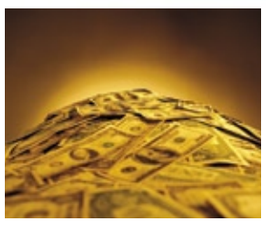
CHEManager EUROPE

11-12/2007 November/December

THE NEWSPAPER FOR THE CHEMICAL AND LIFE SCIENCES MARKETS



Markets & Companies

Client requirements in the chemical industry

Page 6

Markets & Companies

Tax planning concerns heighten as result of increased regulation

Page 7

Newsflow

Lanxess said Q3 EBITDA before exceptional items rose 6.7% to €175 million from €164 million a year earlier as it raised sales prices and capitalised on higher demand in its German home market and Asia. Sales advanced 0.8% to €1.705 billion. Quarterly net income jumped to €75 million from €36 million, boosted by a drop in one-off expenses and lower borrowing costs. The company said it expects its full-year EBITA excluding one-offs to reach €700–720 million, up from €675 million in 2006. Lanxess also said it expects stable business development in Europe.

▶ www.lanxess.com

BASF has signed an agreement with **Sabic Innovative Plastics** on the acquisition of Sabic Innovative Plastics' shares in the PBT joint venture, BASF GE Schwarzheide. The shares will be transferred at the end of the year, provided the transfer has been approved by the relevant authorities. Both companies have agreed to keep the financial details confidential.

▶ www.basf.com

▶ www.sabic.com

Orion Corporation has filed a patent infringement lawsuit in the U.S. to enforce its formulation patent, against **Sun Pharmaceutical Industries Inc.** and **Sun Pharmaceutical Industries Limited,** who seek to market generic versions of Stalevo tablets in the U.S. Stalevo is an enhanced levodopa treatment originated by Orion Corporation and marketed in the United States by its exclusive licensee, Novartis, for the treatment of Parkinson's disease. Orion Corporation and Novartis will vigorously defend the intellectual property rights covering Stalevo.

▶ www.orion.fi

▶ www.sunpharma.com

The German chemicals industry posted a 9% year-on-year increase in Q3 revenue as it passed on rising raw-material prices and amid strong demand from both its home market and abroad. The advance results from a 5.5% increase in output volume and a 2.1% rise in producer prices, the **VCI** association of the German chemical industry said in a statement.

▶ www.vci.de

Fasten Your Seatbelt

Clariant Is Getting Ready For Flight

The airplane analogy. Again. Jan Secher, CEO of Clariant, had to laugh when asked exactly what he meant when he recently told a Swiss newspaper that his company was comparable to an airplane ready to take off. "A lot of people have picked up on that," he said. The metaphor is fitting when one takes Secher's first 18 months in Clariant's cockpit into consideration. The company launched an ambitious strategy one year ago with the goal of becoming a world-class industry performer through a number of steps, including leveraging core activities; reducing products, sites and jobs; and managing product- and service-driven businesses differently. Brandi Schuster spoke to Secher about the progress of the company's restructuring.

Jan Secher
CEO of Clariant

CHEManager Europe: Mr. Secher, let's talk about the airplane. What brought you to that analogy?

J. Secher: There is a tremendous amount of activity going on in the company, be it in the area of cost reduction, streamlining or product pruning. We've set up assessment centers for our managers; we've boosted training through the implemtation of the Clariant Academy; and we have developed a new pricing management system that we are rolling out in the next two months. When you look at the results for the first three quarters of this year, you may ask yourself, "Where did it all go?" That's while I compared the company to an airplane on the runway. Right now, the plane is taxiing down the runway and the whole thing is rumbling and picking up speed. And that is very much where we are right now.

And when will Clariant be ready for takeoff?

▶ Continues Page 4

MARKET REPORT

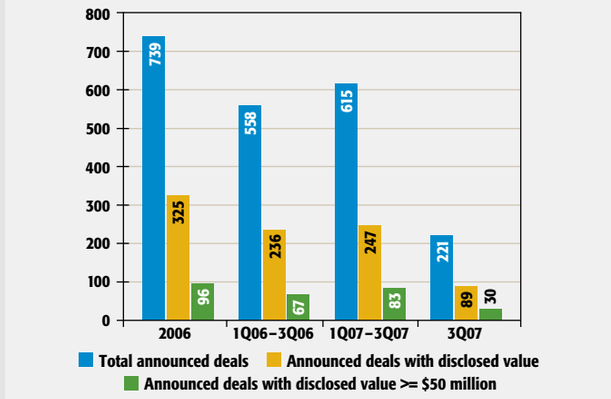
Large Deals Drive 2007 Chemical M&A Activity

By Pricewaterhousecoopers

Deal volume (by number of announced deals greater than $50 million) has been consistently high through the first three quarters of 2007. At the current year-to-date pace, 2007 deal volume is likely to surpass 2006, according to a recent analysis published by Pricewaterhousecoopers titled, "Chemical Compounds: Large Deals Drive 2007 Chemical M&A Activity." The strength of the first half of the year was no surprise given the momentum carried through from 2006. There was, however, some uncertainty for the remainder of the year created by the

FY2007 deal volume likely to surpass FY2006 Figure 1

Deal value by number of announced deals



Source: PWC © GIT VERLAG

▶ Continues Page 5

All For One

Two Chemical Distribution Networks Join Forces

The trend in the chemical distribution industry is hard to miss and could be likened to taking a leisurely swim in shark-infested waters. Consolidation is becoming more of a concern as the industry's top players continue to buy out their competition. Brenntag and Univar's bidding squabble over number-four ranked Chemcentral in the spring shows that not only small- and medium-sized distributors have one reason more to rethink their strategy. At the end of October, two chemical distribution networks – the U.S.-based Omni-Chem[136] and the German Penta – announced their plans for a strategic cooperation. Both organizations say the new cooperation will enable them to offer distribution solutions for important markets worldwide. Brandi Schuster spoke to Omni-Chem[136] Managing Director Fred Buehler and Penta Managing Director Dr. Bernd Soyke about their plans for alliance.

Dr. Bernd Soyke
Penta Managing Director

Fred Buehler
Omni-Chem[136] Managing Director

CHEManager Europe: What exactly is the concept behind these networks?

B. Soyke: Penta was founded by five medium-sized chemical distributors with the goal of bundling procurement demands in order to get better conditions from suppliers and manufacturers. Now, 40 years later, one of our main targets is still to make staying competitive a reality for medium-sized distributors.

And Omni-Chem?

F. Buehler: Omni-Chem is essentially identical to Penta. We are an alliance of 15 regional chemical distributors throughout the U.S., Canada and Mexico. When we formed the company in 2001, we selectively picked distributors that were located throughout North America in order to create a national distribution network. This strategy allows us to compete on a national level with the major industry players, and it also allows us to provide a North American market solution for major chemical manufacturers. Plus we are able to aggregate our total requirements when it comes to dealing with suppliers.

It sounds as if the motivation behind the founding of the companies was different: Penta was

▶ Continues Page 13

DSM On Track

Q3 Results in Line with Vision 2010

Royal DSM reported third-quarter earnings that matched market expectations and, as expected, reiterated its full-year outlook as given at the end of September. Net profit was €142 million, up from €140 million in the same quarter last year, and in line with the €135.4–148 million expected. Operating profit was up €5 million from last year, to €214 million. The company restated its outlook of an €820 million operating profit for the full year and added that its accelerated Vision 2010 strategy plan is on track. Brandi Schuster spoke to DSM's CFO Rolf-Dieter Schwalb about the company's ambitious growth targets and its plans to become a life sciences and materials sciences company.

Rolf-Dieter Schwalb

CHEManager Europe: Mr. Schwalb, when do you foresee

▶ Continues Page 5

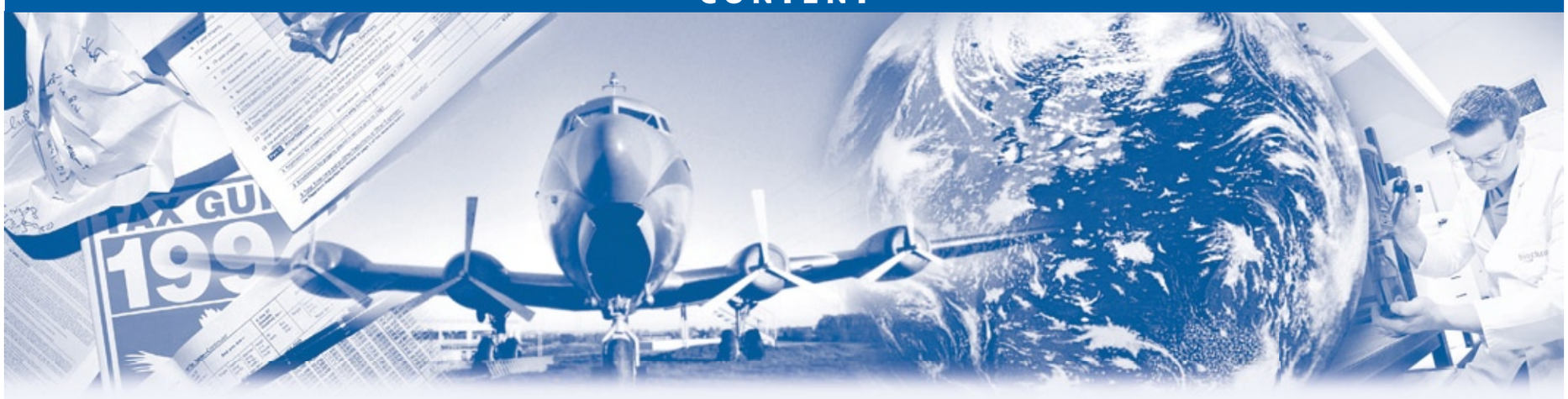
READER SERVICE

Don't have your own CHEManager Europe? Wrong address?

Send an e-mail at chemanager-europe@gitverlag.com

GIT VERLAG · PF 11 05 64 · 64220 Darmstadt
Pressepost · DPAG· Fee paid · D 12264 E

CONTENT



Clariant Strengthens Oil Services Business

Clariant has announced the acquisition of Toschem, a supplier of chemicals and services to the oil and gas and industrial water treatment markets in Colombia. The parties agreed not to disclose financial details of the deal. In addition, Clariant has further invested in a new site at Cota-Bogota in order to combine and therefore manage more effectively the existing office, laboratory and production facilities of Clariant in Colombia. The acquisition of Toschem marks the most recent step in realizing the global growth strategy for Clariant Oil Services.

▶ www.clariant.com
▶ www.toschem.com.co

Ciba Acquires Lansmont's Testing Services Group

Pira International, a company acquired by Ciba in 2004 and provider of Ciba Expert Services, has expanded its global testing services through the acquisition of the U.S.-based Lansmont Corporation's Testing Services Group. Lansmont's Testing Services Group delivers solutions for companies seeking to reduce product/package container costs. Through its three Service Centers located in Lansing, Mich., Sunnyvale, Calif., and Huntington Beach, Calif., the Testing Services Group offers measurement, testing, simulation, and consulting services. The acquired organization will operate as an affiliate of Pira International, conducting business under the Pira name.

▶ www.ciba.com
▶ www.pira-international.com

Bayer to Sell Hennecke to Adcuram

Bayer said it will sell its subsidiary Hennecke Group to the Adcuram Group. The Bayer Group will thus divest its polyurethane processing machinery business, which does not constitute one of the company's core competencies. The sale is scheduled to be completed by the end of the year. Financial details of the transaction will not be released.

▶ www.bayer.com
▶ www.hennecke.com
▶ www.adcuram.de

Merck Operating Results Up

Merck KGaA total revenues in the third quarter rose 61% to €1,741 million compared to €1,085 million in the year-ago quarter. For the first nine months of 2007, group revenues increased 59% to €5,251 million. Third-quarter total revenues grew organically by 11%. Currency effects had a negative 2.9% impact on quarterly revenues. Acquisitions and divestments, mainly the purchase of Serono, raised group total revenues by 52% in the third quarter. Using 2006 pro forma figures, i.e. including Serono, third-quarter Group total revenues increased 7.9%. Nine-month pro forma revenues rose 5.7% to €5,251 million from €4,970 million.

