 2000. The joint venture DuPont Teijin Films was able to reduce its water consumption from 2010 levels by more than 40,000 m3 with the help of three major projects: 1) optimizing the VOC (volatile organic compound) scrubbing system, 2) modifying the DuPont Teijin Films process water feeding arrangement to achieve a more consistent temperature distribution for the various production lines and 3) replacing the polymer press so that it no longer required fresh water for cooling purposes. As a result, overall process water usage could be reduced significantly.

The Luxembourg production unit for the polyester elastomer Hytrel furthermore optimized the treatment control of the cooling tower water, which reduced process water supply to two cooling towers by more than 30,000 m^3/year. The site continues to reduce water usages and is aiming for additional savings in 2012.

Pollution and Waste Control

Since 1990, DuPont Luxembourg has reduced its volatile organic compound emissions by 90%, sulphurous gas emissions by 99% and nitrous gas emissions by more than 80%. The site also set itself the goal in 2010 to recycle at least 90% of its materials rather than allow them to go to waste. That goal has been achieved through improved waste segregation in the offices and production units. Luxembourg has also reduced its overall waste output between 2008 and 2010 by almost half. Landfill was discontinued in mid-2010.

Biodiversity

DuPont Luxembourg is surrounded by woods and is located close to two communities, 1 km and 2.5 km away. This green belt is one of the rare remaining areas near Luxembourg town that are neither urbanized nor agricultural land. As a member of the Wildlife Habitat Council (WHC) since 2002, DuPont decided to enhance this land under a "Wildlife at Work" program by creating wetlands that are now well established. The site also gave four acres of land back to wildlife in 2003, and repopulated an old landfill for inert rubble with natural pioneer vegetation in 1999.

The Luxembourg site is one of 39 DuPont locations operating along sustainable principles in Europe. The company shares its experience in sustainable operations through its consulting and technology arm DuPont Sustainable Solutions, providing advice on energy efficiency, asset productivity and reliability, as well as capital effectiveness.

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Waste water treatment facility at DuPont's Luxembourg site.

Wildlife habitat near DuPont's Luxembourg site.

DSM Invests in Chinese Environment Fund

DSM has invested in the 4th China Environment Fund of Tsing Capital. The fund, actually a series of four managed by the Hong Kong-based investment company, is the Dutch chemical producer's first venture capital engagement in China. Tsing, backed by Tsinghua University, has established broad industry networks and a strong brand on the Chinese venture capital scene. Its dealflow covers both life sciences and material sciences with a focus on sustainable agriculture, food processing, bio-based materials and renewable energy. ■

Air Products Named to Dow Jones Sustainability Index

Air Products has been ranked among the top 10 percent of companies in its industry sector as a component of the Dow Jones Sustainability World Index 2012/2013. In addition to the World Index, Air Products also is a component of the Dow Jones Sustainability North America Index, a sub-set of the World Index, which places it among the top 20 percent of companies in its sector in North America.

Each year, Sustainable Asset Management Group (SAM) and S&P Dow Jones Indices evaluate a variety of economic, environmental and social performance factors across the largest 2,500 companies of the Dow Jones Global Total Stock Market IndexSM to determine best-in-class performers. ■

Eastman Chemical Joins WBCSD

Eastman Chemical Company has joined the World Business Council for Sustainable Development (WBCSD). The company will be closely involved with the WBCSD's new Chemical Sector, "Reaching Full Potential" project.

Peter Bakker, President, WBCSD said: "Having Eastman on board will greatly benefit and enrich the work we do. Their sustainability program is robust and extensive, taking in the three pillars of sustainability."

"Eastman's growth depends on integrating sustainability across everything we do, from product development and process improvement, to strategic acquisitions and our continued stewardship of the earth's valuable resources," said Jim Rogers, Eastman's Chairman and CEO. "Through WBCSD membership, we will be collaborating with other leading corporations to advance sustainability across our value chains and the world."

Eastman will be represented at the WBCSD by its Senior Vice President and Chief Regional and Sustainability Officer, Godefroy Motte. The WBCSD Liaison Delegate is Anne Kilgore, Director of Sustainability.

One of Eastman's first areas of focus as a WBCSD member is the Chemical Sector project's Avoided Emissions work. WBCSD, in conjunction with the International Council of Chemical Associations (ICCA), will develop case studies applying best-practices to account for and report on emissions avoided through the use of chemical products. For the chemical industry, this will be an important demonstration of the positive contribution of its solutions to solving the climate change challenge. ■

Shale Gas to Reshape World Energy Markets

Impact on Energy and Chemicals Industries, Causing Geopolitical Repercussions

Energy – Of all energy resources, oil and coal dominate global consumption. While natural gas currently holds a significant share of the energy market, newly discovered shale gas reserves around the globe are likely to promote consumption of gas as both an energy source and an affordable feedstock for a wide variety of chemicals and materials.

Frost & Sullivan's new report "Analysis of the Global Shale Gas Market"examines the impact of shale gas on the chemical industry and looks at the shale gas market as a whole.

"The rapid development of shale resources is set to dramatically change the current energy assets globally," Frost & Sullivan Consulting Analyst Dr. Michael Mbogoro said. "Europe will, in the long term, decrease the region's dependence on supplies from Russia and the Middle East, thus reducing their dominance in energy markets. It is likely to also give rise to new geopolitical alliances at the expense of old."

Most demand in Asia will come from China and Japan, following China's insatiable energy needs (as a result of rapid growth) and Japan's expected increased dependence on natural gas following the Fukushima nuclear disaster. The large shale gas reserves in China will only temporarily ease the import burden, even if one accounts for increased power generation capacity from other sources such as hydro, solar and wind.

Furthermore, large chemical companies are shifting investment patterns to exploit the rich shale gas reserves in the United States, at the expense of the Middle East and other natural gas-rich regions. North American natural gas prices are the lowest globally, and chemical companies are fueling a revival of the U.S. manufacturing sector by capitalizing on this cheap supply.


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Additionally, opportunities exist for wastewater treatment companies due to high volumes of water consumed in shale gas production and for companies that produce hydraulic fracturing chemicals.

"The hydraulic fracturing chemicals market is projected to grow by approximately 10 % annually through 2020," Dr. Mbogoro explained. "The market is dominated by large energy service companies that enjoy close relationships with oil and gas participants. However, chemical companies still have a significant market share. Gelling agents are the major fracturing chemicals by volume, followed by friction reducers and corrosion inhibitors".

Due to increased shale gas production in North America, demand has increased for gelling chemicals, such as guar gum, resulting in severe global shortages and high prices.

The wastewater treatment chemicals market is also growing because of the shale gas boom. While some chemicals are commoditized, innovative solutions to water treatment continue to emerge. Due to the huge volumes of water needed for shale gas production and increased regulations limiting toxicity levels in wastewater, innovative firms can tap into a market with good growth prospects over the next 20 years.

Analysis of the Global Shale Gas Market is part of the chemicals, materials & food growth partnership service program, which also includes research on oilfield chemicals, water and waste water chemicals as well as materials for infrastructural development. All research included in subscriptions provide detailed market opportunities and industry trends evaluated following extensive interviews with market participants.

For more information, please visit www.energy.frost.com

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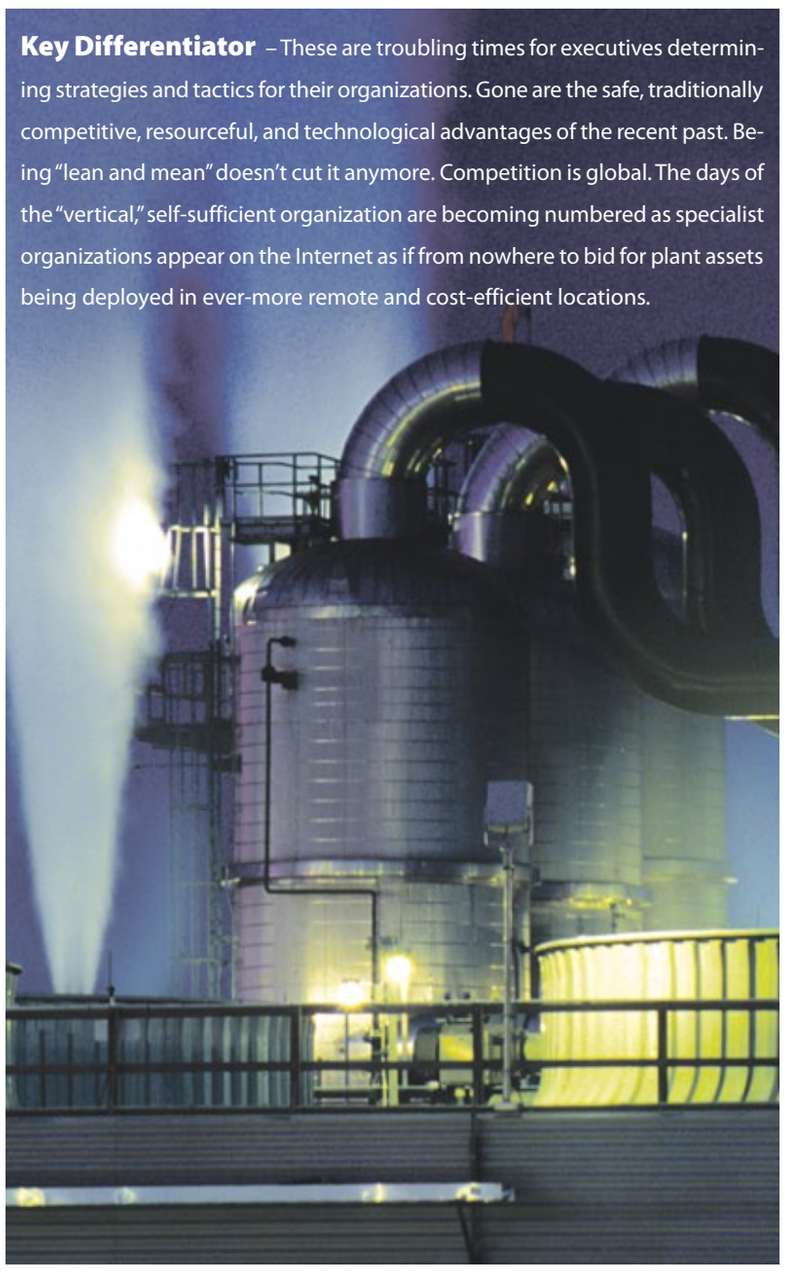
Plant Information Management

A Methodology for Systematically Improving the Operational Efficiency of a Plant

Key Differentiator – These are troubling times for executives determining strategies and tactics for their organizations. Gone are the safe, traditionally competitive, resourceful, and technological advantages of the recent past. Being "lean and mean" doesn't cut it anymore. Competition is global. The days of the "vertical," self-sufficient organization are becoming numbered as specialist organizations appear on the Internet as if from nowhere to bid for plant assets being deployed in ever-more remote and cost-efficient locations.



The pharmaceutical industry in particular faces many challenges, including time to market, patent window (time in market), modular design to allow flexible production, compliance to stringent regulations (e.g. FDA requirements), ongoing facility audits in operation, avoidance of heavy fines, and shutdown penalties. Document Management, Document Control, and Configuration Management are critical components supporting validation and ongoing operations.

So, what issues, strategies, and tactics are prevalent today, and how does a Plant Information Management (PIM) strategy play a part?