▶ www.merck.de

Solvay to Focus on Fluor

Solvay has announced that it is taking steps to further focus its Fluor Chemicals business on high value-added specialties, while scaling down its activities in refrigerant gases. The market for these commodity products is affected by adverse developments, including a surge in low-cost competition from Asian manufacturers. Solvay has entered into the relevant social procedures and will consider all feasible solutions – including early retirement, reassignment to other jobs and locations – to alleviate the social impact of the reorganization which is planned in Germany, Italy and Spain.

▶ www.solvay.com

Univar Continues Investments

Univar has announced the addition of Innophos' full range of pharmaceutical excipients to its European portfolio. Univar Pharma Ingredients will sell and market Innophos' full range of ingredients, which includes widely used calcium phosphates. The Innophos range encompasses di- and tri-calcium phosphate powders under the Calipharm brand and the granular products, Di-tab, A-tab and Tri-tab. These products are used as tablet fillers or sources of calcium for many pharmaceutical formulators. Jeremy Drummond, European director of Univar Pharma Ingredients said, "Our aim is to guarantee our customers can easily access their products locally in Europe and be confident that the quality of the supply chain matches or even exceeds their regulatory requirements."


Jeremy Drummond, European director of Univar Pharma Ingredients

The company has also opened new distribution centres in Dublin, Ireland, and Barcelona, Spain. In a parallel development, it has collaborated with Liquid Bulk Chemicals (LBC, the Netherlands) to open a new repackaging line that will repack bulk liquid excipients according to Good Manufacturing Practice (GMP) quality guidelines. In Ireland, Univar has inaugurated a facility that becomes the new center serving the chemicals industry nationwide. In Spain, Univar Iberia has moved into a new warehouse facility. Located in Barcelona, this new site consolidates operations previously conducted at four different centers. It comprises dedicated product areas including a facility for cold storage.

▶ www.univareurope.com
▶ www.univarcorp.com
▶ www.innophos.com

Evonik Acquires DEC Interests

Evonik Industries said it has acquired the remaining 50% of shares in its former carbon black Joint Venture Degussa Engineered Carbons (DEC) from ECI. DEC will now be a 100% owned subsidiary of Evonik. Financial details of the transaction were not disclosed. The closing has been completed.

▶ www.evonik.com

Lonza: 'Strong' Business Performance

Lonza Group said its business performance in the first nine months of this year was "strong" and it expects the full-year performance to be above guidance. The specialty chemicals group previously forecast full-year EBIT to grow more than 20%, with medium-to-long-term sales growth guidance of 8–12% per year. Lonza added that its pipeline development in all businesses is "robust," and said it expects the pipeline to be in line with its growth expectations.

▶ www.lonza.com

Merck & Co. Q3 Profit Up 62%

Merck & Co. posted a 62% increase in its third-quarter profit, as the drugmaker's revenues increased by double digits. It also boosted its full-year earnings forecast. The U.S.-based company reported net income of $1.53 billion, up from $940.6 million, a year earlier. Revenues totaled $6.07 billion, up 12% from $5.4 billion a year ago.

▶ www.merck.com

Chemtura: Q3 Profit Falls Short of Expectations

Chemtura reported a third-quarter net profit of $2 million, or a penny a share, and adjusted earnings of $19 million, or 8 cents per share. Analysts polled by Thomson Financial were expecting, on average, a per-share profit of 14 cents. In the same quarter last year, Chemtura posted a net loss of 17 cents a share and an adjusted profit of 8 cents a share. Revenue in the quarter ended Sept. 30 rose 9% to $950 million from $873 million last year.

▶ www.chemtura.com

chemanager@gitverlag.com

Degussa is now Evonik.

Evonik Industries is the new creative leader in specialty chemicals. Our essential solutions are based on 160 years of knowledge.

Customers in more than 100 countries count on Evonik experts to think outside the box and deliver industry-leading performance.

www.degussa-is-evonik.com

Evonik. Power to create.

EVONIK INDUSTRIES

Novartis Partners With MIT Novartis and the Massachusetts Institute of Technology (MIT) have launched a long-term research collaboration aimed at transforming the way pharmaceuticals are produced. The 10-year partnership, known as the Novartis-MIT Center for Continuous Manufacturing, will work to develop new technologies that could replace the conventional batch-based system in the pharmaceuticals industry – which often includes many interruptions and work at separate sites – with continuous manufacturing processes. Novartis will invest US-$ 65 million in research activities at MIT over the next 10 years.

Both partners expect the technologies created in this collaboration will benefit patients and healthcare providers through a positive impact on supply availability and the quality of medicines. These technologies will also seek to reduce the environmental impact of manufacturing activities. Expected benefits of continuous manufacturing include accelerating the introduction of new drugs by designing production processes earlier; using smaller production facilities, with lower building and capital costs; minimizing waste, energy consumption and raw material use; monitoring quality assurance on a continuous basis instead of post-production batch-based testing; and enhancing process reliability and flexibility to respond to market needs.

▶ www.novartis.com
▶ www.mit.edu

Avantium and BP Extend Partnership Avantium, a technology company servicing oil, chemicals and pharmaceutical industries, has announced the three-year extension of the strategic research collaboration with BP. The collaboration in the area of purified terephthalic acid (PTA) was initiated in 2005. During the three-year-period, Avantium will apply its R&D technology, services and modelling capabilities in the research and technology portfolio of BP's PTA business.

▶ www.bp.com
▶ www.avantium.com

Ineos, Carlyle Group to Collaborate Ineos has announced that it has reached an agreement in which the PQ Corporation, the speciality chemical company acquired in July 2007 by the Carlyle Group, will combine with INEOS Silicas. Under the terms of the proposed agreement, the Carlyle Group will have an approximate 60% share and Ineos approximately 40%. The financial terms were not disclosed.

▶ www.ineos.com
▶ www.thecarlylegroup.com

Solvay and Perstorp Enter Agreement Solvay has signed a sale and purchase agreement with the Perstorp Group of Sweden to sell the latter its entire Caprolactones business, which is active in the production, marketing and sales of epsilon-Caprolactone. The transaction is expected to be completed in the fourth quarter of 2007, pending the relevant regulatory approvals. The agreed price for the transaction is €200 million.

▶ www.solvay.com
▶ www.perstorp.com

G24i and BASF to Develop Ionic Liquids G24 Innovations (G24i) and BASF said they will initiate a program to develop ionic liquids and formulations that improve both performance and efficiency of G24i's solar cells using a proprietary dye-sensitized thin film technology. G24i develops products to power a range of portable electronics such as mobile telephones but also examines the use in smart textiles and building-integrated materials. BASF manufactures ionic liquids – salts which are liquid below 100 °C – that are suitable for use across a broad range of different applications ranging from processing chemicals and polymers, to engineering liquids like hydraulic liquids or lubricants, to uses in electrochemistry.

▶ www.g24i.com
▶ www.basf.com

Syngenta Starts Research Partnership Syngenta has agreed to a research partnership in Australia that focuses on the development of cost effective conversion of sugarcane bagasse to biofuels, including the delivery of plant-expressed enzymes. The research partners are the Queensland University of Technology (QUT), its technology transfer and commercialization company qutbluebox and the Australian agrobiotech company Farmacule BioIndustries. A new Syngenta Centre for Sugarcane Biofuel Development will be established at QUT's campus in Brisbane, Australia. Under the collaboration agreement Syngenta will have exclusive global marketing rights for the products, excluding Australia, New Zealand and the Pacific islands, where rights are held by the other project partners. Syngenta can also use the developed technologies in other crops.

▶ www.syngenta.com
▶ www.qut.edu.au
▶ www.farmacule.com

Abbott and Solvay Pharmaceuticals to Collaborate Solvay Pharmaceuticals has entered into an agreement granting Solvay select co-promotion rights in the U.S. for Abbott's investigational fixed-dose combination lipid therapy, Simcor (Niaspan/Simvastatin), currently awaiting U.S. Food and Drug Administration approval. Under the terms of the agreement, Solvay will provide sales support in the U.S., contribute to development and promotional expenses and be compensated based on product sales. Specific financial terms were not disclosed.

▶ www.solvaypharmaceuticals.com
▶ www.solvay.com
▶ www.abbott.com

BASF, Harvard: Research Collaboration Harvard University's Office of Technology Development and BASF have announced an agreement to jointly establish the BASF Advanced Research Initiative. While based at Harvard's School of Engineering and Applied Sciences, the initiative will benefit from having strong ties with departments and schools throughout the University. Set up as a fully collaborative, integrated partnership among Harvard and BASF researchers, the agreement represents a novel model for university-industry collaborations and is designed to foster intellectual exchange. As outlined in the agreement, BASF will provide direct funding to Harvard researchers, support initially 10 postdoctoral students. Total funding over the next five years is anticipated to be up to $20 million.

▶ www.basf.com
▶ www.harvard.edu

Fasten Your Seatbelt

Clariant Is Getting Ready For Flight

▶ Continued **Page 1**


Photo: Photocase (aussi97)

J. Secher: What we need now is clarity on what the divisions are doing to improve performance and how that translates into the bigger picture of our Clariant 2010 strategy. I would say that there will be clarity both internally and externally to see what those needs are in the next six months.

How far along are you in the restructuring process?

J. Secher: It's a matter of how quickly we can turn a high-level plan into reality. We are moving along the lines that we outlined with our target 2010, and nothing has changed in terms of the objectives we have set. Admittedly there are some items that should have progressed faster than they have, but it is absolutely no reason for me to start losing sleep over or second-guessing. We on the right track, are doing the right things and will we get there by the end.

What makes you so sure?

J. Secher: Let's take product pruning, for example. We said that we will cut 25% of our product range, and with the percentage of cuts done being already at 20%, it's clear that we are on track. This progress enables us to go forth with other issues as well.

Also, if we look at site restructuring, we have already closed three sites and seven labs at a smaller site. In the third quarter of this year, we announced the closure of the Textile, Leather and Paper Chemicals site at Selby in the UK. We have also decided to close the Pigments and Additives site in Coventry, Rhode Island in the U.S. and the Masterbatches site in Naucalpan, Mexico. With the additional restructuring costs planned for the fourth quarter, the total for the year in this area will amount to about CHF250 million. These closures are at the heart of our restructuring plan and will result in half of the personnel reduction targets that we announced.

Site closures with layoffs is probably one of the more difficult objectives.

J. Secher: This has been a painful process ever since we first announced it in November last year. We only talk about site closures when we are ready to do so. I cannot guarantee anything to anyone, not even to our biggest sites. If I were to selectively give affirmation to some sites, then all the other sites would expect me to guarantee that they won't be closed either, and that would prevent us from building a future site network based on a reasonable analysis of our market environments.

How did selling off the Phamaceutical Fine Chemicals and Custom Manufacturing businesses change the dynamics within Clariant?

J. Secher: The change was twofold. First of all the performance improved as both of those businesses were underperforming. Secondly, the sales have brought focus into the management team.

Is it thinkable that Clariant would consider selling other business units?

J. Secher: I definitely see continuing opportunities both in divestments as well as in acquisitions in order to continue portfolio streamlining and the expansion of capabilities.

As far as divestures are concerned, we will be continuing to have an eye on the businesses that are underperforming and that don't really fit in strategically. There are assets in our portfolio where the performance needs to improve; I am not in the position to tell you which those are and how much time they have to improve, but I can say that we have identified these business units and have begun to measure average performance. The pressure to perform differently depending on the asset base, but the ultimate goal is that we get a return on our cost of capital.

That said, portfolio side is going to be an instrument that we continue to work with. The linkage between the portfolio and the structure is quite important. We have identified the highly service driven businesses that we want to invest for growth. Then we have other businesses that we see as being more product-driven or commoditized, an area where we are not interested in investing for growth. This doesn't mean that they are performing poorly or that we intend to sell them; we simply have to get better at driving such businesses.

An example of this would be the combination of the Specialty Intermediates and Detergent businesses, both of which were performing weakly on their own.

J. Secher: If we hadn't put the two businesses together, the point would have come where it was beyond repair. That will still be a very cash-generated and interesting business for us, but we have to drive it in a very different way compared to the more in terms innovation driven business, that we have in the other parts of the portfolio.

Is it too early to tell if the consolidation will pan out as planned?

J. Secher: Yes, it is too early. However, I can say it is going to be a very interesting learning experience for the rest of the organization.

Are there businesses are candidates for merging?

J. Secher: Either merged together or given a business environment and cost structure to allow them to be successful in their markets. Yes.

Can you tell us which ones you have in mind?

J. Secher: No, but we are working very hard on this and each of the businesses is going through a strategic process. For example, the Pigments and Additives division will implement a revised strategy striving for cost leadership in their businesses. The division has seen a trend of commoditization in parts of its portfolio. Initially, product- and service-driven businesses will be clearly separated and managed differently, and the business unit Base Products will be created. Similar initiatives are progressing well in the divisions Functional Chemicals and Textile, Leather and Paper Chemicals. These developments are a natural consequence the direction we set with our restructuring plan last year.

How do these announcements fit in with the timeline for 2010?

J. Secher: The process has taken mainly six months longer than I would have liked to see. But, given the fact that there is such a high element of culture change within this whole process as well, I am certainly not worried about our progress.

Would you say that you are optimistic?

J. Secher: I am confident. When you speak of optimism, that word can easily be misinterpreted – I don't mean that I am optimistic about the next two months or so. We have set ourselves a goal for 2010, and that is to be above average. And I see absolutely zero reason why this company should not be above average in our industry, absolutely not. We have great products, a very good market position and good people. I am extremely confident that we are going to get there.

Where do you see room for production growth?

J. Secher: If we look at the broader picture, the growth is really happening in the emerging markets. This doesn't just mean China an India, but also Latin America, where we are seeing strong growth rates in some of our markets. We also see North America as an opportunity for growth, although it could hardly be considered as an emerging market. We will be expanding our production where there is a market for it; this is the main driving force behind our production ascension and capacities. We want to keep the more specialised high-level knowledge based production here in Europe; half of our business, in terms of assets, is here.

Clariant saw the strongest organic growth in Asia in the first half of the year – the continent posted 9%, compared to a mere 1% from Europe. What are the company's plans for further expansion in the area?

J. Secher: Our expansion plans are driven by the growth that we see there. We launched our strategy in India in August through which we plan to double our revenue there in the next three to four years. Also, last year we kicked off our strategic initiative for Asia in which we plan to grow at a rate double that of the GDP. We have between 120 and 150 initiatives in that range in Asia, and there is a very strong push to make sure that we deliver on that plan.

Any thoughts of shifting sites that are currently elsewhere to Asia?

J. Secher: There will be elements of that, such as the additional capacity we have in ethylene-based products. The reason here is twofold: One is the fact that these products are very volatile and don't lend themselves well to transportation. The other reason is the transportation cost is too high to justify shipping these products from either Europe or Asia. We don't see competition from Asian newcomers in this area in the same dimensions as in pigments, for example. Pigments have a much higher kilo price compared to ethylene-based chemicals, and this makes the dynamics totally different. We are looking to put production capacity on the ground in the next 18 months in order to be able to really penetrate the Asian market.

What standards do you apply when it comes to tightening your product portfolio?

J. Secher: Ever since I started at Clariant, I've been talking about turning the company into a more front-end driven organization. We need to apply a much stronger marketing approach in identifying the opportunities. In many of our areas, we are investing in understanding the needs of the marketplace, then feeding that knowledge into R&D and into the development site. This is a step in making our company more front-end driven rather than driven only by the technology from the back end.

The approach is logical and is used in most other industries, but it seems as if the chemical industry is seeing this as completely new and revolutionary idea.

J. Secher: I think the chemical industry is relatively late in adopting this line of thinking. But one has to consider that this is an asset-driven business. The line of thought is, to a large extent, "I have a plant and not filling my plant is the worst thing that can happen." This is why we have to have an outlet for production in mind constantly. While the idea of a front-end driven organization appears to be an easy one, a shift in culture is actually necessary in order to put this into action. The culture change we are currently undergoing at Clariant involves having a deeper understanding of our markets and responding accordingly.

According to a strategic analysis we did last year, 40% of our portfolio is price driven, and this is coming from an organization that is labeled – and rightly so – as a specialty chemicals company. What does specialty mean? It means we are providing something that others can't, and yet, 40% of our portfolio is price driven. That was something of a rude awakening, but it was a very healthy awakening. It simply means that we have to drive our business differently.

How do you deal with problems that come from the outside, such as the high cost of raw materials and energy?

J. Secher: Product pruning helps a lot, because you have a much more standardized range. That means that we can pool and make quick shifts if one raw material or supplier goes up 10, 15 or 50%. Secondly, is that we have put our procurements into a global procurement organization. That obviously makes our response time quicker and gives us bundling effects. Thirdly, we have started a couple of initiatives, such as Energy 2010, which outlines our plan to reduce energy use in our production processes.

Of course, on the other side of the equation is what we do to pass the costs on. We have been driving extremely hard on price increases and have managed to achieve 1% during the first half year. And this is within an organization that is used to reducing its prices.

How important are brands in specialty chemicals? What is your branding strategy regarding Clariant products?

J. Secher: I would like to see them be more important than what they are today. We have a very clear monobrand strategy, nothing more. We have a good brand with an image of sustainability and quality. But there are other ways to go. For example, when you buy a sports jacket, the chances are that there are chemicals in it from Clariant that make it breathable. But this is not widely known, and this is where I believe ultimately we need to go. I can imagine our marketing managers in the textile business working together with the people from the Calvin Kleins of the world. This would create awareness for what we do, and we would also get feedback on what is important for them. They could give us input on what they need to develop a product, and we could show them what's possible.

Several of your competitors spend a lot of money on image campaigns aimed at end-users. How important is it that Clariant becomes a household name?

J. Secher: This isn't something we have on our radar right now. There are other things we need to work our way through first before that becomes a priority. I would say that the jury is out on whether or not that is even something we would want. What is important is that we are recognized on the marketplace – and we are.

▶ www.clariant.com

chemanager@gitverlag.com

MARKET REPORT

Large Deals Drive 2007 Chemical M&A Activity

Continued Page 1

the debt market turmoil in the second quarter. But even during this period of uncertainty, M&A activity has proven to be resilient, based on the third quarter volume as compared to 2006 and the first half of 2007.

Although the current market dynamics have not impacted the level of deal activity as much as some had anticipated, the deal processes may have been affected. It is reasonable to believe that relative bidding leverage has increased for strategic bidders as the debt market turmoil has altered the financing landscape that fueled private equity activity over the past several years. This dynamic may be compounded for foreign strategic bidders because of the continued weakening of the U.S. dollar, which recently hit an all-time low against the euro at the end of the third quarter.

Large Deals in 2007 Driving Total Deal Value Higher than 2006

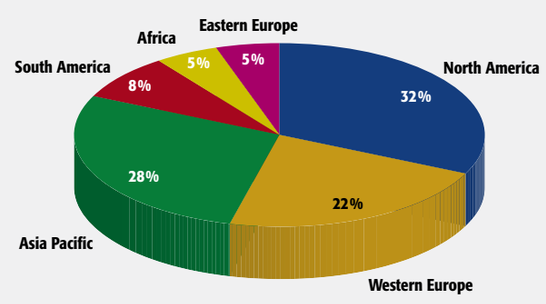
Total deal value for the first three quarters of 2007 exceeded total deal value for all of 2006 ($88 billion versus $51 billion, respectively). This was driven partially by an increase in the number of deals announced in the comparable period as well as an increase in the average deal size. Average 2007 deal value doubled as compared to 2006 to over $1 billion per deal. This high level of activity remained strong into the third quarter of 2007 with $31 billion of deal value and an average of over $1 billion per deal.

This increase in deal value during 2007 reflects the increase in both the number and size of announced large deals. There were 12 large deals during the first three quarters of 2007, as compared to nine large deals during all of 2006. During the first three quarters of 2007, three large deals were announced with deal values in excess of $10 billion (ICI, Lyondell Chemical & GE Plastics, being the acquirees). Only one large deal with a value of greater than $10 billion was announced during 2006 (BOC Group). In both 2006 and 2007, several deals made by large strategic buyers resulted in some fundamental shifts in their positions within the chemical industry.

Deals by Investor Type

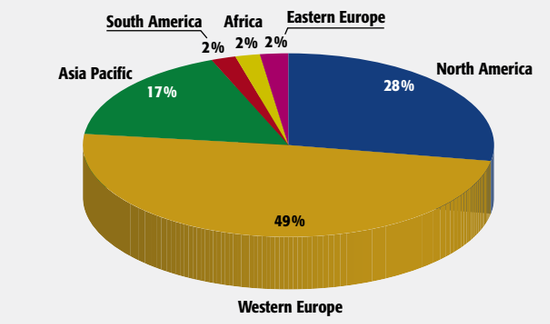
During FY2006 and YTD Q307, the proportion of deals (by value) completed by strategic investors has outpaced deals completed by financial investors. This proportion has increased throughout the year to a high of 87% in the third quarter of 2007. Although this data reveals the strength that strategic bidders have relative to financial bidders, it does not accurately reflect the true level of financial bidder activity and the impact that they have had on the bidding process. Some of the bidding processes had financial bidders that influenced the prices such that strategic bidders were required to pay more to win the bids. Additionally, some of the winning bidders were portfolio companies of private equity firms. In these cases, although the acquiring legal entity was a strategic bidder, the deal process was likely influenced by the ultimate shareholders (i.e., financial investors). An example of a recently active strategic bidder that is a portfolio company of private equity firm is Hexion, which is owned by Apollo, and is currently in the acquisition process for Huntsman.

Regional distribution of deals worth $50 million or more
Measured by number of Deals (1Q07–3Q07) — Figure 2



Source: PWC © GIT VERLAG

Regional distribution of deals worth $50 million or more
Measured by Value (1Q07–3Q07) — Figure 3



Source: PWC © GIT VERLAG

Regional Distribution of Deals Worth More than $50 million

The regional distribution of deals with values of $50 million or more indicates that North America firms have been the leading acquisition targets on both a volume and value basis. The disproportionate value of these North American deals (49% of the total deal value versus 32% of total volume) has been driven by three large deals: Lyondell Chemical ($12.4 billion), GE Plastics ($11.6 billion) and Huntsman ($6.2 billion). It was also noted that several Middle Eastern companies were active bidders in 2007, accounting for three of the 12 winning bids in the 2007 large deals.

Regional Distribution of Deals, Measured by Number of Deals

When compared with previous charts, the regional distribution of all deals in 2006 and through the first half of 2007 indicates that the Asia-Pacific region has been an attractive region for smaller deals. However, through the third quarter of 2007, deals in this region are not on pace to exceed the number of deals in 2006. The slowdown in M&A activity related to Asia-Pacific companies during 2007 has been offset by an increase in deals for firms in North America and Western Europe. The number of deals in Asia has declined during the first three quarters of 2007, driven by less deal activity in China, India, Japan and the other Asian countries. In 2007, M&A activity in India may be less than 50% of the prior year.

We have noted that, although the actual deal activity in Asia has dropped off from its previous pace, some of the North American and European deals have come with manufacturing capacity and market positions in Asia that were likely attractive attributes that supported the business case and valuation of the acquisition.