Most of the focus on PIM technologies to date has been aimed at the O/Os (Owner Operators) since they have the most to gain financially. Technologies, such as data warehousing, integration with enterprise resource planning, and operations systems, would seem to offer little to the EPC (Engineering, Procurement and Contruction). However, for the EPC companies, PIM is being linked to strategic business expansion, and in some cases survival, in an increasingly competitive and complex marketplace relevant to both OOs and EPCs.

There are three simple reasons for strategically investing in Plant Information Management (PIM):

- Reduce time to market (TTM) – design and construct the plant asset within budget, while avoiding schedule slippage and operating at capacity to meet market window of opportunity.
- Maximize time in market (TIM) – mitigate unplanned outages and delayed start-ups, optimize planning for engineering turnarounds, and prevent safety, hazard, and regulatory risks, which would otherwise halt production.
- Optimize operating parameters (OOP) – make the most of that which you have least (time, resources, and schedule) to gain more of the things you want (throughput, safety, and profit).

Traditional technical databases, engineering databases, and data modelling (employing data models expressed in tables [with rows and columns], foreign keys, joins and views, and an application hardwired to updating the data model) do not lend themselves to lifetime PIM. In these traditional types of environments, it typically demands that extensive data modelling, integration points, and interfaces be defined before data is generated, thus having a placeholder for the data before it is created.

eEngineering Integration Hub

Intergraph's vision for PIM is called eEngineering Integration Hub. This approach underpins Intergraph's data and information management solution, SmartPlant Foundation (SPF). The tool is not designed specifically to be "the" corporate information portal or corporate "generic" document management system, nor is it designed in any way to compete with the existing capabilities of enterprise resource planning and other line-of-business systems.

SPF is primarily developed for the consolidation, aggregation, configuration, distribution, and change management of "engineering information" (data, drawings, documents, models, etc.) across multiple sources. It can establish and manage an ever-changing, holistic, highly interrelated, high-quality/integrity, and object-oriented digital representation of a plant to ensure consistency, validity, and accuracy. The solution provides the "single source of truth" for engineering activities and a "source point of access to the truth" for non-engineering activities (e.g. access to non-engineering data for engineers and access to engineering data for non-engineers) and understands engineering support over the plant's entire life cycle irrespective of the multiple tools that will come and go during this extended period. However, at the commencement of a project, little time, resources, and funds are available for such an activity. Typically, as a result, high-quality data models are never deployed in time; the data model becomes fixed too early and is inflexible to change; or the integrity of data deposited is called into question. Furthermore, integrations either do not happen or do not happen at the required level of granularity, and correlations and consolidations of data from multiple applications do not occur, resulting in inconsistent data. When proprietary data is received from a partner late in the project, there is little opportunity to include it within the data set. And this does not take into account the vast quantity of data (sometimes of questionable integrity and often with multiple duplicates) received from vendors and suppliers.

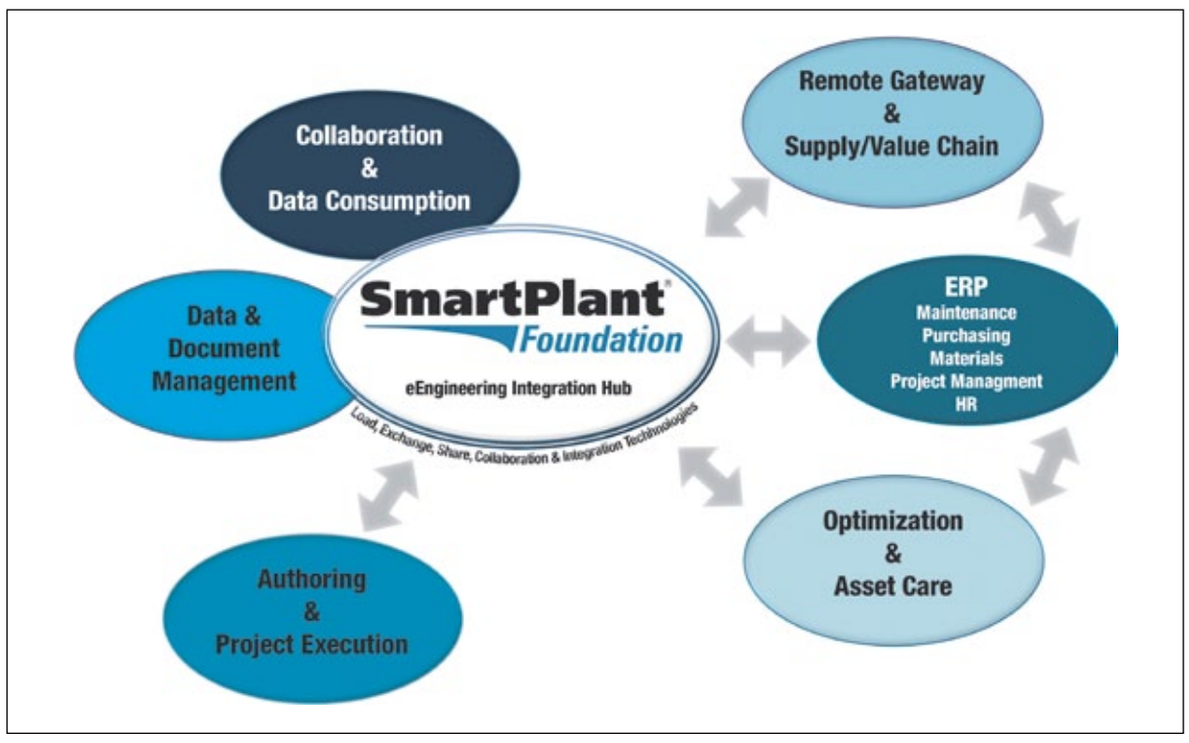


Fig. 1: Intergraph's data and information management solution, SmartPlant Foundation.

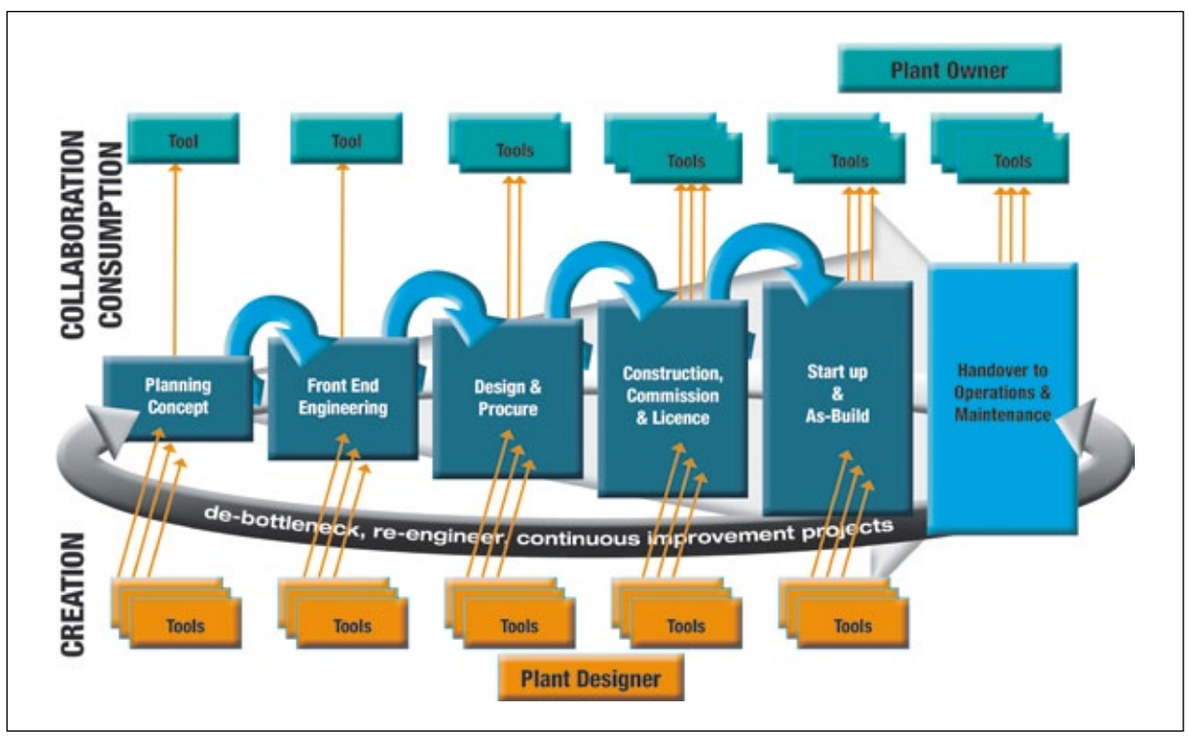


Fig. 2: Best practice for asset technical information, capture, evolution, management, and turnover.

Continuous Information Turnover

What is required for such a lifetime technical database is that it is generic and flexible – applicable to unlimited types and formats of data, irrespective and independent of application and usage; extensible and soft coded – the data model is data driven, self-describing, and grows with the addition of new data; and capable of managing highly interrelated and highly interdependent, ever-expanding data types and sets.

This allows the PIM technology to be deployed as early as possible by the plant designer. It eliminates the need for lengthy pre-project data model development. It allows ongoing addition and adjustment, data integration, and turnover of a consistent, stable data set to the plant operator.

Commercial turnover of the information from the plant designer to the plant owner also should not be viewed as a one-off activity. The PIM system should be an evolving entity with value to the plant owner from day one of deployment. Its content and latent knowledge capacity should be made securely available to engineering, construction, operations, maintenance, and regulatory parties alike – either locally or remotely – without the need for the source technical application on the desktop.

The evolutionary and continuous information turnover is a capability of SmartPlant Foundation. This capability is delivered by a number of discrete functions, including:

- Dynamic, extensible, data-driven and flexible data model, which allows it to evolve over the life of the plant
- Neutralized and normalized data (converted from proprietary formats) stored for remote access (i.e. streamed media) or delivered to populate plant owners' / regulators' tools
- Secure, Web accessible, and requiring non-specialized, mainstream computer equipment designed for longevity

Managing engineering data as an asset as valuable as the plant itself is key to success. It feeds the operations/maintenance systems and is invaluable for decision support, but if not given constant care and attention, its integrity will degrade and so too will the quality of decisions based upon the data. The strategy needs to be defined for a long-term, flexible, pragmatic, sustainable data maintenance and continuous improvement strategy that is harmonious for operations, maintenance, delta engineering projects, and regulatory affairs alike.

Information inconsistencies need to be managed rather than trying to enforce consistency. The latter is not possible in engineering projects not only because disciplines in engineering projects execute concurrently and not serially, but also because enforced consistency would stifle innovation. Progress and change are synonymous. Therefore, an overarching program of informing and managing change across and between the disciplines and "line-of-business" systems should be more important than change management at the application or department level.

Ultimately, integration comes in many forms, including data integration, application integration, business process integration, etc. The company PIM strategy should evolve to the highest form rather than starting there from day one: Start small, keeping the big picture in mind and grow organically, showing step-wise improvements.

PIM is not a technology as much as it is a philosophy – a methodology for systematically improving the operational efficiency of a plant.

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An Exciting Challenge

Plastics Packaging Contributes Largely to a Sustainable Development but Further Efforts are Required

Sustainability – With a share of more than 40% plastics packaging represents the biggest application field of plastics in Europe today. Plastics packaging is an essential element of everyday life, including many different kinds of consumer, industrial and transport packaging.

Innovations along the value chain opened access to markets which have long been excluded for plastics packaging as for example preserved food, wine or baby food. In Germany the production of plastics packaging more than doubled in the past 20 years, rising from 2.05 million tons in 1991 to 4.3 million tons in 2011.

The main reasons for this increase are:

- Replacement of traditional packaging materials, due to excellent functionality of plastics and reduced resource consumption,
- Specific suitability of plastic packaging to meet socio-demographic developments as for example small packaging units for single households or consumer trends and lifestyle (fresh goods packaging, packaging for convenience and leisure products),
- Increased export potential of the German economy, exported goods more and more packed in plastics packaging.

Almost half of the packaging manufactured in Germany is used to protect goods shipped abroad.

Plastics packaging has the potential to meet the essential demands of sustainable packaging requirements to a very high degree. According to EUROPEN Sustainable Packaging the following requirements should be fulfilled.

Sustainable packaging should:

a) be designed holistically with the product in order to optimize overall environmental performance, (i.e. provide maximum functionality with minimum material use)
b) be made from responsibly sourced materials,
c) be designed to be effective and safe throughout its life cycle,
d) meet market criteria for performance and cost,
e) meet customer / consumer choice and expectations, and
f) be recovered efficiently after use.

A closer look will be taken at aspects a), b) and f).

Dr. Jürgen Bruder
Director, IK Industrievereinigung Kunststoffverpackungen

Maximum Functionality with Minimum Material Use

The most important property of packaging consists in protecting the packed good during transport and use. No compromise can be allowed fulfilling this function. An additional challenge is to reach this goal with a minimum of material input.

Low weight and manifold – in many cases unique – packaging properties of plastics packaging are producing low environmental impact. This can be visualized by the essential environmental indicator 'carbon footprint', which does not determine the ecological profile of a product alone. To give an example: the carbon footprint of a 250 g sausage packaging amounts to 3% of the whole package with content (source: IFEU/IK 2008). Plastics packaging is intended to protect valuable products such as food, often manufactured with an ecological burden 4-9 times higher than the plastics packaging itself (source: denkstatt 2010).

Low transport weight, reduced vehicle emissions and less traffic due to less truck transport are further ecological advantages of plastics packaging.

Plastics packaging undergoes permanent innovation cycles which still offer huge potential for optimization, be it by weight and energy saving, functional improvement, use of plastics recycling material or others. An example for the most successful though not yet concluded improvement of an ecological profile is the 1.5 l PET-bottle in Germany, which has achieved significant ecological optimization within a very short period of time.

This optimization was reached by improvements in the PET production, energy saving during the production of preforms and bottles and the filling process, light weighting, increased use of recycling material and improved logistics of the beverages.

The principle ‚maximum functionality with minimum material use' with respect to plastics packing also becomes evident by the fact that 54% of all food products in Germany are packed in plastics whereas the weight of the plastics packaging used amounts to only 20% of the food packaging in total.

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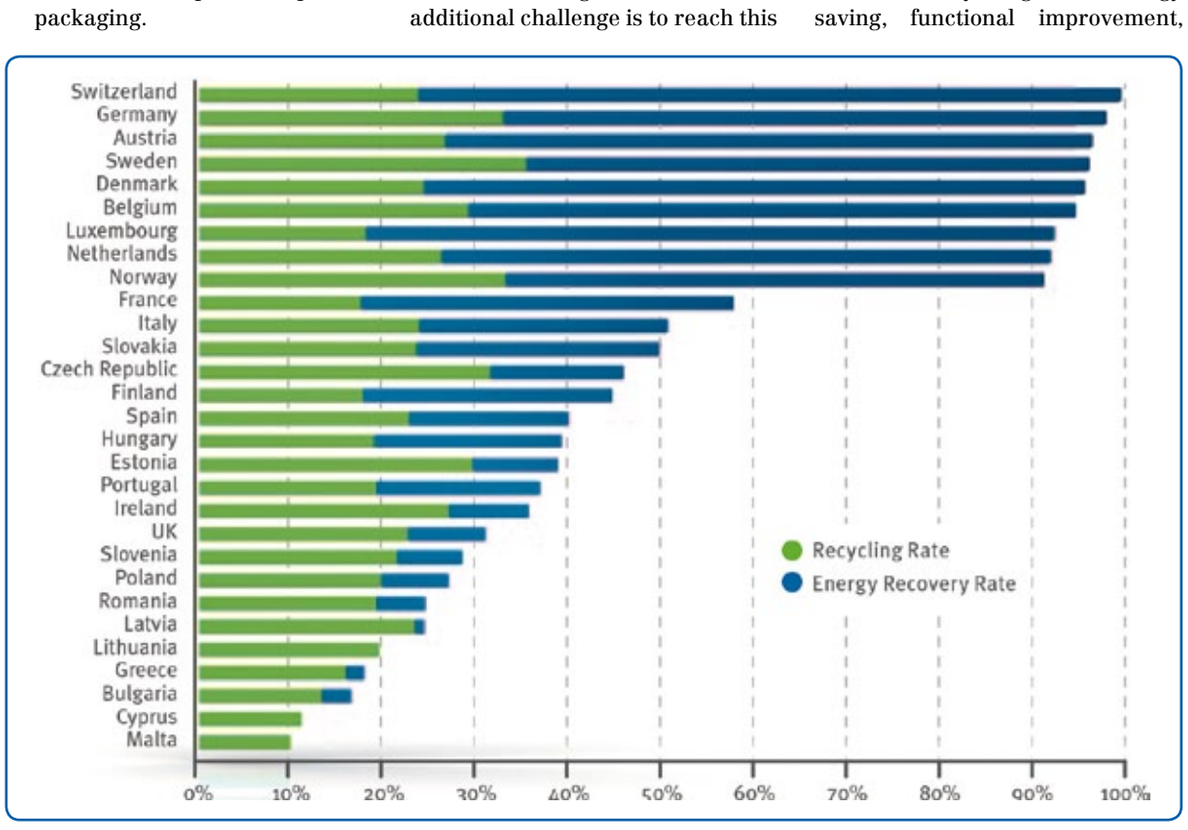

Total Recovery Rate by Country 2010 (Referred to Post-Consumer Plastic Waste) Source: Consultic

Responsibly Sourced Materials

Plastics packaging is often accused to be a short-life product basing on valuable oil resources. Apart from the fact that only 1.5 % of crude oil is used for the production of plastics packaging in Europe, the share of raw materials made of fossil-based resources is clearly shifting towards natural gas. Moreover the development and production of classic plastics packaging material on the basis of renewable raw materials is pushed, on initiative of the big brand manufacturers. Bio-PET is currently being developed while bio-polyethylene based on sugarcane is already available on the market. When it will be possible to produce big quantities of hydrocarbons as chemical basis for the production of plastics from renewable resources without competing with food production and cultivable land for food production, these plastics will be most suitable to pack branded articles (cosmetics, beverage packaging).

However, life cycle assessments also show that plastics packaging on the basis of renewable resources are not per se ecologically advantageous, case-by-case studies are always necessary. Regarding the use of responsibly sourced materials it must be underlined that

- the application of recycled material manufactured from used plastics packaging is constantly rising,
- plastics packaging consists of hydrocarbons which means that all carbon sources can be used for future applications (fossil and renewable sources, CO_2),
- the substitution of plastics by other materials is ecologically counterproductive, because it would lead to a doubling of greenhouse gas emissions.

Recovered Efficiently After Use

Plastics packaging is often criticized because of insufficient recovery and littering after use. It is true that the level of recovery of plastics waste and plastics packaging is very different in Europe. In Germany plastics packaging represents around 61% of annual plastics waste.

In 2009 the recovery quota of plastics packaging in Germany were:

- Material recycling: 42%
- Feedstock recycling: 2%
- Energy recovery: 55%
- Recovery in total: 99%

This shows that the recovery of plastics packaging contributes to a very high degree to the recycling of plastics waste in Germany in total (33%). Fig. 1 illustrates different recovery ratio of plastics waste in Europe, which are significantly subject to the recovery quota of packaging waste.

It is one of the main tasks of the plastics industry and all stakeholders in Europe to increase the recovery ratio. Interestingly, the highest quota can be observed in countries where landfill of (plastics) waste is banned. A well-organized waste management system with the steps collection, sorting and recycling is also necessary to face the problem ‚marine litter'.

Already today plastics packaging contributes largely to a sustainable development in the field of food protection. In all phases of its life cycles there is still space for vast innovation potentials, ranging from (renewable) raw materials towards the performance as optimized packaging and end of life. However, further efforts are required in many European regions to make sure that plastics packaging will develop its full potential in the spirit of sustainability.

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The Facts on Plastics 2012

The plastics industry has set itself the challenging goal of reaching zero plastics going to landfill by 2020. However, the efforts of all stakeholders towards turning waste into a valuable resource - be it through recycling or energy recovery - need to be increased. Latest data say that with a business as usual approach, zero plastics to landfill would only be reached by the year 2037. Achieving the 2020 objective would prevent an estimated 80 million tonnes of plastic waste from going to landfill, an amount representing about 1 billion barrels of oil or around €78 billion.

This is one of the main conclusions drawn from the annual monitoring report "Plastics – the Facts 2012", which is published by PlasticsEurope, representing Europe's plastics producers, European Plastics Converters (EuPC), European Plastics Recyclers (EuPR) and the European Association of Plastics Recycling and Recovery Organisations (EPRO). The report presents latest data on European plastics production, demand and waste data for 2011.

The report is not all gloom and doom though overall progress has been achieved in capturing the value from plastics waste. In EU-27, 4.8% more post-consumer plastic waste was recovered compared to 2010. The amount of plastic waste ending up in landfills decreased in a similar way. The recovery rate reached 59,1% in 2011. However, the increase in recycling and energy recovery rate between 2006 and 2011 still varies a lot between EU member states: The biggest improvement in recovery rate was achieved in Estonia with 45%, followed by Finland at about 30% during this five year period. The nine best countries in 2011 recovered more than 90% of their post-consumer plastic waste, while seven countries still recovered less than 30%.

The plastics industry in total employed a workforce of 1.45 million in 2011, including 53.000 from the plastics machinery industry. With a total of €21 billion in income tax and social security costs, and €6.5 billion in corporate tax, the plastics industry generated about €27.5 billion in 2011 for public finance and welfare and is therefore an important pillar of economics and society.

The full report and further information can be found at:

www.plasticseurope.org

Borealis and Nexeo Join Forces

Nexeo Solutions, a global leader in plastics distribution, has signed a agreement with Borealis to distribute Bormed products, dedicated to healthcare applications in North America.

Nexeo and Borealis' partnership began through Nexeo's acquisition of Ashland. Ashland had been distributing Borealis produced polypropylene (PP) and polyethylene (PE) in Europe over the last 15 years. The distribution agreement has been expanded to include new products such as Borstar PP and PE solutions. Currently, Nexeo Solutions distributes 500+ Borealis products to over 3,000 customers throughout Europe. These solutions mainly serve the advanced packaging market but also include the automotive, healthcare and infrastructure sectors.

Building on this experience, the two companies are looking forward to providing premium products and service to customers in the USA. "We are ready to expand the relationship from Europe to USA and offer the Bormed materials as part of our dedicated, high-quality healthcare portfolio," said Jim Harris, Nexeo Solutions Vice President of Product Management.