Large Deals in 2006 and 2007

A notable difference between 2006 to YTD 2007 is the increase in the number, magnitude and average transaction values of large deals. Large deals totaled $65 billion for the year to date 2007, more than double the full year total in 2006 ($32 billion). This increase is the result of three deals announced in excess of $10 billion, compared to only one in 2006. Additionally, there were two deals in 2007 valued over $5 billion (but less than $10 billion) as compared to none in 2006. Another notable point is the shift in geographical location of the acquirers, from a U.S. and European focus in 2006 to the emergence of Middle Eastern acquirers: Sabic (Saudi Arabia), Abraaj Capital (United Arab Emirates) and Cristal (Saudi Arabia). Such a trend is not wholly unexpected, and it is consistent with relatively lower cost of raw materials and recent economic growth in these regions.

www.pwc.com

Large deals in 2006

Date announced	Target name	Acquiror	Status	Value of transaction (in US$ billion)
25 Jan. 2006	BOC Group PLC	Linde AG	Completed	14.05
3 Jan. 2006	Engelhard Corp	BASF AG	Completed	4.86
14 Sept. 2006	GE Advanced Materials	Apollo Management LP	Completed	3.80
1 Mar. 2006	Degussa AG-Construction Chem	BASF AG	Completed	3.34
23 Nov. 2006	HC Starck GmbH und Co KG	Investor Group	Completed	1.49
17 Dec. 2006	Bunge Fertilizantes SA	Fosfertil	Pending	1.37
20 Feb. 2006	Groupe Materis	Wendel Investissement SA	Completed	1.21
31 Aug. 2006	MacDermid Inc.	Investor Group	Completed	1.14
11 May 2006	Hawkeye Holdings Inc.	Thomas H Lee Partners LP	Completed	1.08

DSM On Track

Q3 Results in Line with Vision 2010

Continued Page 1

DSM completing its shift to a life and materials sciences company?

R.-D. Schwalb: As this is apart of our Vision 2010, this is a plan for the next three years. Not only will we be divesting areas, but we are also looking for external growth through acquisitions in our core areas. We consider the next three years to be a transformation phase, as it was with petrochemicals five years ago.

We want to divest certain businesses that don't fit that strategy anymore. Those businesses which do not fit with the strategic thrust will be carved out and divested, during the course of the Vision 2010 period.

Which businesses are you looking to divest?

R.-D. Schwalb: Industrial Chemicals except for our Fiber Intermediates, which will be known as Polymer Intermediates in the future due to the need for a backward-integration element for Engineering Plastics. In Performance Materials it will be our Elastomers business, because that is about 80–90% commodity. We are also looking to divest two smaller businesses in Pharma and Nutrition. We are also looking for a new partner in the citric acid business. As of January, all of these businesses will be reported under a new cluster called Base Chemicals and Materials. Our goal is to have emptied this cluster by 2010.

CHEManager Europe: How realistic is DSM's organic growth target of over 5% per year?

R.-D. Schwalb: This is backed by our innovation program; if we take €1 billion additionally for innovation, we expect to have a growth of 2–2.5% from innovation sales alone. This 5%, by the way, is also lower than the general GDP growth. Based on our GDP assumptions and innovation objectives, this should be possible. However, this is only organic growth, not including any divestments or acquisitions.

DSM saw an increase in innovation expenditure in the third quarter; where do you see the need for innovation in the coming year?

R.-D. Schwalb: We have innovation efforts in all of our business groups, particularly in Performance Materials and Nutrition. We've pumped a few million into each of those groups. We also have a special innovation center, where we host our emerging business areas for our innovation pipeline for beyond 2010. We have four emerging business areas – Biomedical, Personalized Nutrition, Specialty Packaging and White Biotechnology. We've increased the spending each year since 2005. This year we plan on investing €40 million in this area; last year we spent about €25 million.

That's a large increase. Will you be investing even more next year?

R.-D. Schwalb: Yes – our plan is to increase investment up to €70 million by 2010, which breaks down to about roughly an additional €10 million per year.

Which business units do you plan on pushing in 2008?

R.-D. Schwalb: We of course want to see the biggest growth in our core areas of performance Materials and Nutrition. We are also expecting growth in Pharma, at least in the Custom Manufacturing Business.

DSM's presence in China has jumped dramatically in the last year. Can we expect this trend to continue?

R.-D. Schwalb: Yes, that's our objective. We've increased our target for 2010. Initially we were aiming at $1 billion in sales, but we've had to up that to $1.5 billion, because we are already at about $950 million. In the first 9 months of this year, we've grown 24% to $683 million, which supports our assumption that we will break the $900-billion mark by the end of the year. We're looking at a growth rate of about 20% per year in order to reach the goal of $1.5 billion by 2010.

What consequence does this have on the company's presence elsewhere, particularly in Europe?

R.-D. Schwalb: These are only sales within China, not exports. Increased sales in China therefore do not have a direct impact on European factories. The only area where we are looking for alternatives is in the anti-infectives, where it is possible that we further move our efforts to China due to lower costs and competition. However, the overall growth in China is mainly due to customers in China.

www.dsm.com

Conjoint Analysis: Decide on Measures

Client Requirements in the Chemical Industry

A detailed understanding of customer requirements is essential for chemical companies in order to optimize their product offerings. Do customers only care about price? Or is good technical service essential for business success? Are some customer segments willing to pay a substantial premium for delivery within 24 hours? How important are customized products? Getting answers to these questions almost guarantees increased sales and profits.

In reality, classical customer surveys sometimes fail to deliver these answers. Extended face-to-face interviews with customers are very helpful for learning about market trends and general customer requirements. However, when it comes to setting priorities between different product properties, they are less fruitful. The typical customer asks for highest quality, fastest delivery, highest level of technical service, etc. – and all at the lowest price. This is understandable, but not very helpful in determining the optimum product offering.

The conjoint analysis is a customer survey technique which forces customers to state clear preferences and to make trade-offs between product attributes. This is done by giving the customers a choice between different product bundles. By indicating their preferred choice among several product bundles, the customers implicitly give information about which attributes are the most important to them.

To give a simplified example, customers may look at three different parameters when choosing a supplier for a specific chemical:

- Purity may be either 99% or 99.9%
- Price may be either €5/kg or €5.5/kg
- Delivery time may be either one day or one week.

In a conjoint survey based on this example, the customers are not asked to state their ideal combination (which would obviously be the 99.9% pure chemical at €5/kg delivered within one day). Instead, they may be asked whether they would rather have Product A (99.9% pure but at the higher price of €5.5/kg and delivered within one day) or Product B (only 99% pure and delivered only after one week but at the lower price of €5/kg). Thus they are forced to make a trade-off between, e.g., price and purity/delivery time.

Once the customers have indicated their preference, they are again presented with two or more products (but with a slightly different combination of attributes) and asked for their preference. In a real-life conjoint survey, the customers participating in the survey are ideally asked to indicate their preferred choice about 20 times. The data thus generated is used as input for a specific computer program which calculates the importance of the different attributes based on the customer input.

Let us take a look at a more realistic example – a conjoint survey conducted by Stratley for a global chemical company in China. This example also shows that running a conjoint survey is somewhat complex as it consists of a number of separate steps:

- Initial qualitative interviews to get an overview of customer buying criteria
- Definition of most essential 4–6 buying criteria
- Definition of 2–3 levels for each buying criterion
- Development of the actual conjoint survey
- Conduct the online conjoint survey
- Analyze results
- Decide on measures based on the results

Initial Qualitative Interviews

The conjoint analysis described here is a tool for prioritization of a number of given buying criteria. However, it cannot be employed for determining which criteria should be prioritized. Therefore, it is necessary to identify all relevant customer buying criteria in the preparation phase of a conjoint survey. In the example given here, this was done in a series of interviews with experienced sales staff from the client company. The result was a longlist of approximately 20 criteria that were found by sales staff to have an influence on the buying decision of customers.

Definition Of Buying Criteria

This longlist of criteria was then reduced to 4–6 criteria as the conjoint survey only gives meaningful results if the number of product attributes is small (otherwise the quality of customer replies decreases considerably). This was accomplished in a workshop to identify the most important criteria in a discussion together with management and senior sales staff.

Definition Of Levels

For each criterion, different levels have to be designed. For example, the buying criterion "delivery time" is meaningless unless, e.g., the three possible options "one day," "one week," and "one month" are assigned. Finding the right levels also requires input from the business experts as levels have to reflect the real or potentially real situation in the market place.

Development of the Actual Conjoint Survey

The actual online survey is then developed based on the selected criteria. This includes a computer-optimized choice of product bundles as well as the graphic design of the web-based survey and is a complicated process. Also, at this point the number of questions put to the customers needs to be determined. The online conjoint survey may be supplemented by open or multiple-choice questions that can also be included in the overall online survey. Depending on the region, more than one version may be used.

If these were your only options, which would you choose?

Please choose by clicking one of the buttons below

	Offering 1	Offering 2	Offering 3
Price	5% below average market price	Average market price	5% above average market price
Consistent Quality	2% of deliveries with minor quality problems	5% of deliveries with major quality problems	100% deliveries without quality problems
Technical Support	Good technical support given for all volumes and materials	No technical support given	Technical support only given in combination with high ordered volumes
TDI Content	High (> 1% of hardener)	Medium (0.5% of hardener)	Low (0.2% of hardener)
Payment Terms	30 days	90 days	Advance payment only

Fig. 1: Appearance of the online survey on the web

Conduct the Online Conjoint Survey

After some internal test runs, the conjoint survey is now put online and made accessible to the customers. It is important to motivate as many customers as possible to go through the survey, for example, by inviting them to participate via email in combination with phone calls. Reply targets may be given to the sales staff. In the example described, the conjoint survey was online for a total of five weeks, with a reminder sent out after two weeks. Of the approximately 500 customers initially contacted, more than 25% participated in the online survey, giving a substantial information base.

Analyze Results

Most importantly, once the conjoint survey is closed, the results need to be analyzed with the help of customized software. In the example given, information obtained included:

- The general importance of different buying criteria
- The specific importance of buying criteria for various market segments (e.g., large vs. small customers, Chinese vs. foreign customers, etc.)
- The utilities of the different levels. The utility is a relative measurement of the strength of preference for each level of each attribute of the product
- Illustrative results are shown in fig. 2 and 3.

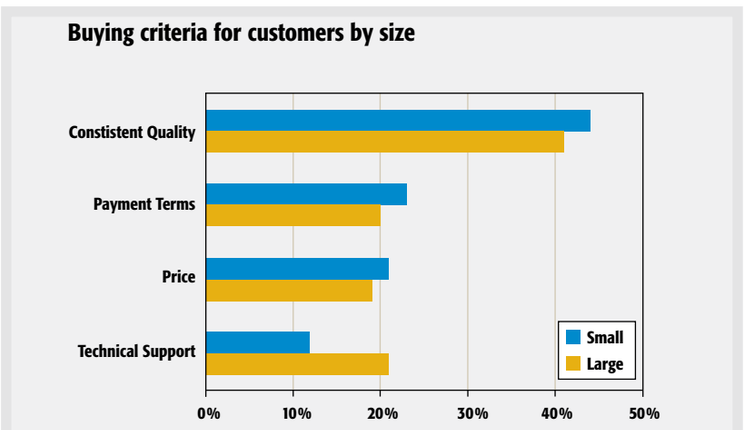


Fig. 2: Conjoint survey results: relative importance of selected buying criteria

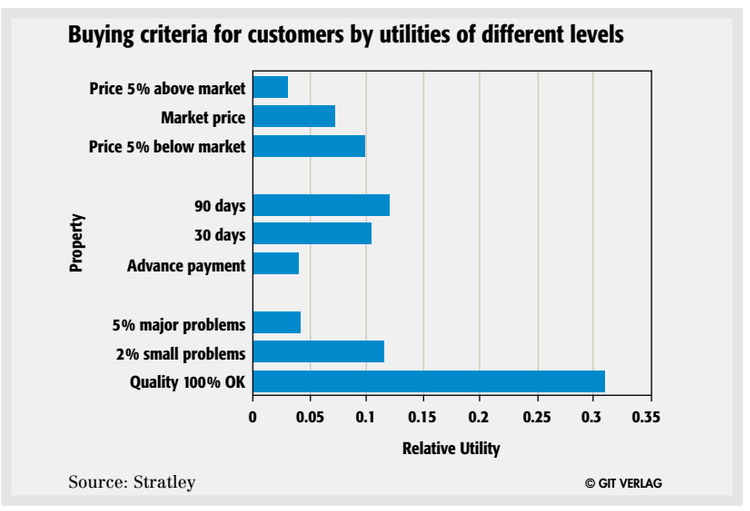


Fig. 3: Conjoint survey results: utilities of different attribute levels

Decide On Measures

The actual value of a conjoint survey is not achieved by just extending customer knowledge. At this point it is advisable to run a workshop or discuss with management what measures to implement in order to benefit from the conjoint results. Typical measures are:

- Expansion/improvement of attributes (e.g., shorter delivery time as importance is greater than originally thought)
- Price increases for all customers or for less price-sensitive segments
- Shift of focus among customer segments (as some segments are found to be more profitable)
- Dropping of services for which customers are not really willing to pay
- Adaptation of marketing to identified customer priorities
- Development of segment-specific product offerings (e.g., "no frills"-segment)

As these steps show, running a conjoint survey is a somewhat complex task that requires both a lot of effort and some previous market knowledge. However, conjoint surveys may substantially improve marketing and sales of chemicals as they force customers to clearly state what they want and what they are willing to pay for. Thus, the conjoint survey is a valid tool for optimizing chemical product offerings.

▶ Contact:
Kai Pflug, Stratley AG, Shanghai
Tel.: +86 21 2890 9677

SAP: Q3 Results Up 13% SAP has reported software and software-related service revenues of €1.74 billion ($2.44 billion) for the 2007 third quarter, an increase of 13% compared to the third quarter of 2006. Net income for the 2007 third quarter was €408 million ($571 million), an increase of 10% compared to the same period last year. The company reaffirmed its expectations for the full-year 2007 revenues to increase 12% to 14%.

▶ www.sap.com

Albemarle: 3Q Revenue Falls Short of Expectations Albermarle reported third-quarter earnings of $59.1 million, matching the mean estimate of analysts surveyed by Thomson Financial. Sales for the quarter ending Sept. 30 fell to $584 million from last year's $607.8 million, and missed analyst forecasts of $605.7 million, amid declines in sales in its polymer additives, catalysts and fine chemicals businesses.

▶ www.albemarle.com

Air Products Announced Record Sales Air Products has reported record net income of $293 million, or diluted earnings per share of $1.31, for its fiscal 2007 fourth quarter versus $128 million and $0.57, respectively, for the fourth quarter of fiscal 2006. For fiscal 2007, sales of $10,038 million were up 15%, net income of $1,036 million was up 43%, and earnings per share of $4.64 were up 46% over the prior year. Operating income of $1,390 million increased 23% t. Diluted earnings per share of $4.37 was up 25%.

▶ www.airproducts.com

3M: Record Q3 Sales and Earnings 3M has announced its sales and profit results for the third quarter of 2007. The company posted record third-quarter sales of $6.2 billion, an increase of 5.5%. Sales rose 9.4% adjusted for recently divested businesses, primarily the company's branded pharmaceuticals business. Third-quarter net income was a record $960 million, or $1.32 per share, versus $894 million, or $1.18 per share, in the third quarter of 2006. Net income and earnings per share increased 7.4% and 11.9%, respectively. Included in these results is a net benefit from special items of $20 million, or $0.03 per share, in the third quarter of 2007, and a net gain of $10 million, or $0.01 per share, in last year's third quarter.

▶ www.3m.com

Rohm and Haas: Strong Q3 Performance Rohm and Haas has reported third quarter 2007 sales of $2,204 million, a 7% increase over the same period in 2006. The company said the numbers reflect strong performance across all business segments and in all regions outside of North America. The company reported third quarter 2007 earnings from continuing operations of $129 million.

▶ www.rohmhaas.com

Syngenta Third Quarter Sales Up 21% Swiss maker of crop protection chemicals Syngenta reported that third quarter sales increased by 21% to $1.7 billion. In Crop Protection, third quarter sales rose 16% with growth across all regions. The main impetus came from Latin America where the strength of the portfolio was fully exploited in a strong market, notably Brazil and Argentina. In Europe, exceptional disease pressure in fruit and vegetables contributed to increased fungicide sales in major markets. For the first nine months, sales of new products rose 19% to $949 million led by Axial, Actara, Cruiser and Callisto. Seeds sales rose 23% at constant exchange rates in the quarter driven largely by growth in corn and soybean in Latin America.

▶ www.syngenta.com

SGS and TÜV Nord Contracted for Gas Pipeline Project

The consortium consisting of SGS and TÜV Nord won the contract from Nord Stream, in which, apart from Gazprom, also Wintershall and Eon Ruhrgas have shares. The companies in the consortium will independently review and verify design drawings and planning documents for the important pipeline project to ensure its safety. Moreover they will act as experts for the German authority.

Two pipelines, each 1,210 km long, willl be laid in the Baltic Sea and will connect Wyborg at the Russian coast with Greifswald in Germany, thus tying Europe directly with the worlds largest natural gas reserves. Over 2 million t of steel and 2.4 million t of concrete will be used during the construction. First natural gas is scheduled to flow through the new pipeline in 2010. About 25% of the EU's additional gas demand shall be covered by both pipeline strings as from 2015 on.

▶ www.tuev-nord.de
▶ www.de.sgs.com

Dow Corning Invests $50 Million in Emission Reduction

Dow Corning has announced a $50 million investment in new equipment for its Midland,Michigan plant that is expected to reduce CO_2 emissions by 20%, total emissions by 75%, and lower the site's consumption of natural gas by 400 billion Btu per year – the equivalent of heating more than 3,500 homes over the winter.

The new equipment includes a recycle system designed to remove and recycle by-products from manufacturing processes, and a thermal oxidizer that will reduce air emissions from the site while generating steam for process heating.

The recycling system uses a plasma gasification process that separates the waste material generated in the chlorosilanes manufacturing process into organic and chlorine parts. The organic portion is converted into a synthetic gas for use in the steam boilers. The chlorine portion will be converted into one of the raw materials used to make chlorosilanes. Remaining materials will be turned into a relatively small amount of inert obsidian-likeglass that is also recyclable.

When fully operational this process will generate approximately one-third of the site's steam load, significantly reducing the consumption of natural gas.

Dow Corning is working with two companies on the project. The waste processing system will be owned by Integrated Environmental Technologies, LLC. A second company, Veolia Environmental Services was contracted by IET to operate the recycling equipment. Several of the new jobs created from this investment will be Veolia Environmental Services employees.

▶ www.dowcorning.com

chemanager@gitverlag.com

The Taxman Cometh

Tax Planning Concerns Heighten as Result of Increased Regulation, Oversight

Global chemical companies' effective tax rates have increased slightly at 2.4 % between 2003 and 2005, according to Pricewaterhousecoopers' second annual Tax Benchmarking Survey for the Chemical Industry. The three-year average effective tax rate (ETR) for the 46 leading global chemicals companies included the study is 29.5 %. Rising tax rates in 2005 indicate that increased financial scrutiny may have resulted in reduced reserves being recorded.

"A combination of high-profile corporate failures, tax restatements and regulation have clearly established tax as a key area of risk on the boardroom agenda," said Michael W. Burak, Pricewaterhousecoopers' global tax leader, Chemicals Industry. "Companies are under increased pressure from the tax authorities as well as the SEC in connection with corporate income tax planning. Meanwhile, wider groups of stakeholders are becoming more interested in companies' tax postures with the implementation of FIN 48, the new accounting standard governing uncertain tax positions. As a result, companies must demonstrate more sophisticated key tax controls and work, more closely than ever, with their controller and CFO counterparts."

The survey shows an interesting trend concerning the ratio of cash tax paid as a percentage of current tax provision. This ratio may give an indication of the level of tax reserves included in the current period tax provision. Mostly, the cash tax to current provision ratios are less than 100 %, indicating that companies generally continue to build tax reserves. However, during the period of the study, the ratio increased in all quartiles, indicating that the amount of additional reserves being recorded is decreasing.

Assuming fairly constant profits, cash tax paid during the year should be approximately equal to the current tax provision recorded during the same period. A lower ratio indicates that the current tax provision is higher than the cash tax paid during the year. This growth in the underlying ratio may be signifying that the companies included in the survey are slowing-down their build of tax reserves for current and previous tax planning strategies.

The Impact of Globalization

The survey shows that globalization has a significant impact on tax rates. The ETRs of multinational companies

are lower (three-year average 28.5 %) than those of domestic companies (three-year average 33.7 %). The lower ETR of multinational companies reflects the fact that companies operating internationally have opportunities to undertake cross-border tax planning.

According to the survey, the ETRs of U.S.-based companies rose in 2005 compared to those of foreign-based companies, reflecting the impact of the American Jobs Creation Act (AJCA). The AJCA provided U.S.-based multinationals with a one-time opportunity to repatriate foreign earnings at a reduced rate of tax (generally 5.25 %). Although this reduced the possible U.S. tax cost by 85 %, the 15 % cost was incremental. Most companies had previously asserted the APB 23 indefinite reversal exception and had not recorded deferred taxes for these earnings, resulting in one-time significant (albeit reduced) charges in 2005.

What is FIN 48?

FIN 48 covers a set of new rules governing the Accounting for Uncertainty in Income Taxes released by the Financial Accounting Standards Board (FASB) in 2006. They include a higher standard that tax benefits must meet before they can be recognized in a company's financial statements. Although FIN 48 is intended to increase the comparability of financial statements, it also significantly increases the calculation and documentation requirements for individually identified income tax exposures. For more information, go to the FASB's website: www.fasb.org

Total Tax Contribution

Corporate income tax is only part of the total tax contribution made by chemical companies. Other business taxes include property, employment, environmental and industry taxes. This has implications for both internal management of all business taxes and transparency regarding reporting of all business taxes paid.

"Greater transparency over all taxes paid – the total tax contribution – will help disclose the impact of tax on the business and its stakeholders," Burak said. "A current challenge for the tax professional is to identify the right balance when planning for taxes. On one side of the balance, taxes are a significant cost to the corporation and should be controlled and managed in the quest to create shareholder value and maximize earnings per share. On the other side, the amount of tax paid by large corporations is coming under increasing scrutiny and public debate. Tax benchmarking is one way of helping to judge this balance."

Survey Methodology

Forty-six of the leading global chemicals companies from the fine, basic, bulk, specialty and petrochemicals sectors participated in this survey. Within the sample, 23 companies were U.S.-based, six from Germany, five from Japan, three from the Netherlands, two from China, Switzerland, Canada and France, and one from UK. The report summarizes the findings from benchmarking key financial indicators for tax for the past three years. All information is taken from publicly available financial statements spanning the period January 2003 through September 2006 (Nine companies in the sample have non-31 December fiscal year-ends and their 2006 data is included. The data for these companies for the three years ending in 2004, 2005, 2006 is shown as 2003, 2004, 2005 respectively).

▶ www.pwc.com/chemicals

EU: OK to Dupont, Dow Biotech Corn

The European Commission said it has approved two biotech corn products for food, feed, import and processing jointly developed by Dupont and Dow Chemical Company unit Dow Agrosciences LLC. The Herculex strains are now permitted for import into the bloc, following approval by the EU's own independent scientific authority, the European Food Safety Authority.

▶ www.dow.com
▶ www.dupont.com

Eastman and Green Rock to Cooperate

Eastman Chemical Company has entered into an agreement with Green Rock Energy to jointly develop an approximately $1.6 billion industrial gasification facility in Beaumont, Texas. The facility, which is expected to be online in 2011, will use petroleum coke as the primary feedstock to produce hydrogen, methanol and ammonia. The project will be equally financed by Eastman and by Green Rock. A subsidiary of Eastman will operate, maintain and provide other site management services for the facility. In addition, Eastman will purchase methanol produced by the facility under a long-term supply agreement.

▶ www.eastman.com
▶ www.greenrockenergy.com

Johnson & Johnson: 12 % Increase

Johnson & Johnson has announced third-quarter sales of $15.0 billion, an increase of 12.7 % as compared to the third quarter of 2006. Operational growth was 9.7 % and currency contributed 3.0 %. On a pro forma basis, including the net impact of the acquisition of Pfizer Consumer Healthcare in both periods, worldwide sales increased 2.4 % operationally. Net earnings and diluted earnings per share for the third quarter of 2007 were $2.5 billion and $0.88. Excluding the impact of special charges, net earnings and diluted earnings per share for the quarter were $3.1 billion and $1.06, representing increases of 7.0 % and 8.2 %, respectively, compared to the same period in 2006.

▶ www.jnj.com

Schering-Plough Q3 Profit up on Gains

Profit more than doubled for Schering-Plough Corp., but the drugmaker's performance without one-time gains fell shy of expectations and its shares skidded more than 13 %. The company said that with a major acquisition expected to close by the end of the year and some potentially blockbuster drugs getting close to approval, sales are expected to keep growing but so are expenses. Revenue climbed 9 % to $2.81 billion from $2.57 billion a year ago.