"Building on a strong partnership in Europe, we look forward to extending our distribution agreement with Nexeo in North America. By leveraging their extensive local knowledge of the healthcare customer requirements, we will be able to increase the presence of our Bormed products in the healthcare segment," added Alfred Stern, Borealis Executive Vice President Polyolefins. ■

Modern Engineering Tools

Simulation as the Cornerstone of Next Generation Weight Reduction for the Automotive Industry

Computer Aided Engineering – Sustainability has been a major driver of innovation for decades in the automotive industry and will continue to be so for the foreseeable future. Today, the emphasis on fuel economy is forcing automakers to make significant changes in materials selection and even in the engineering methodology behind the vehicle's design.

Dagmar van Heur
Vice President
Automotive, Styron

Due to the inherent relationship between mass and fuel consumption, lightweighting of vehicles is a key area to address in order to meet those requirements. Studies show that 10% mass reduction relates to a 3% to 7% benefit in fuel consumption depending on the type of car and the driving cycle used. On average a weight reduction of 100 kg, reduces the CO2 emission by 10g/km. However, weight reduction often comes with a cost penalty. As a rule of thumb the industry uses a benefit of max €5 per kg gained. Therefore, more and more car manufacturers work closely with their material suppliers to look at how Computer Aided Engineering (CAE) can further optimize their designs. When the ultimate goal is to reduce weight and this downgauging trend coincides with reducing costs, OEMs are eager to know more. It is becoming a growing trend that requires thorough understanding of material properties and behaviour whereby the material supplier can play a key role.

Growing Need of OEMs for Lightweight Solutions

Styron clearly feels this increasing need to reduce weight in existing applications with the major brands in the automotive industry. Styron's R&D and Engineering departments often develop virtual prototypes using Computer Aided Design (CAD) and Computer Aided Engineering tools. Using the customer's CAD data in simulations, Styron can predict the behaviour of the selected polymer and recommend further optimization of the incumbent material in the production process and/or the part design. Simulation and modelling services can range from concept design, via process simulation of the material's conversion process up to structural simulations to tackle the most severe product requirements the customer is faced with. Dagmar van Heur, Vice President Automotive explains: "Using these software tools, we are able to define process parameters for materials, provide ideas on their application in the OEM part designs and demonstrate how the end product will perform and how it can be improved. This is part of our core business and offering towards our strategic customers."

Examples of structural simulation	Examples of process simulation
dynamic impact tests like car crashes or drop tests	Injection-moulding
Non-linear static loading	Blow-moulding
Vibration analyses	Thermoforming

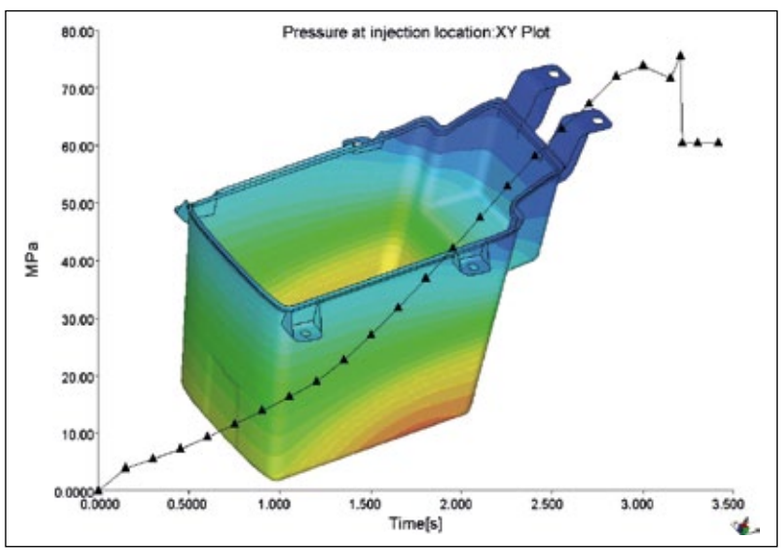

Fig. 1: Visual demonstration of structural simulation.

Relationships that Create Value

The collaboration between car manufacturer and material supplier is of the utmost value to stay abreast with the latest technical trends. Styron builds a two-way relationship with the customer in which the latter consults Styron for solutions, and Styron engages him with the material concepts. Dagmar van Heur explains: "Whereas in the past, plastic was being looked at to replace steel components to further reduce weight, we now see a growing demand from customers for simulation modelling techniques to study all behavioural characteristics of the selected resin in the application. In close collaboration with our engineering department there is often still room to further improve the structure or the process behind the production of the finished part. These days greater emphasis is thus placed on Computer Aided Engineering at all stages of design and development where Styron has supported several customers with creating additional weight reductions of existing plastic parts."

Creating Weight Reduction by Using the Same Material

One of Styron's customers wanted to investigate whether they could further downgauge the mid-console storage compartment that was made with Styron material. Styron conducted extensive simulations on the part combining structural performance with process simulation. Ultimately, Styron was able to create a weight reduction of 25-35% by adapting the wall thickness of the vertical walls of the storage compartment.

Step 1: Structural simulation:
When keeping the same original thickness for the bottom of the part and reducing the sides to 1.8 mm, the deformation and stresses have similar values for the required load working on the center of the bottom of the part.

Step 2: Process simulation:
To ensure the processability of the final thin walled part, the injection moulding process is simulated, using the polymer's characteristics.

Creating Weight Reduction by Using a Different Material

The baseline design of an overhead console made with Pulse 2100LG was analysed using 3D CAD data supplied by the customer. In a preliminary stage the material was replaced by the new Pulse GX50. As the original overhead console has a total mass of 3kg PC/ABS and the Pulse GX50 resin having a density of 1.09 compared to 1.13 for the Pulse 2100LG , the exact same part could be made weighing 2.895 kg, resulting in a reduction of 3.5%.

Furthermore, the high structural performance of the Pulse GX50 also allowed for thin walling the part. To project the exact performance of the part, the CAD data together with in- house computer simulation expertise proved to be of utmost importance. Simulation allowed for reducing the nominal wall thickness to 2.5 mm saving a volume of 443cm (-16.7%), while at the same time safeguarding the processability of the part.

As a result, Styron was able to reduce the total part weight by 0.59 kg (19.7%). On top of the reduced material contents, an additional cost saving was achieved due to the material's lower density. In terms of resin cost this also lead to significant cost savings in comparison to the original part. The example proves that by working closely with your resin supplier, car manufacturers can deliver lighter, more sustainable solutions while saving out of pocket costs.

Looking Forward

Today it is about optimizing parts already developed with plastics materials. In the future the automotive industry will further investigate the possibilities to replace structural parts with plastic components, creating new opportunities for polymer producers. Dagmar van Heur adds: "The next step will be to replace structural parts, currently mainly produced using metals, with plastic materials. This will require an even closer collaboration between the material producer and the design department of the OEM. Design and material choice are two different technological domains that are strongly related but in the future they will become even more interconnected."

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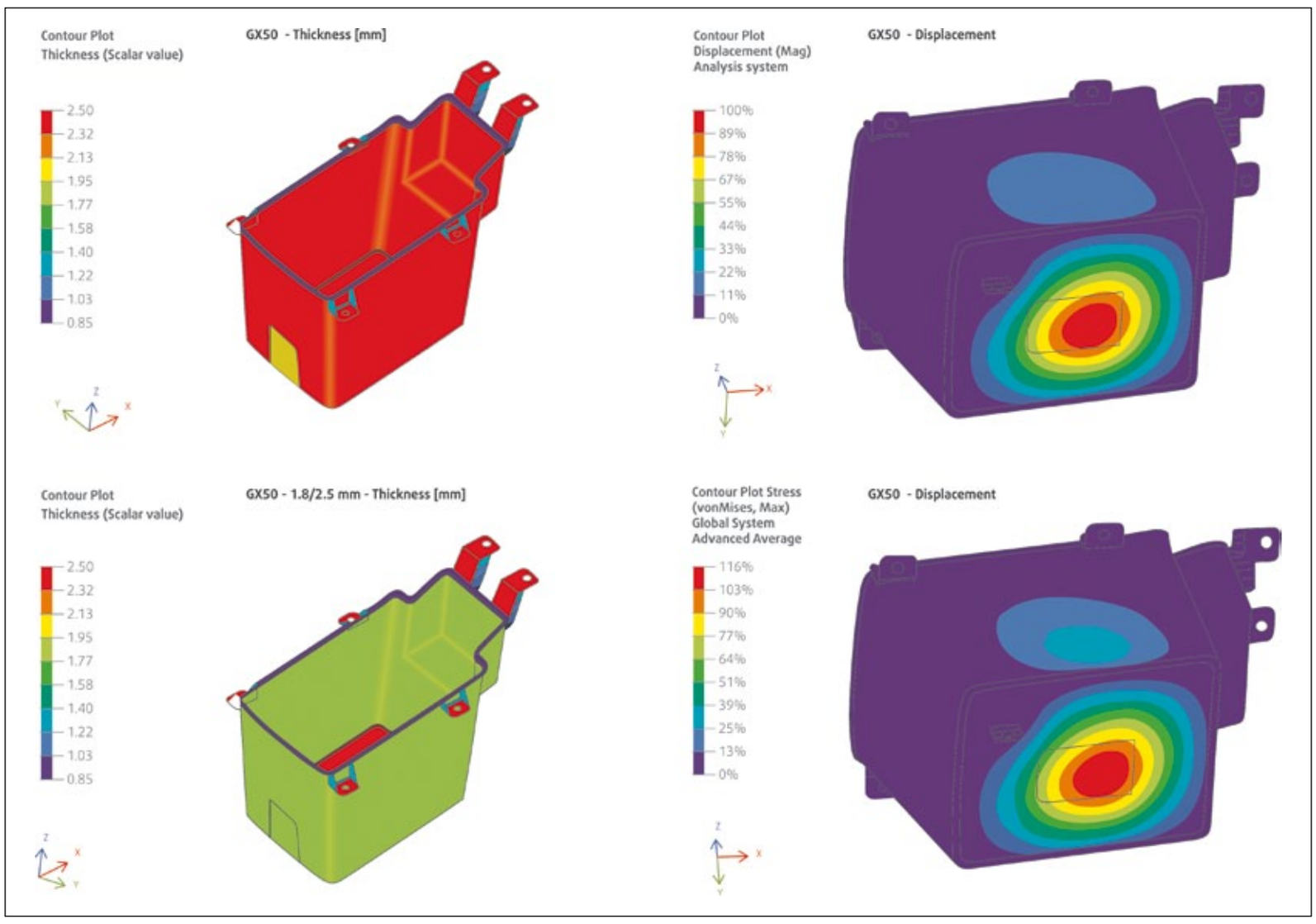

Fig. 2: Visual demonstration of process simulation.

No Painting Required

Improved Processing Creates Sophisticated Design Concept

Saving Steps and Costs – LyondellBasell's new generation of advanced polyolefins brings a unique combination of performance and processing characteristics designed for use in demanding technical applications. The Softell propylene compound's outstanding soft touch and aesthetic characteristics impresses end users, and its good processing flexibility helps create cost-effective and highly sophisticated design concepts. These features are suitable for applications ranging from construction, appliances, food packaging and roofing to many prominent automotive applications.

Prior to Softell, interior applications in compact and premium-class car models were dominated by polymer solutions such as polycarbonate/ acrylonitrile butadiene styrene (PC/ABS) and PVC foil, which all required additional expensive painting process.

Now, a new manufacturing efficiency is established by achieving surface quality that surpasses traditional materials without the need for additional painting. The resins offer improved scratch resistance and soft eye-catching aesthetics, which is an essential feature in today's demanding automotive interior applications. Finished parts made of Softell offer enhanced recyclability and cost savings for manufacturers thanks to the elimination of costly painting processes.