With about 60 % of its revenue generated by drugs sold abroad, Schering-Plough said the weaker dollar helped push revenue up 3 % year-over-year. Adjusted to include results of its cholesterol joint venture with Merck & Co. for the drugs Zetia and Vytorin, revenue would have totaled $3.5 billion, up from $3.1 billion a year earlier. CEO Fred Hassan said that by the next quarterly earnings report, Schering-Plough will be a larger company with a new line of products in development.

▶ www.schering-plough.com

Neocork Relocates Headquarters

Neocork Technologies has signed a lease agreement for its European manufacturing, processing and distribution headquarters to be relocated in the state-of-the-art Chemelot Research & Business Campus in Sittard-Geleen, the Netherlands. Chemelot is housing more than 60 complementary companies on its industrial park and Research & Business Campus.

▶ www.neocork.com
▶ www.chemelot.com

Celanese Q3 Results Exceed Wall Street Estimates

Celanese reported third-quarter adjusted per-share earnings of 73 cents, up from 71 cents during the same period a year ago. The U.S.-based chemicals company posted net earnings of $128 million, compared with $109 million last year. Revenue for the quarter came in at $1.57 billion, topping the consensus estimate of $1.54 billion. A year ago, revenue was $1.47 billion. In a statement, Celanese said higher pricing on continued robust global demand for Acetyl Intermediates products and sales from the recently acquired Acetate Products business drove the increased revenue.

Additionally, Celanese raised its outlook for 2007, saying it now expects adjusted per-share earnings of $3.10 to $3.20. The previous forecast was for adjusted earnings of $2.85 to $3 a share.

▶ www.celanese.com

Borealis and Borouge Invest for Growth in Europe, Middle East, Asia

Borealis and Borouge, providers of plastics solutions, continue to invest in Europe, the Middle East and Asia to secure growth in the infrastructure, automotive and advance packaging markets. Borealis' current European production asset investments are aimed at increasing the competitiveness of its operations. In Sweden, the €370 million investment in a 350,000 t/y low density polyethylene (LDPE) plant will supply materials to the growing wire and cable market as well as the Nordic packaging market. A €200 million expansion in Germany of a polypropylene (PP) plant based on Borstar technology will enhance Borealis' ability to provide solutions to the progressing advanced packaging market.

▶ www.borouge.com

Genzyme Offer for Bioenvision Acquisition Approved

Genzyme has won backing from Bioenvision shareholders to acquire the biotechnology company for $345 million, closing a contentious process in which the shareholder vote was reopened to secure majority support. Bioenvision shareholders voted to approve the company's acquisition at a reconvened shareholder meeting in New York, the companies said. The companies said holders of 56% of Bioenvision's shares voted in favor of the deal, representing 67% of the total shares whose holders participated in the vote. Among those who fought the deal was SCO Capital Partners, which owns a 13% stake in Bioenvision. SCO Capital Partners has called the price too low, and said the sales process was poorly time and managed. Proxy advisers Institutional Shareholder Services, Glass Lewis & Co. and Egan-Jones had recommended that shareholders vote against the deal. Genzyme said it hopes the acquisition will enhance its oncology offerings because it will receive exclusive, worldwide rights to clofarabine, a cancer drug Bioenvision and Genzyme codeveloped in Europe.

▶ www.genzyme.com
▶ www.bioenvision.com

Praxair Q3 Earnings Up 23%

Industrial gas provider Praxair said its third-quarter earnings rose 23%, beating Wall Street's estimates, on new business overseas coupled with better pricing. Earnings increased to $305 million from $247 million in the year-ago quarter. Revenue rose 13% to $2.37 billion from $2.1 billion. The company attributed sales growth to new business and project startups in Asia and South America as well as growth in North America. South American sales grew 23% to $419 million, while sales in Asia rose 15% to $190 million. Sales in North America, Praxair's largest market, rose 10% to $1.31 billion, driven by growth in energy and general manufacturing segments, the company said.

▶ www.praxair.com

Air Products to Sell HPPC-Line

Air Products has signed a definitive agreement to sell its high-purity process chemicals (HPPC) business to KMG Chemicals of Houston, Texas (U.S.). The agreement includes the sale of a production facility and warehouse in Pueblo, Colorado (U.S.). Subject to compliance with certain applicable regulatory requirements which should entail a period of approximately four weeks, Air Products will also enter into an agreement with KMG for the simultaneous sale of the assets of the HPPC business located in San Giuliano, Italy.

▶ www.airproducts.com
▶ www.kmgb.com

Arkema: Consolidation At Saint-Menet

The management of the Arkema Marseille Saint-Menet facility has presented a plan for the site's future aimed at consolidating its activities over the long term by enhancing its reliability and competitiveness, which would entail the loss of 48.5 jobs, and by increasing its production capacity by 10%.

▶ www.arkema.com

Wyeth Reports Earnings Results

Wyeth has reported results for the 2007 third quarter and first nine months. Worldwide net revenue increased 9% to $5.6 billion for the 2007 third quarter and 10% to $16.6 billion for the 2007 first nine months. Excluding the favorable impact of foreign exchange, worldwide net revenue increased 6% for the 2007 third quarter and 7% for the 2007 first nine months.

Net income and diluted earnings per share for the 2007 third quarter were $1,145.9 million and $0.84, respectively, compared with $1,156.9 million and $0.85 for the 2006 third quarter. The 2007 third quarter results included charges of $117.1 million ($86.0 million after-tax or $0.06 per share-diluted) related to the company's productivity initiatives.

▶ www.wyeth.com

BP May Pull Out of JV with CPC

BP said it may pull out of a joint venture with Taiwan's CPC, a company that makes purified terephthalic acid, after it withdrew from a similar venture in South Korea, the Economic Daily News reported. The Chinese-language paper said the Taiwanese joint venture, China American Petrochemical, reported a net loss of NT$2.2 billion for 2006, its first loss since it was set up in 1976, because of high inventories and weak demand. BP owns 61.4% of the joint venture and CPC controls the remainder, the paper said.

▶ www.bp.com
▶ www.cpc.com.tw/english/home/index.asp

Merck: Agreement with Imclone, Bristol-Myers Squibb

Merck KGaA has established an agreement with Imclone Systems Incorporated and Bristol-Myers Squibb company for the co-development and co-commercialization of Erbitux (cetuximab) in Japan if approved by the Japanese Pharmaceuticals and Medical Devices Agency. Under terms of the co-development and co-commercialization agreement, Merck, Imclone Systems and Bristol-Myers Squibb will jointly market the product under the trademark Erbitux in Japan for the treatment of metastatic colorectal cancer, as well as for the treatment of other cancers. The three companies will share development costs, sales and marketing expenses, and profits realized as a result of the agreement.

▶ www.merck.de
▶ www.imclone.com
▶ www.bms.com

Basell Sells License in Qatar

Qatar Petroleum has selected Basell's Spheripol technology for a new 700 kt/y polypropylene plant that will be built in Mesaieed, Qatar, as part of the Qatar Petrochemical Complex project. The unit will be operated by a joint venture between Qatar Petroleum and Honam Petrochemical of Korea. Start-up is expected in 2011. "With this new license we have passed the milestone of 20 million t of licensed capacity for our Spheripol process," said Just Jansz, president of Basell's Technology Business. This is the second license sold by Basell in Qatar this year. A Lupotech T low density polyethylene license was recently granted to QAPCO for a new plant in Mesaieed.

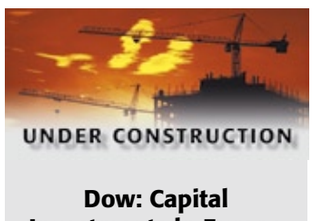
▶ www.basell.com
▶ www.qp.com.qa

Production
FACILITIES · PROCESSES · TECHNOLOGIES

Production
Vitreous enamel – economical and ecofriendly
Page 10

IT
Sales and operations planning process for the chemical industry
Page 11

Research
D-cycloserine reduces cocaine-seeking behavior in mice
Page 16



Dow: Capital Investments in Europe

Dow Polyurethanes, a business group of the Dow Chemical Company, announced that it will move forward with the detailed engineering phase of the nameplate capacity expansion of its polyols plant in Terneuzen, the Netherlands. The company has selected Jacobs Engineering, a design contract firm based in the Netherlands, to handle the engineering needs of the project. Dow announced in March that it had completed a feasibility study to increase polyols production at the facility by 180 kt/y. The company said it expects to begin work on the expansion in early 2008, with completion shortly thereafter. Raw materials for the polyols produced at the site will be sourced from the 300 kt/y joint Dow and BASF hydrogen peroxide to propylene oxide (HPPO) facility currently under construction in Antwerp, Belgium.

▶ www.dow.com

Yara to Strengthen Urea Position

Yara International said it will strengthen its production base by investing in a new urea unit at its Sluiskil plant in the Netherlands. The investment increases urea production by roughly 45 % to 3,500 t/d from 2011, creating a world-scale facility at an investment cost of approximately €300 million. Construction is planned to start in 2008.

▶ www.yara.com

DSM: Waterborne Emulsion Resins Plant

Royal DSM will build a new factory for waterborne emulsion resins. This new plant will produce waterborne emulsions to be marketed by DSM NeoResins+. Production will come on stream at the end of 2008. The total investment costs amount to €30 million. The new factory will be built at the existing DSM NeoResins+ production site in Waalwijk, the Netherlands, which is mainly used for the production of specialty products such as acrylic emulsions, acrylic beads and urethane resins.

▶ www.dsm.com

Evonik to Increase Alkoxide Capacity

Evonik Industries said it will build an alkoxide production facility at its Mobile, Ala. (U.S.) site. The plant, designed for a capacity of 60,000 mt, is expected to come on stream in early 2009 and will supply customers throughout the Nafta region. A second facility in Brazil is scheduled to start operation the following year.

▶ www.evonik.com

Trends In Pharma

Closing the Gap Between R&D and Manufacturing

Despite the innovatory and advanced science nature of many of its products, the pharmaceutical industry has been more used to incremental change in manufacturing than to quantum-leap advances that anticipate the future. The relative separation of manufacturing from research and development (R&D) continues to characterize the industry. At the same time, apart from clinical trials and sales activities, the industry is relatively separate from the healthcare services and patients it serves.

Closing these gaps will become increasingly important for pharmaceutical companies in order to stay competitive. Closer integration of the patient and healthcare systems with R&D and more flexible manufacturing will enable companies to make drug development and production more responsive to patient needs and demands. Companies will move away from batch manufacturing with "after the event" off-line product testing to fully automated and integrated continuous manufacturing with quality designed into the process. Disposable manufacturing technologies will also hasten time to market.

Such technologies provide a greater degree of flexibility, both in terms of scale and location and ease of use for operations. Cell chips are enabling the study of the reaction of an individual cell through the miniaturization of different kinds of analytics and detectors. Micro reaction technology permits the synthesis of active pharmaceutical ingredients on a small-footprint, lab-bench scale. Because of continuous mode production, the same annual product volume can be produced as when using larger-scale batch methods. This micro-scale will work for both development scale and manufacturing scale, eliminating the need for upscaling and technology transfer.