Compared to existing material combinations, Softell/PP compound

Dr. Erik Licht
LyondellBasell

Dr. Michael Pohl
LyondellBasell

offers many advantages that make it an easy choice for automotive customers such as:

- Full compatibility with other polyolefins
- Tactile properties with lower system costs and less processing steps
- Contains no softeners

Properties

The product family offers a wide range of stiffness levels providing tactile and visual benefits. Manufacturers can now offer a variety of choices with sophisticated finished parts with superior tactile properties combined with various surface aesthetics and a customer pleasing matte finish.

The gloss level of a conventional PP compound used in interior applications is between 2 and 3 GUs (measured at an angle of 60°). Tests conducted using a gloss meter show Softell resins have a gloss level below 1.5. This enables car manufacturers to produce interior parts with the required low light reflection, keeping drivers safe from reflecting sunlight.

Not only does the new material offer the high visual and haptic quality, it offers remarkable acoustic properties through providing very good noise dampening and low vibration tendency even better than conventional materials such as painted ABS.

Safety

Softell PP compounds offer safety benefits, which may help manufacturers obtain higher safety scores. Due to their morphological structure, finished parts do not form sharp edges and splinters in crash tests – even at low temperatures. In addition to safety and design freedom, compounds surpass conventional PP compounds in terms of scratch and mar resistance enabling robust surfaces (Fig. 1).

Finished part production

The product family combines high performance attributes with the good processing characteristics of polyolefins. Manufacturing of parts just got easier with one injection molding step and no painting step.

The grades provide the part producer with good flowability under high shear and injection molding conditions. The standard MFR test of 230 °C using 2.16 kg load gives a typical MFR ~ 7 g/10 minutes for many grades.

In comparison to typical polypropylene interior trim grades with values > 12 g/10 minutes, Softell may appear to be difficult filling tools. However, under real molding conditions implying higher shear rates, the real flow length is close to standard PP compounds (Fig. 2). This rheology is essential in producing highly sophisticated geometries such as the fine loudspeaker grill integrated into a door panel like the Audi A1.

Applications

Softell enables the development of parts that provide levels of comfort and design previously available only in high-end vehicles. Whether it's the mono-material for the dashboard or the over-molded parts for interior trims, it is possible for compact vehicles to achieve the same aesthetic and resource-efficiency levels as premium-class models.

Major automotive manufacturers such as Audi, Ford, General Motors and Volkswagen have chosen resins for their interior applications thanks to the compound's outstanding surface quality surpassing traditional materials without using paint.

Outside of the automotive industry, compounds can be used in applications like furniture, hand-held tools, aesthetical housings, or any consumer product where a nice grip and excellent surface haptic are appreciated.

In the consumer product business, K.D. Feddersen uses it for projects such as grips for screw drivers, corkscrews, and protectors for sportswear.

Authors: Dr. Erik Licht, Global Marketing Manager, PP Compounds, LyondellBasell and Dr. Michael Pohl, Business Development Manager Europe, LyondellBasell

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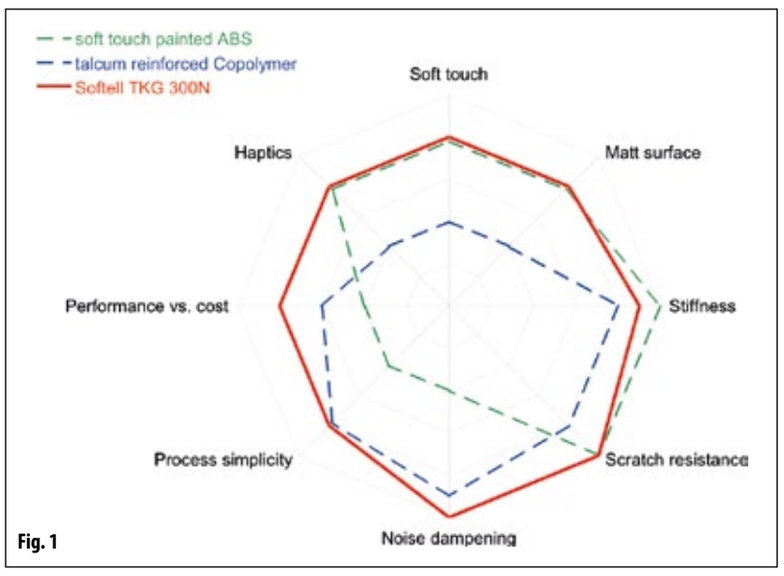

Fig. 1

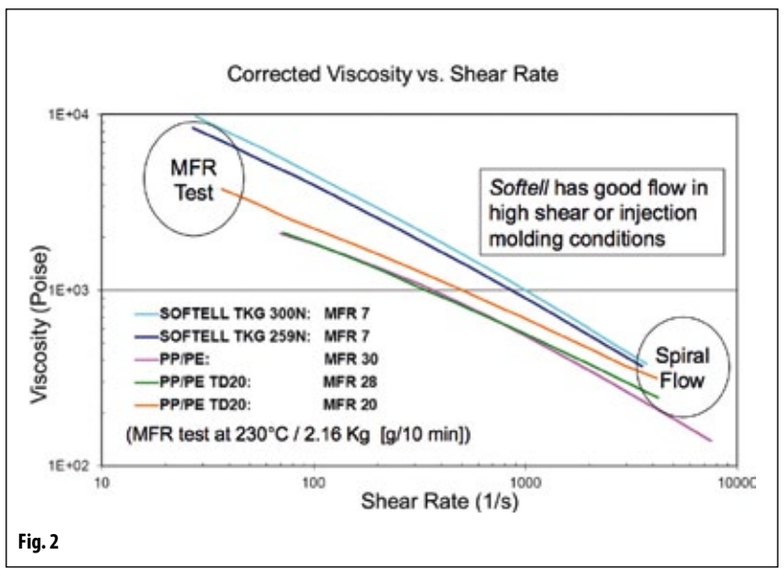

Fig. 2

chemanager-online.com/en/tags/plastics

Kraton to Expand HSBC Alone in Asia

Kraton Performance Polymers plans to expand its hydrogenated styrenic block copolymer (HSBC) capacity in Asian on a standalone basis. The company has opted not to extend its framework agreement with Formosa Petrochemical Corporation (FPCC), which expired on 30 September. This called for a 50:50 joint venture to produce 30,000 metric tons per year of the copolymer at FPCC's Mailao, Taiwan, site. The Taiwanese company had regarded environmental restrictions as too restrictive.

Given the importance of the HSBC expansion in Kraton's future growth plans, CEO Kevin M. Fogarty said the company was prepared to move forward alone. Locations identified in the site selection process of 2010 and early 2011 will be the primary area of focus, he said, adding that neither project cost nor timeline for completion can be estimated at present. ■

Uhde Inventa-Fischer Wins Belgian PET Plant

Contractor Uhde Inventa-Fischer has won a contract to build a 432,000 metric tons per year PET plant at Geel, Belgium, for India's JBF Industries. When the project was first announced in August 2011, it was disclosed that the facility would be operated by a joint venture with financial investor Ras Al Khaimah Investment Authority, which is controlled by the government of the United Arab Emirates. It would produce polymer for bottling and packaging applications using PTA feedstock sourced from BP in Geel. The engineering firm did not provide further details. ■

Clariant Starts New Flame Retardant Plant in Germany

Swiss specialty chemicals producer Clariant has started up a second production facility for its halogen-free flame retardant Exolit OP at the Knapsack chemical park near Cologne, Germany. The new plant doubles output capability for the product based on diethyl phosphoric acid aluminum salt (DEPAL). The flame retardants are used primarily in electronics and electrical engineering applications. ■

Vinnolit Adds PVC Capacity

Vinnolit has started up its expanded emulsion PVC plant at Burghausen, Germany. With 9,000 metric tons per year of additional capacity, the unit can now producer 100,000 metric tons of the paste grade polymer. The German PVC producer claims to be market leader in this specialty as well as operating the world's largest production facility.

The company points to sharply rising demand for E-PVC from Russia and the Ukraine as well as increasing impetus for business from the Chinese market. Including the additional 50,000 metric tons per year of paste PVC capacity at Cologne / Germany, announced in August, Vinnolit will have a total of 520,000 metric tons of installed capacity. ■

Solvay to Lift Indian PEEK and PAEK Output

Solvay plans to increase capacity for high-performance polymers PEEK and PAEK by 70% at its specialty polymers production facility in Panoli, India. The Belgian chemical company said about half of the capacity hike, which it says is in response to rising demand, has already gone on stream. The second phase of the planned expansion is scheduled to be completed in mid-2013.

With this latest investment Solvay said it has reached a new milestone in its ambition to double its sales in India by 2015. In 2011, the company had net sales in the country of around €180 million. Solvay recently announced that it will acquire a controlling stake in Sunshield Chemicals, an Indian producer of surfactants. ■

Styron Starts SSBR Line in Germany

Styrenics producer Styron has commissioned its new 50,000 metric tons per year solution styrene butadiene rubber (SSBR) plant at Schkopau, Germany. The new line has been built alongside existing production trains. Although it focuses on SSBR it has capability to produce all existing clear and oil-extended Styron grades, the company said. ■

BASF, Ineos to Close Styrenics Plants

In response to overcapacities and low margins for styrenics in certain regional markets, BASF and Ineos plan to shutter some of their production facilities. BASF plans to close its EPS (trade name Styropor) plants at Pasir Gudan, Malaysia, and Thane, India, by the end of this year. In mid-October. Ineos ceased production of styrene monomer and polystyrene at Marl, Germany. Combined annual capacity of the two BASF plants to be closed exceeds 100,000 metric tons per year.

The affected Ineos plant can produce 350,000 metric tons of SM and 180,000 metric tons of PS per year. The company now headquartered in Switzerland said the decision to cease output of the styrene products at the German site, which also includes facilities for an estimated 260,000 metric tons of cumene annually, reflects a strategic realignment at principal customer Styrolution, its 50:50 joint venture with BASF.

In South America, BASF plans to carve out the Styropor business and the production facilities in Argentina and Brazil. The German group is weighing its options for continuing its EPS activities in these markets and is preparing to divest its EPS foam parts subsidiary Aislapol. In future, the group said it will focus its global EPS business on core markets and will further push growth in Neopor, an advanced version of Styropor with graphite particles added. ■

TPC Group Receives Buyout Order from Innospec

U.S. butadiene specialist TPC Group has received a non-binding buyout proposal from compatriot specialty chemical producer Innospec, based in Colorado. The offer of $44-46 per share, valuing the company at as much as $721 million is backed by investment funds associated with Blackstone Capital Partners. The proposal tops the prior offer of $627.2 million ($40 per share) made in August by private equity firms First Reserve and SK Capital Partners.

Texas-based TPC's main product is butadiene, but weak demand and volatile prices have pressured demand this year. The shares have consistently trade above $40 and at least two of TPC's ten biggest shareholders are said to have been holding out for a better deal.

Patrick Williams, president and CEO of Innospec said in a statement that the company believes TPC "is a good strategic and synergistic fit." ■

Global Bioplastics Demand on the Rise

Fivefold Growth of Bioplastics Market by 2016


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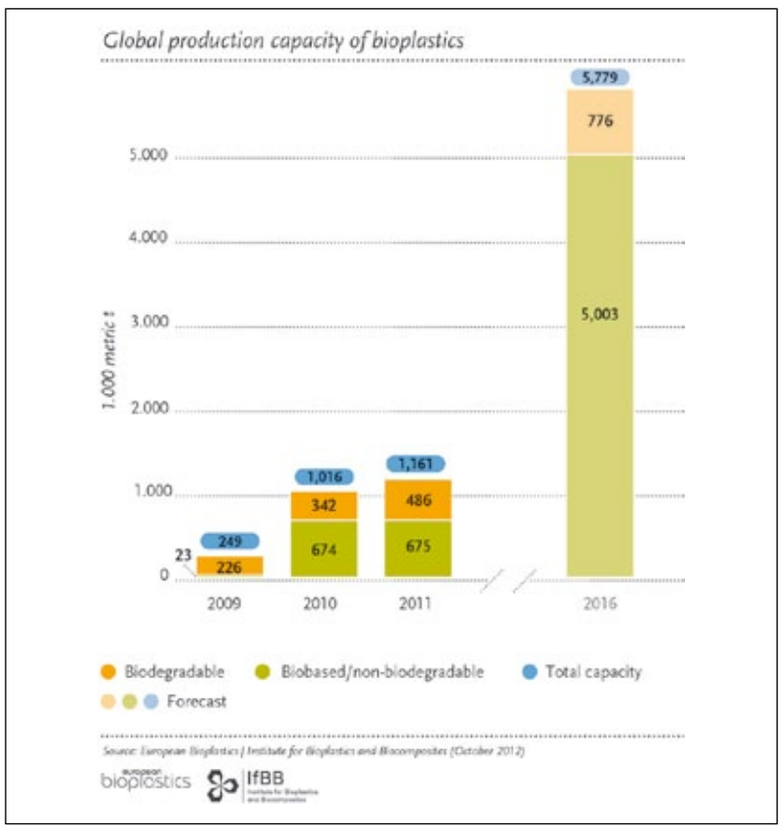
For a Greener Tomorrow – An above-average positive development in bioplastics production capacity has made past projections obsolete. The market of around 1.2 million tonnes in 2011 will see a fivefold increase in production volumes by 2016 – to an anticipated almost 6 million tonnes. This is the result of the current market forecast, which the industry association European Bioplastics publishes annually in cooperation with the Institute for Bioplastics and Biocomposites from the University of Hannover.

The worldwide production capacity for bioplastics will increase from around 1.2 million tonnes in 2011 to approximately 5.8 million tonnes by 2016. By far the strongest growth will be in the biobased, non-biodegradable bioplastics group. Especially the so-called 'drop-in' solutions, i.e. biobased versions of bulk plastics like PE and PET, which merely differ from their conventional counterparts in terms of their renewable raw material base, are building up large capacities. Leading the field is partially biobased PET, which is already accounting for approximately 40 % of the global bioplastics production capacity. Partially biobased PET will continue to extend this lead to more than 4.6 million tonnes by 2016. That would correspond to 80 % of the total bioplastics production capacity. Following PET is biobased PE with 250,000 tonnes, constituting more than 4 % of the total production capacity.



"But also biodegradable plastics are demonstrating impressive growth rates. Their production capacity will increase by two-thirds by 2016," Hasso von Pogrell, Managing Director of European Bioplastics stated. Leading contributors to this growth will be PLA and PHA, each of them accounting for 298,000 tonnes (+60 %) and 142,000 tonnes (+700 %) respectively.

"The enormous growth makes allowance for the constantly increasing demand for sustainable solutions in the plastics market. Eventually, bioplastics have achieved an established position in numerous application areas, from the packaging market to the electronics sector and the automotive industry", von Pogrell said.

A disturbing trend to be observed is the geographic distribution of production capacities. Europe and North America remain interesting as locations for research and development and also important as sales markets. However, establishment of new production capacities is favoured in South America and Asia. "European Bioplastics invites European policy makers to convert their declared interest into concrete measures. "We are seeing many general supportive statements at EU level and in the Member States", Andy Sweetman, Chairman of European Bioplastics said. "There is, however, a lack of concrete measures. If Europe wants to profit from growth at all levels of the value chain in our industry, it is high time the corresponding decisions are made."

Further insights and extensive additional data are provided in the complete market study of the Institute for Bioplastics and Biocomposites of Hannover University. This will be available at the institute soon.

For a more in-depth impression of the world of bioplastics, visit the 7th European Bioplastics Conference on 6 and 7 November in Berlin. With over 400 experts on hand, the European Bioplastics Conference is the leading industry event in Europe.

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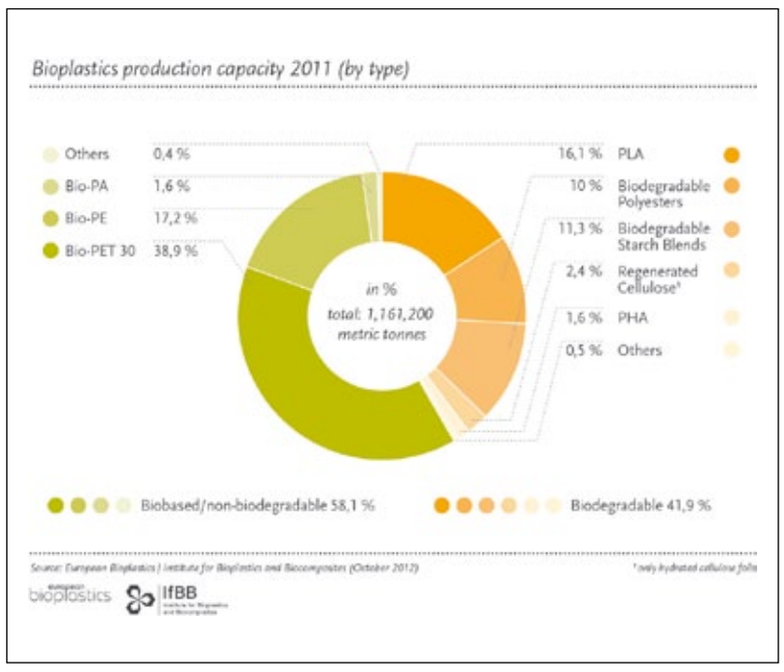
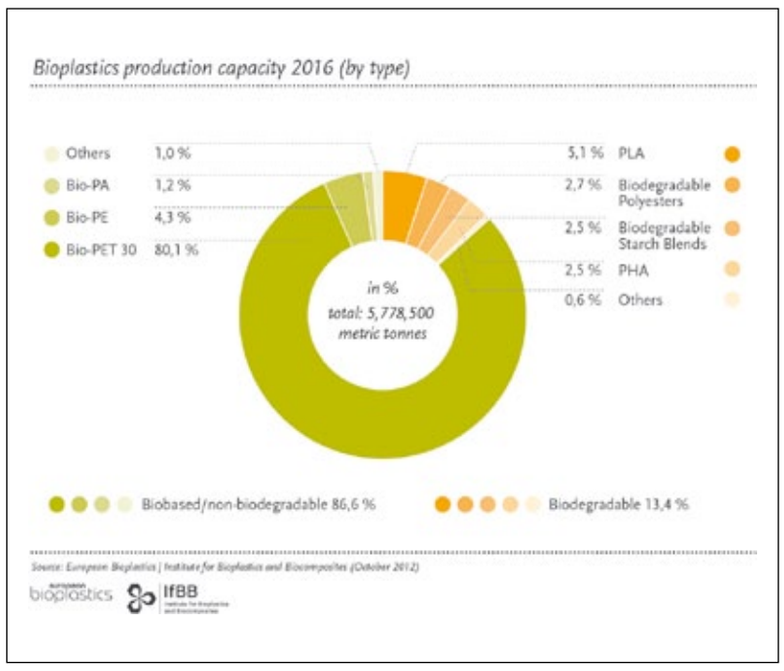
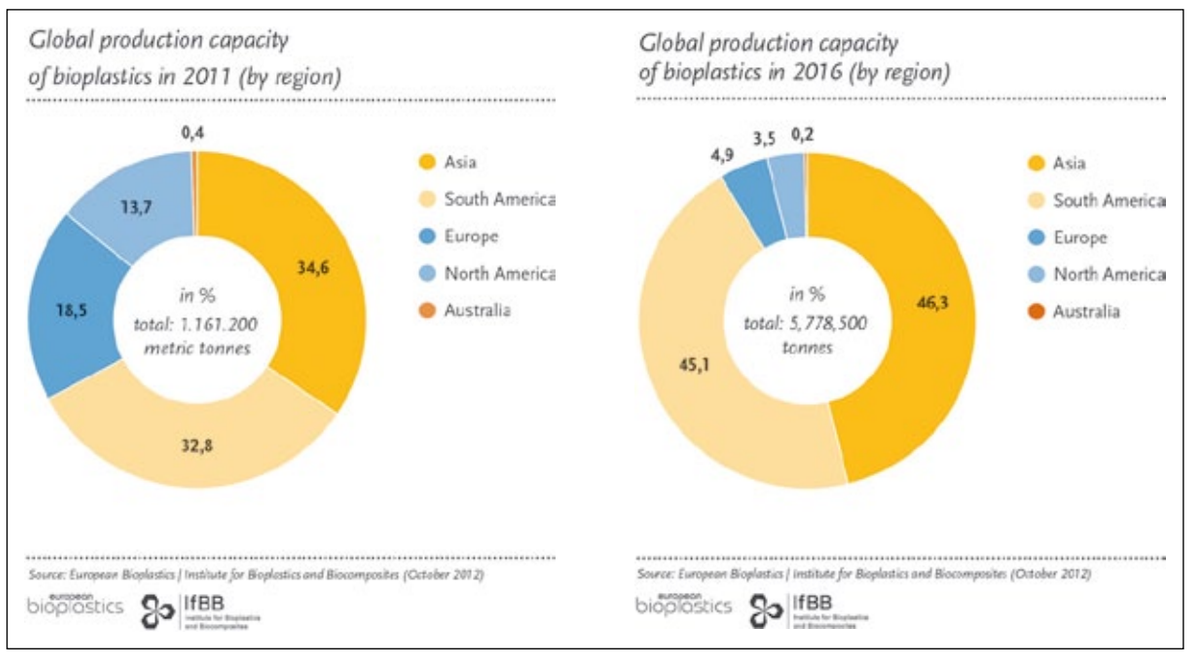






Styrolution Defines New Brand Strategy

Styrolution, a global manufacturer of styrenics with pro forma sales of €6.6 billion in 2011, announced measures to optimize its product portfolio. The company's current portfolio is comprised of key styrenic assets inherited from its heritage companies, BASF and Ineos. Thus, Styrolution has made a strategic decision to reclassify and harmonize product ranges into a unified product portfolio.

The portfolio offering will be grouped into two categories: Specialty and Standard products. The Specialty product range consists of clear and opaque copolymers and specialty acrylonitrile butadiene styrene (ABS) grades. Characterized by a high level of product customization and innovation, Styrolution Specialty products are known for their unique properties developed for specific market applications, such as high-performance, pre-colored solutions. Standard products are commodities like styrene monomer, polystyrene and standard ABS. These are typically robust and highly versatile workhorse grades for which customers expect competitive pricing and consistent quality with the reliability and supply efficiency of a global and regional supplier.

Since the start of the joint venture one year ago, Styrolution has offered grades marketed under various brand names inherited from its pedigree companies. The company will harmonize several brand names for selected product lines effective January 1, 2013, e.g. for all polystyrene products, Standard ABS products, Specialty ABS products, SAN products, and ABS and polyamide-based thermoplastic polymer blends. Branding for remaining specialty copolymers and blends will remain unchanged.