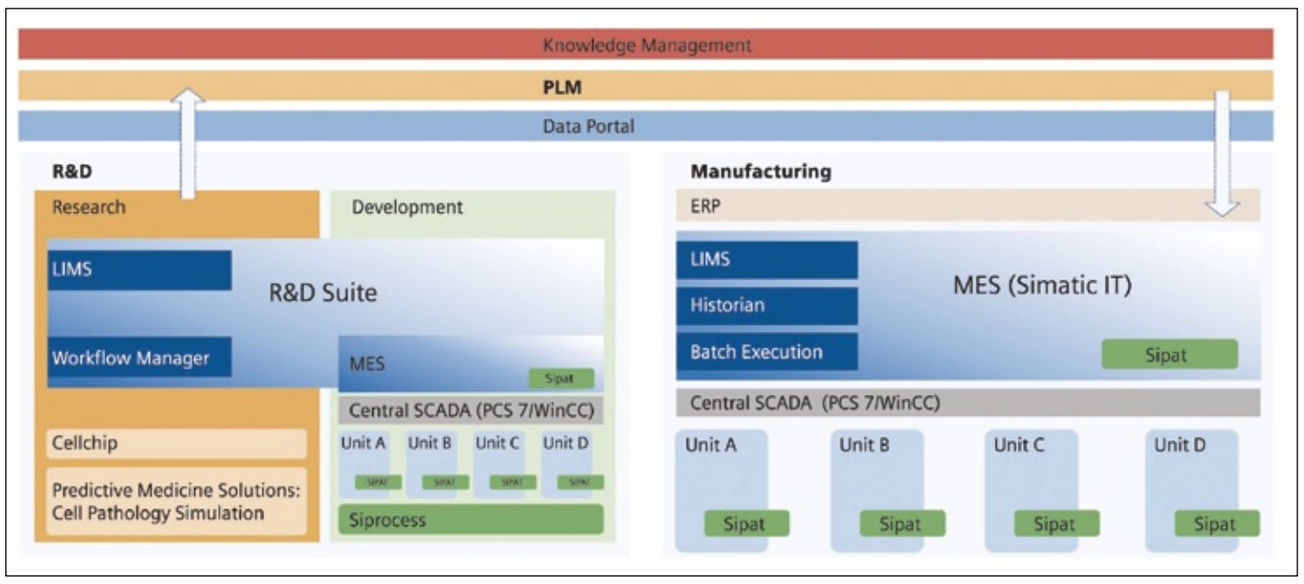
Closing the gaps will be a key strategy in responding to a range of drug development, productivity, and quality concerns. According to a study by PricewaterhouseCoopers, the extent of the development challenge is highlighted by the fact that, even allowing for inflation, the industry is investing twice as much in R&D as it was a decade ago to produce two fifths of the new medicines it then produced.

Responding To The Trends

Siemens is investing in a range of solutions for companies that can help close the gap between R&D and manufacturing and, ultimately, between the industry and the patient. By introducing three important resources – the Knowledge Management (KM) tool, the Product Lifecycle Management (PLM) tool, and Master Data Management, which serves as a data portal tool – development and manufacturing can begin to integrate. It is important for information to flow from R&D to manufacturing but also vice versa. Knowledge gained through manufacturing can thus be reused to accelerate the development process as new products have to be designed. For example, the characteristics and behavior of production equipment and machines in the manufacturing process can be inputs for the development process.

The PLM software saves and keeps track of all the information gathered on the product. By providing common access to a single repository of all product-related knowledge, data and processes, PLM can speed up the innovation and launch of successful products. It spans the whole life cycle of the drug and enables networks of innovation and collaboration, capturing best practices and lessons learned, creating a storehouse of valuable intellectual capital for reuse. In the future, the PLM system will also support the (e-) regulatory submission and approval process, enabling companies to automate this process by extracting all the relevant fields to compose a submission file ready for submission to the regulatory authorities.

Shared PLM and KM tools can work together with other Siemens solutions to help pharmaceutical companies move away from R&D and manufacturing as separate silos to deliver a more integrated and interactive manufacturing and development process, speeding the development time. At the heart of this is the Workflow Management System and ELN (Electronic Lab Notebook) – the Simatic IT R&D suite that links into the Simatic IT production suite used in manufacturing and the PLM software. Thus, R&D dovetails into the manufacturing execution system (MES). This is further facilitated by the ability to use the same sample management and laboratory information management system (LIMS), Unilab, in both development and manufacturing. Unilab is especially valuable in keeping track of data when external laboratories or contract manufacturing organizations are used.



Closing the gaps between research and development and manufacturing will be a key strategy in responding to a range of drug development, productivity and quality concerns.

A range of other innovative products from Siemens complete the picture. Simatic PCS 7 Lab is a recently launched process control system that allows automation in laboratories, even for small process equipment or pilot equipment. Siprocess provides micro process technology and a standard that gives companies the chance to introduce this technology more quickly for broad application in the laboratory and successful transfer to industrial production levels. This can transform yields and enhance the ability to move to more flexible, continuous production. Finally, Sipat enables companies to link all their analyzers and Process Analytical Technology tools into one single system architecture. Sipat will play a vital part in helping companies move from off-line to on-line activity and then on toward a full real-time product release capability. It forms part of the process control system Simatic PCS 7, tightly integrated with Simatic Batch and EBR functions.

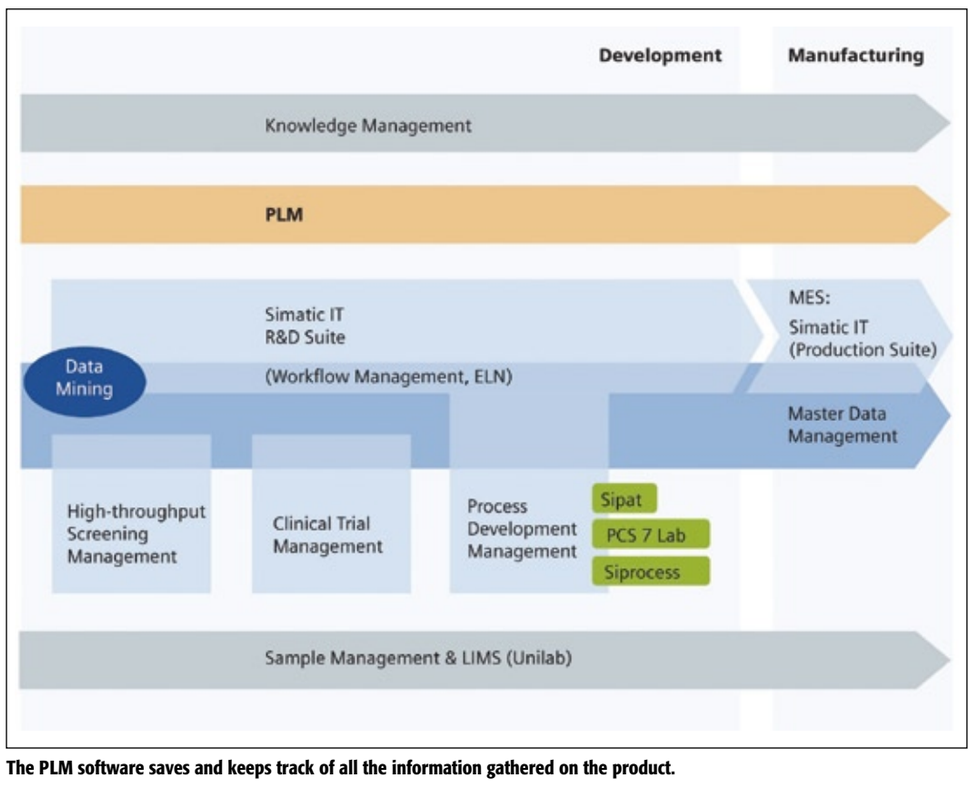
Prepared For The Future

Among other things, these developments allow pharmaceutical companies to innovate, develop a single master data management portal and shrink development times. The knowledge architecture that results will also enable pharmaceutical companies to prepare for a future in which the development process will no longer be linear but will have parallel tracks, interplaying with patient groups, healthcare providers, development and manufacturing partners, and contractors. In such a future, knowledge management, data portals, fully integrated automation and master data systems become even more important in handling complex and dynamic interrelationships.

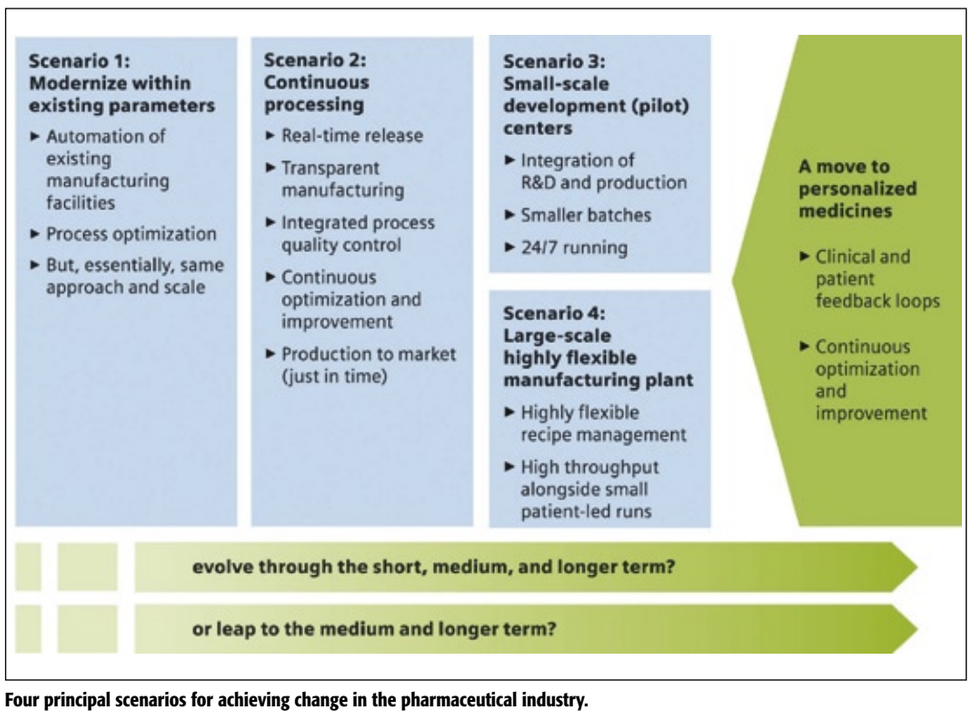
▶ Contact:
Ingrid Maes
Siemens
Munich, Germany
ingrid.maes@siemens.com
www.siemens.com/pharma

Aligning strategy with future trends

How can companies judge how best to reshape their strategies and infrastructure to prepare for future developments? The starting point has to be the vision of where the company wants to be in 10 to 15 years' time and how this will impact manufacturing methods and practices.
Companies are likely to take different steps forward in different situations. For example, a company may choose to implement relatively modest improvement investment in a plant that is manufacturing a product that is nearing the end of its patent life. Elsewhere it may choose to plan for a rapid and full-scale move to Process Analytical Technology (PAT), enabling full realization of the FDA's vision of real time product control and release, based on continuous manufacturing operations.
Moreover, companies will face a choice between big plants with flexible recipe production versus small-scale development (pilot) plants that will also be production facilities with dedicated lines. For both models of production, industrial IT systems will play a strategic role, requiring tremendous flexibility: in the first model to support the flexibility of production that will be necessary and, in the second, smaller-scale model, to link production with continuous development and learning from clinical trials.



The PLM software saves and keeps track of all the information gathered on the product.



Four principal scenarios for achieving change in the pharmaceutical industry.

chemanager@gitverlag.com

Enameling Enables Environmental Efforts

Ecological and Economical Arguments for Vitreous Enamel

Dealing responsibly with the basic goods of nature means suppressing the pollution of water, air and soil. It would be ideal if emissions could be completely inhibited, but this cannot be done by a single country; also, the economical aspects must be taken into consideration. The Kyoto protocol was agreed upon by participating nations 10 years ago with the proposal that those countries reduce the emissions of six greenhouse gases by at least 5 %. The Kyoto protocol has since been ratified by more than 70 countries.

The resolution allowed for different targets for the participating countries. Some countries, like Australia (allowed increase: +8 %) and Norway (+1 %) are still allowed to increase their emissions, whereas other countries have to stabilize their emissions (Russia, Ukraine, New Zealand) or to decrease: Canada, Hungary, Japan, Poland (demanded decrease: –6 %), USA (–7 %), Switzerland (–8 %). Inside the EU (–8 %) the target is due to a burden sharing agreement: Portugal (+27 %), Greece (+25 %), Spain (+15 %), Ireland (+13 %), Sweden (+4 %), Finland and France (0 %), Netherlands (–6 %), Italy (–6,5 %), Belgium (–7,5 %), Great Britain (–12,5 %), Austria (–13 %), Denmark and Germany (–21 %) and finally Luxembourg (–28 %). These targets will be checked with the medium results of the years from 2008 to 2012.