"Optimizing our portfolio by harmonizing branding along the lines of our standard and specialty business models allows Styrolution to clearly communicate both function and value to customers," says Alexander Glück, senior vice president global strategy, R&D and procurement. ■

EVENTS

ADIPEC 2012, Nov. 11-14, Abu Dhabi, United Arab Emirates
ADIPEC, short for "Abu Dhabi International Petroleum Exhibition and Conference" is the largest exhibition for the Middle East oil and gas industry. Supported by Abu Dhabi National Oil Company (ADNOC) and the UAE's Ministry of Energy. It hosts over 1,600 exhibitors and attracts more than 45,000 attendees and is considered the event where oil and gas industry professionals get together to experience, discover, network, discuss and debate core industry issues. ADIPEC began as a biennial event in 1984 and has grown in stature, significance and size with every exhibition since. From 2013 the show will become an annual event.

► www.adipec.com

International Forum on Commercializing Global Green, Nov. 12-14, Philadelphia, USA
SCD-iBIO will host the First International Forum on Commercializing Global Green: From Raw Materials to Global Brands at the Chemical Heritage Foundation (CHF) in Philadelphia, PA. The First International Forum, sponsored by the American Chemical Society, AIChE, CHF and SOCMA, is a three-day interactive forum that will include not only in-depth discussions but opportunities to network and form new professional relationships along the entire value chain, from raw materials to branded consumer products. Hear about pilot, scale-up and engineering issues, as well as best practices and lessons learned in both commercial and market development. The event will conclude with opportunities to become involved with SCD-iBIO working groups focusing on issues related to ensuring the reliability and sustainability of bio-based products and enhancing the value of global brands.

► www.scd-ibio.org

World Drug Manufacturing Summit 2012, Nov. 26-28, Duesseldorf, Germany
The World Drug Manufacturing Summit covers topics such as operational excellence, cost effective manufacturing strategies, facility management and IT in manufacturing. Some of the key topics to be discussed are: Minimizing Human Error To Optimize Manufacturing, Meeting Virus Safety Requirements, Designing A New Product Facility, Designing A Single Use Facility, Meeting Supply and Demand For Vaccine Production. CHEManager Europe subscribers get 15% off the registration fee.

► www.wdmsummit.com

World Economic Forum, Jan. 23 – 27, Davos, Switzerland
The World Economic Forum'–Annual Meeting 2013 remains the foremost creative force for engaging leaders in collaborative activities focused on shaping the global, regional and industry agendas. In the most complex, interdependent and interconnected era in human history, we are increasingly confronted by major adaptive challenges as well as profound transformational opportunities. This new leadership context requires successful organizations to master strategic agility and to build risk resilience. More broadly, it requires fostering resilient dynamism in every sector of society. "Resilient Dynamism" is the focus of this year's annual meeting, aiming to catalyze and facilitate global, regional and industry transformation as a trusted partner of our members and constituents.

► www.weforum.org

Informex USA 2013, Feb. 19-22, Anaheim, USA
The Informex USA promises to offer attendees a direct view of what is happening in the varied chemical marketplaces. With this focus, there is exceptional vertical insight many markets, including: textiles, electronics, food and beverage, fuel and lubricants, soaps and detergents, water treatment, flavors and fragrances, adhesives and resins, paint and coatings, cosmetics and personal care, biopharmaceuticals, plastics and polymers, organic chemicals, agrochemicals, pharmaceuticals and more.

► www.informex.com

Plastics in Automotive Engineering 2013, Mar. 13 – 14 , Mannheim, Germany
The 37th international congress Plastics in Automotive Engineering is organized by VDI Wissensforum in cooperation with VDI Society for Plastics Technologies. This event is widely recognized as "the" meeting-place for the automotive industry. It features a technical conference and a trade exhibition with raw material producers, manufacturers of plastic processing machines, plastics processors, and system suppliers. The conference provides a comprehensive overview of current developments in plastics of German vehicle manufacturers. Car manufacturers discuss which plastics and plastics-specific processing technologies have found their way into current component applications.

► www.vdi-wissensforum.de

CESIO 2013, Jun. 10 – 12, Barcelona, Spain
The 9th World Surfactant Congress and Business Convention will offer a one-of-a-kind location to meet the relevant actors of the global surfactant industry, its suppliers and customers and the service companies. The Congress in its renewed format will convene in Barcelona at the Centre Convencions Internacional Barcelona (CCIB) in 2013. The event is organized on behalf of the European Committee of Organic Surfactants and their Intermediates (CESIO), a sector group of Cefic, the European Chemical Industry Council. Participants will meet Business people, Application specialists, R&D and Regulatory Affairs professionals to share their expertise, to discuss market trends, to learn about new developments and to network within the supply chain.

► www.cesio-congress.eu

Nobel Prize in Chemistry 2012

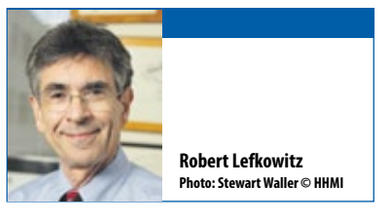
The Nobel Prize in Chemistry for 2012 has been awarded to Robert Lefkowitz, Howard Hughes Medical Institute, Duke University, USA, and Brian Kobilka, Stanford University, USA, for their work on G-protein-coupled receptors (GPCRs).

GPCRs are members of the family of integral membrane proteins (IMPs), which mediate the transfer of material and signals between the environment and the cytoplasm. There are about 1,000 GPCRs in the human body, all of which have similar molecular structures, defined by an amino acid sequence which crosses the plasma membrane seven times. This similarity means GPCRs can be effectively targeted and today as many as 30–50 % of all prescription drugs are designed to "fit" these structures. This has led to new anti-histamines, ulcer drugs, and beta blockers that help relieve hypertension, angina, and coronary disease.

Robert Lefkowitz studied at Columbia College, USA, and gained his M.D. from Columbia University College of Physicians and Surgeons in 1966. He served his internship and residency at the College of Physicians and Surgeons before joining the US National Institutes of Health in1968. He completed his medical residency and research and clinical training in cardiovascular disease at the Massachusetts General Hospital, Boston, USA, from 1970–1973. In 1973 he joined the faculty at the Duke University Medical Center, USA. In 1977 he was promoted to Professor of Medicine and in 1982 to James B. Duke Professor of Medicine at Duke University.

Lefkowitz' research focuses on the detailed characterization of the sequence, structure, and function of GPCRs, particularly the β-adrenergic and related receptors, and the two families of proteins which regulate them, the G-protein-coupled receptor kinases (GRKs) and β-arrestins. He discovered the similarity of the GPCRs' structures through first cloning the gene for the β-adrenergic receptor and later the genes for eight adrenergic receptors for adrenaline and noradrenaline.


Brian Kobilka
Photo: Linda Cicero, © 2012 Stanford University


Robert Lefkowitz
Photo: Stewart Waller © HHMI

Brian Kobilka studied biology and chemistry at the University of Minnesota, USA. He earned his M.D. from Yale University School of Medicine, USA, which was followed by a residency in internal medicine at Washington University School of Medicine, Barnes Hospital, USA. He was a postdoctoral researcher in the group of Robert Lefkowitz at Duke University, USA, where he started work on cloning the β2-adrenergic receptor. Kobilka moved to Stanford University, USA, in 1989, where he is currently Professor in the departments of Molecular and Cellular Physiology and Medicine.

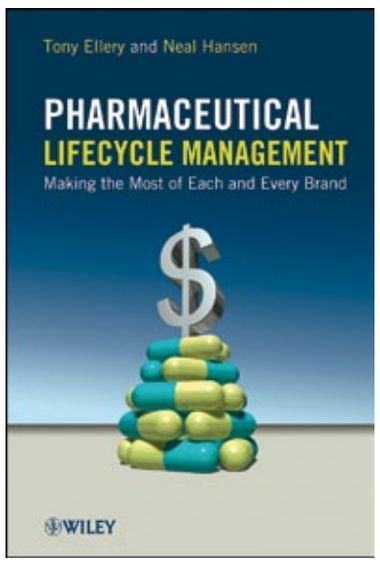
Kobilka's research focuses on the structure and activity of GPCRs, in particular, determining the molecular structure of the β2-adrenergic receptor. He has developed direct methods to monitor ligand-induced conformational changes in purified β2-adrenergic receptor, and has obtained a high-resolution crystal structure of this receptor.

► www.nobelprize.org

Pharmaceutical Lifecycle Management

This book pulls together the full spectrum of available lifecycle management (LCM) measures into one reference manual and shows how different LCM options can be combined to create winning pharmaceutical brand strategies. It contains many real-life case histories, illustrating specific situations of LCM successes and has failures for lessons companies can apply to their projects and brands. They also look ahead to predict which LCM strategies will continue to be effective in the future and evaluate organizational structures and processes to ensure that best practices are institutionalized and applied. Included in the book is a practical, hands-on section for project / brand teams on the mechanics of how to actually design and write a convincing LCM Plan. Finally, the book shows how to link corporate, portfolio and individual brand LCM strategies, addressing the challenges faced by a branded pharmaceutical company contemplating creating its own generics division.

Tony Ellery is a consultant with Ellery Pharma Consulting. Until September 2008, he was the Head of Life Cycle Management and Portfolio Management at Novartis Pharma AG.



Neal Hansen is the Global Director of Datamonitor's Healthcare Consulting Practice. Prior to this, he was the European Head of Consulting within Wood Mackenzie's Life Sciences Practice.

► Pharmaceutical Lifecycle Management
Tony Ellery and Neal Hansen
Wiley & Sons Ltd., 2012
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The Success Story of K Show

60 years ago, the first K show, the leading international marketplace for plastics and rubber opened its gates in Düsseldorf, Germany. In 1952, the German plastics industry was deep in post-war reconstruction, and the age of mass plastics production had only just dawned. K show should demonstrate the potential and versatility of polymer materials.

Today, K show is the undisputed flagship of its industry. Some 3,000 exhibitors from over 50 countries are expected to attend K 2013, which is taking place in Düsseldorf from 16 to 23 October 2013. They will be exhibiting materials and machinery for the plastics industry.

Take a look back into the past of K show: www.k-online.de/60_Years_K ■

PEOPLE


Dr. Kurt Bock

Dr. Kurt Bock, chairman and CEO of BASF, has been elected president of Cefic, the European Chemical Industry Council, for a two-year term. He replaces Giorgo Squinzi, chief executive of the Italian Mapei group, at the helm of the 29,000-member organization representing European chemical producers. Outlining his goals for the next two years, Bock noted that the chemical industry's sustainability journey will come from innovations designed to help meet future societal changes. The executive who has headed the world's largest chemical producer since 2011 said the EU's progress in sustainability "depends on innovation and a strong and competitive economy, which can be achieved with the right framework, set up with the help of EU policies. The new Industrial Policy and Horizon 2020 are examples of EU policies that go in the right direction to support us," he added.


Sandra Peterson

Sandra Peterson has been appointed to the new job of group worldwide chairman at drug maker Johnson & Johnson, effective December 1. After resigning as chairman and CEO of Bayer CropScience in September, the 52-year-old Peterson, who was one of only a handful of female CEOs in Germany, will oversee information technology and the global supply chain at J&J as well as J&J's large consumer business. She will also be a member of the J&J executive committee.


Dr. Karl-Ludwig Kley

Dr. Karl-Ludwig Kley, chairman of the executive board of German chemicals and pharmaceutical producer Merck KGaA has been elected president of the German Chemical Industry association VCI, to serve until October 2014. He succeeds Klaus Dr. Engel, chairman of the executive board of Evonik. Kley has been a member of the VCI steering committee since 2007, serving as treasurer since 2008. Following his election he commented that "it is also to the credit of the German chemical industry that our country has successfully mastered the economic crisis so far." As steps toward further strengthening competitiveness he said the industry "urgently requires" reliable and affordable energy supplies, clear political and social support of research and development and the guarantee of free world trade.


Dr. Hans-Joachim Müller

Dr. Hans-Joachim Müller, who previously sat on the executive committee of Clariant, succeeds Joris Coppye as CEO of Azelis. Laurence Nataf has taken over responsibility for Azelis' European operations in addition to his duties as group business development director. A new chief financial officer is to be appointed by Müller "in due course," to succeed Günther Krausser, who will become non-executive director of the holding's board.


Andreas Amling

Andreas Amling has been elected new chairman of Euro Chlor, the Federation of the European chlorine producing companies. Amling, Senior Vice President of Bayer MaterialScience, succeeds Michael Träger, CEO of Vestolit, for a two-year period. In 2002, Amling started his activities within Euro Chlor as member of the General Technical Committee. He became member of the Management Committee in 2007 and Chairman of the "Fachausschuss Chlor" of the German Chemical Industry Association VCI in 2008. Amling is Head of Industrial Operations Basic Chemicals of Bayer MaterialScience, responsible for the global operations of chlorine, nitric acid, technical gases and energies. With a capacity of almost 1.3 million tons per year, Bayer is one of the largest chlorine producers in Europe.


Ben van Beurden

Ben van Beurden will become Downstream Director of Royal Dutch Shell, effective January 1, 2013. In his new role, van Beurden will become a member of Shell's Executive Committee and will take over from Mark Williams who will be returning to the United States and leaving the company after 33 years' distinguished service. Van Beurden, a Dutch national and currently Shell's Executive Vice President Chemicals, has a Masters degree in Chemical Engineering from Delft University in the Netherlands. He joined Shell in 1983 and has held various engineering, plant management and operations and commercial roles in the Netherlands, Africa, Malaysia, UK and the USA.

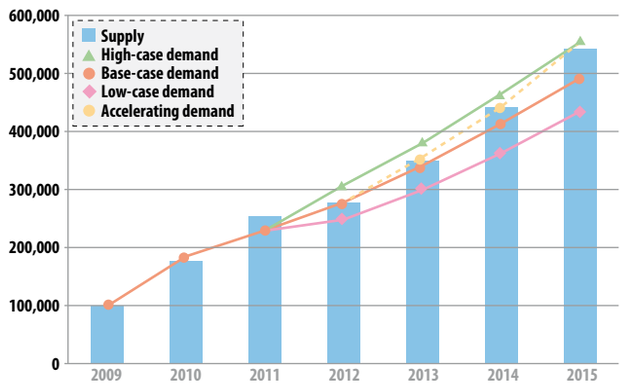

Dr. Sven Abend

Dr. Sven Abend took over the role as CEO with Kolb effective 1 October 2012. He replaced Peter Wilkes. Kolb with its headquarters in Switzerland is one of the largest alkoxylators in Europe and has a presence in markets throughout the world with a wide range of nonionic surfactants. In addition to its core expertise in alkoxylation the company is also engaged in esterification and methylation. Sven Abend joined Kolb in 2010 as Business Manager.

Robert Berendes, Head of Business Development at Syngenta, will assume ad interim leadership of the R&D function in addition to his existing responsibilities during the absence of Sandro Aruffo. Syngenta's Head of R&D will take medical leave, according to a company announcement.

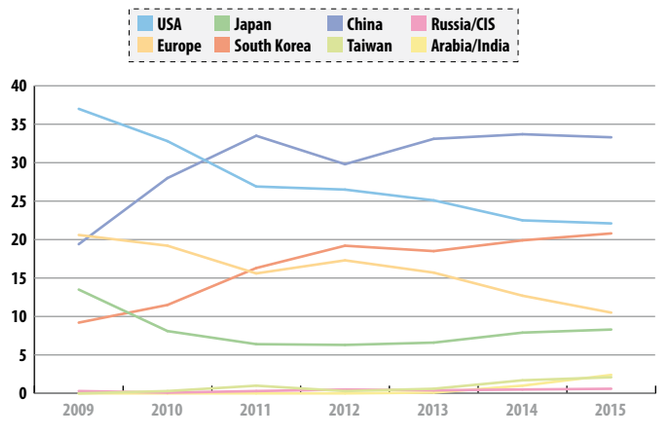
Leaner Polysilicon Industry Poised for Rebound

Development of polysilicon supply and demand scenarios 2009-2015 Fig. 1



Source: Bernreuter Research © CHEManager Europe

Distribution of polysilicon production by world region Fig. 2



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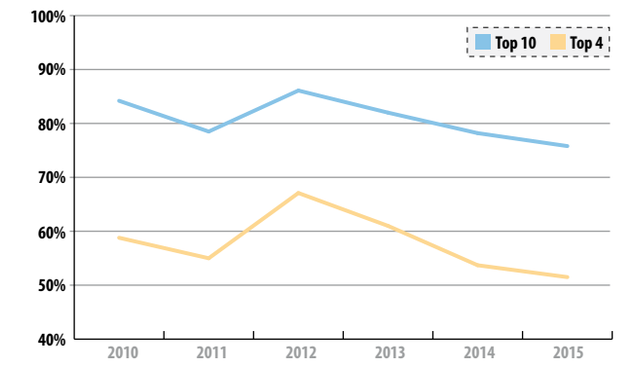
Market shares of the Top 10 / Top 4 polysilicon manufacturers Fig. 3



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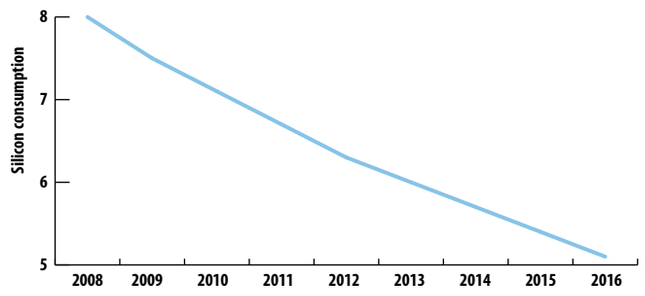
Specific silicon consumption of solar cell production
(in g/W) 2008 – 2016 Fig. 4



Source: Bernreuter Research, REC © CHEManager Europe

Supply and Demand

After a shakeout of nearly 40 manufacturers, the polysilicon industry will slowly recover from oversupply by 2014. 2015 could already see the harbingers of a new polysilicon shortage. With accelerating demand, a new polysilicon shortage could loom in as soon as three to four years (Fig. 1). This is one of the conclusions of a new market research report, which Bernreuter Research presented during the 27th European Photovoltaic Solar Energy Conference in Frankfurt, Germany, in September. Polysilicon, the feedstock for the semiconductor and photovoltaic (PV) industries, glutted the market in 2011 when the annual production volume of 255,000 metric tons (mt) exceeded demand by 25,000 mt.

Photovoltaic Industry Demand

The scenario of future demand which Bernreuter Research has developed is more aggressive than forecasts of other analysts. Several indicators point to new PV system installations of up to 37.5 gigawatts (GW) in 2012 with a base-case scenario of 36 GW, according to Johannes Bernreuter, head of Bernreuter Research and author of the report titled "The 2012 Who's Who of Solar Silicon Production" (www.bernreuter.com). The market researcher examined 72 analyst forecasts made about global PV installations from 2008 through 2011. He found that the forecast average remained more than 30% below the actual results.

Global Polysilicon Production

The report provides production volumes and end-of-year capacities for 82 polysilicon and UMG (upgraded metallurgical-grade) silicon plants and projects from 2009 through 2015. It highlights the market shares of the top ten manufacturers and the distribution of the global production volume by world region. Fig. 2 shows clearly that the polysilicon production moves from Europe and the Americas to Southeast Asia. South Korea and China will be the new powerhouses of polysilicon production by 2015. Other Emerging Countries will also increase production capacities significantly but from currently very low production volumes. Incumbent manufacturers will set up new plants in these emerging regions, but new entrants and aspirants from the Americas, Europe, Japan, Taiwan, Russia & the Commonwealth of Independent States, India and the Arabian Peninsula will diversify the manufacturer landscape. This will lead to a decrease of the market shares of the Top-10 and Top-4 polysilicon manufacturers in the years to come (Fig. 3).

Production Technologies

Bernreuter Research has thoroughly assessed the progress of ten polysilicon production methods. While most of the new approaches will not make it into commercial production, monosilane-based technologies show promise as serious rivals to the established Siemens process as they have low energy consumption and yield polysilicon of high purity. Another alternative, upgraded metallurgical-grade (UMG) silicon still has to prove its value proposition.

Solar Cell Efficiency

The supply/demand balance is also influenced by the specific silicon consumption of solar cell production. With solar cell production technologies getting more efficient, the silicon consumption per output power (GW) will drop (Fig. 4). The report predicts that by 2016, solar cells will only need 5.1 g silicon per watt, down from 8.0 in 2008 and 6.3 in 2012.

Power of the Sun – The stunning catamaran PlanetSolar that has been launched in March 2010 in Kiel, Germany, is the winner of the 2012 Practical Boat Owner (PBO) Green Award for having circumnavigated the globe using solar energy only. DuPont, an official partner of PlanetSolar, has supplied Tedlar polyvinyl fluoride (PVF) film, which is used as a component for the photovoltaic backsheets. It helps protect the modules and ensure reliable power generation and avoid any energy source failure. The biggest solar run ship in the world exposes to the sun a total of 537 m^2 of photovoltaic surface with a panel efficiency of 18.8 % that powers a 6-block lithium-ion battery.

Metal-Organic Frameworks

Chemists at Queen's University Belfast have devised a novel, environmentally friendly technique, which allows the rapid production of Metal-Organic Frameworks porous materials (MOFs). These revolutionary nanomaterials have the potential to transform hazardous gas storage, natural gas vehicles and drug delivery and have the highest surface-area of any known substance. A sugar-lump sized piece of MOF material, for instance, can have the same surface area as a football pitch.

Until now MOF manufacturing techniques have been limited as they are costly, slow and require large quantities of solvents, which can be toxic and harmful to the environment. Now, Professor Stuart James in Queen's School of Chemistry and Chemical Engineering has patented a novel technique for the synthesis of MOFs, allowing affordable, large-scale deployment of these ground-breaking materials for the first time.

Professor James said: "Because of their extremely large surface-areas and the flexibility with which their properties can be varied, MOFs can be used as sponges, to soak up and store gases, or as filters to separate and capture specific gases and chemicals. For example, they can be used to greatly increase the storage capacity of gas tanks. Now, for the first time, our patented technology allows the synthesis of MOFs without using any solvents, even water, and on greatly reduced timescales, by making use of mechanochemistry."

Granting of the patent has enabled the formation of a new company called MOF Technologies from Queen's spin-out arm QUBIS. Seed funding has been provided by both QUBIS and NetScientific, which specialize in commercializing technologies developed within university laboratories.

▶ www.moftechnologies.com

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