Another central agreement was stated 1999 in Göteborg, Sweden: not only is one single pollutant monitored, but rather the total effect of sulphuroxide-, nitrogenoxide- and volatile organic compounds (VOC) together.

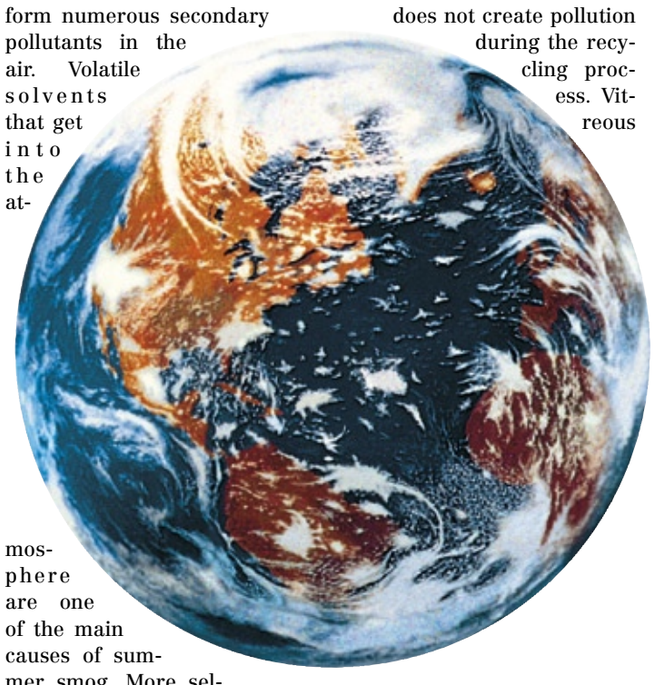
Three main problems are recognized:

- The formation of ozone by ozone precursors (nitrogenoxides and volatile organic compounds) close to the ground. In Europe a reduction of 49 % of nitrogenoxides and 57 % of VOC's is desired by 2010.
- The acidification of soils, lakes and waterways by compounds which contribute to the acidification of precipitation (SO_2, NO_x, Ammoniasalts formed by NH_3). In this area Europe wants a reduction of 75 % regarding sulphurdioxide and 15 % regarding ammonia (precursor form the ammonia compounds)by 2010.
- The eutrophication (nutrient accumulation) due to atmospheric nitrogenoxide input (NO_x, NH_3).

Local Order Of Magnitude

Germany released 1,478,000 t of non-methane volatile organic compounds (NMVOC) in 2002. About 64 % came from industrial sources. In 2000, it was estimated that 6,516 t of organic solvents were emitted into the atmosphere in two cantons surrounding Basel, Switzerland. In the same year in Austria, about 67,979 t of organic solvents were released.

These emitted volatile organic compounds primarily appear in the troposphere and react in very complex photochemical transformation reactions and form numerous secondary pollutants in the air. Volatile solvents that get into the atmosphere are one of the main causes of summer smog. More seldom than summer smog (also known as photo smog) yet better known is winter smog, a strong accumulation of air pollutants above densely populated areas as a result of special meteorological conditions. This smog generally only appears during periods of low wind. An unfavourable topographic situation (valley, basin) also invites the creation of winter smog. This mixture of smoke (soot, sulphur dioxide, dust) and fog may stay under detrimental conditions long time above a city and is mostly toxic.



Airstreams do not know country borders – joint effort is required.

Vitreous enamel does not contain any organic solvents, therefore contributing to the environmental care of the atmosphere during the surface finishing process. One can avoid emissions when using vitreous enamel. The production costs for vitreous enamel are comparable and within the same range as other varnish alternatives.

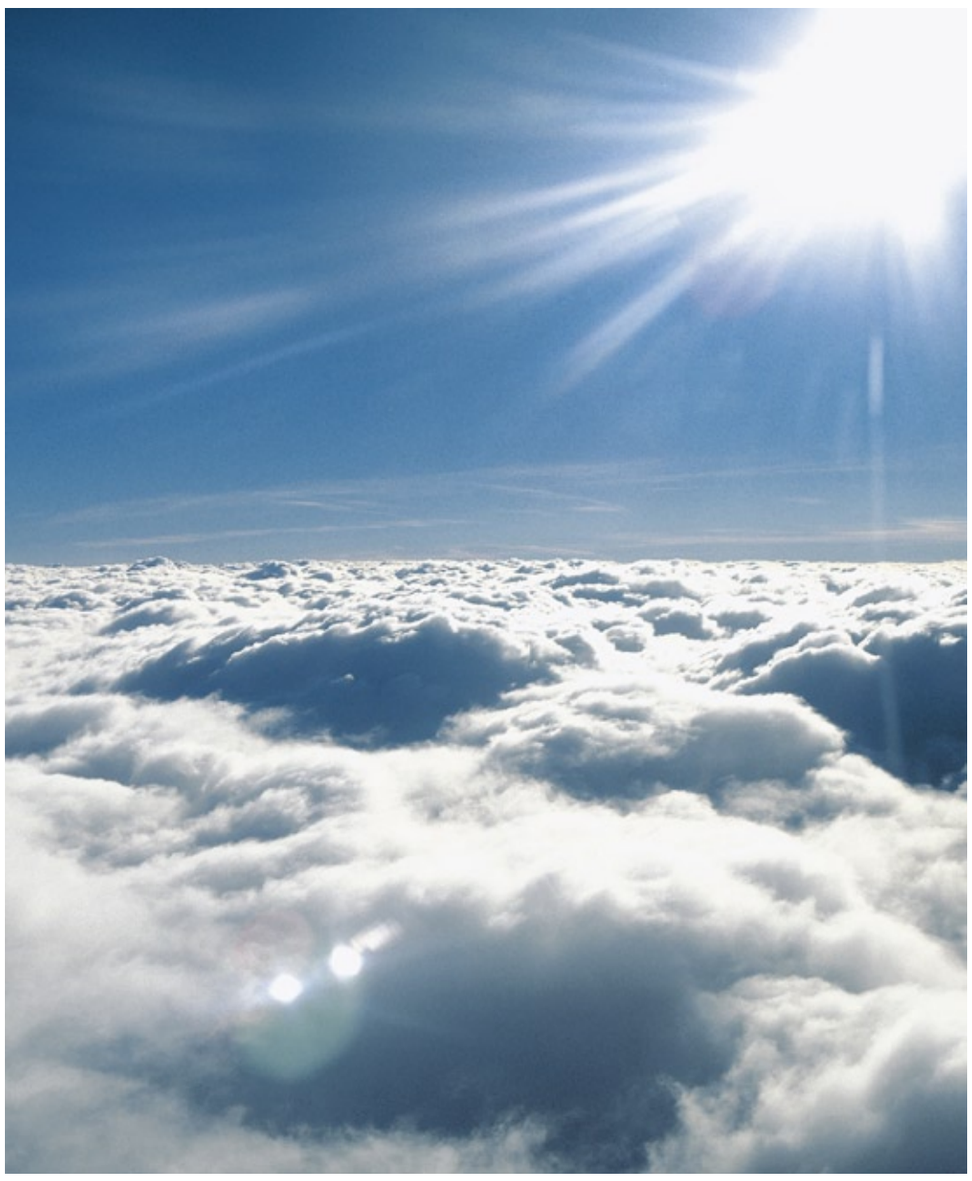
Primary Material Recycling

Products with vitreous enamel are always recyclable without large effort: The used primary materials are easy to return to the material cycle. The benefit is a reduction of waste and a preservation of raw materials. Metals may be re-recycled over and over again. Unlike organic polymers, the properties remain unchanged. Vitreous enamel is not flammable, which means it does not create pollution during the recycling process. Vitreous enamel is free of chlorine, meaning a formation of dioxins is impossible during production as well as during recycling. Waste generated during the process, such as overspray, may be easily recycled. Resource planning starts with the process – using powder technologies the reachable efficiency is 98 %.

Environmental Protection

Ecology is a permanent item of today's vitreous enamel research and development: The economic energy saved during the smelting process of the material is wof interest, as well as the development of burner technology and the recuperation of process heat as well as material cycles among producer and user. The durability of the products increases as a result of the permanent increase of surface properties due to the ongoing development – another positive aspect for our environment.

Vitreous enamel is an inorganic material: Compared to organic materials the very low diffusion coefficients are typical for inorganic glasses. The steady state issue of bulk material to contacting media is well known for organic compounds. In the case of vitreous enamel, there is a perfect separation of the media. This is very important during the processing of products that depend on perfect cleanliness, like pharmaceutical products. Through the usage of vitreous enamelled reactors, tanks and pipes, it is possible to ensure the cleanliness of the final product. The favourable properties of vitreous enamel may also be used for underground pipelines with no danger to the soil.



Due to temperature inversion winter smog – a chemically reducing smog – may appear. Today, the most common type of smog is summer smog – a chemically oxidising smog.

Corrosion Free

Vitreous enamel is a classical corrosion protection material. Corrosion not only damages the corroded material, but also the consequential loss must be seen. The following must be taken into consideration: production loss; loss of efficiency; the contamination of the product; and the hazard for the safety and the risk for the environment. Vitreous enamel is usable for the field of high corrosion. For this use steel and stainless steel can't be used any more without a protective vitreous enamel coating. The perfect symbiosis of the two materials is leading to tanks, reactors and pipes with an emphasised qualification for the final application. The solidity of the construction is given by the steel. The corrosion protection is done by the vitreous enamel.

Vitreous enamel is gasproof. Corrosion sensitive surfaces may be protected even if the corroding media is a gas. No diffusion though the enamel coating takes place.

Economical Advantages

The political economical loss due to corrosion damage results to approximately 4 % of the GDP. The costs in Germany therefore are about €64 billion. This does not include the indirect costs resulting by the emission of polluting gases to the environment. Focusing only the chemical industry in Germany, the costs due to corrosion result to €3.3 billion. These costs are even more considerable considering the fact that this branch of industry is already giving significance to corrosion protection. About 10–15 % of the costs could be saved with more effective corrosion protection. Therefore, the potential for savings is €330–500 million. That should be a reason to think about vitreous enamelling. Expensive parts that used to be made from stainless steel often may be replaced by vitreous enamelled parts made by ordinary steel.

In industrial applications installation and removal costs very often top the costs of the new part. Therefore the exchange costs are a multiple of the part costs. Roofs must be uncovered, ceilings removed and after the installation of the expensive part, often originated from far away, the building must be closed again. In this case the cost effectiveness is mainly determined by the durability of the product. The high grade surface as well as the applied thickness of the vitreous enamel coating determines the durability of the part. Every single month of usage improves cost efficiency.

▶ Contact:
Dr. Jörg Wendel
Wendel GmbH
Dillenburg, Germany
Tel.: +49 2771 9060
Fax: +49 2771 906106
info@wendel-email.de
www.wendel-email.de

Peristaltic Technology Provides Plenty of Protein

PRODUCT Some substances are simply too aggressive for traditional pumps, attacking the mechanical component parts and inevitably causing duty fluid contamination and potential premature pump failure. Cambridge-based Biochrom has first-hand experience of this very eventuality, which is why the company is now an avid user of non-contacting peristaltic pumping technology supplied by Watson-Marlow Bredel.

A principal product manufactured by Biochrom, a £10 million turnover, 60-employee company, is its range of amino acid analysers for the clinical, pharmaceutical, proteomic, food and feedstuff industries. Biochrom had been using a conventional gear pump to transfer methyl diglycol (also known as diethylene glycol) from one 25 l container to another via a filter. However, the aggressive nature of the fluid corroded the metal components of the pump, which in turn contaminated the duty fluid.

Methyl diglycol is a solvent used in a chemical reagent called ninhydrin, which is employed by Biochrom within its amino acid analysers to stain proteins and hence identify amino acids – the basic structural building blocks of proteins. Ninhydrin detection technology is probably best known for its use in cash containers collected by security companies from banks and other financial establishments. If the container is stolen and forced open, a controlled explosion ensures that ninhydrin permanently stains the thief's skin.

"We had come across Watson-Marlow before," said Biochrom's manufacturing director, Tony Neale. "We knew they had a good reputation, so we decided to approach them for the loan of a peristaltic pump on a trial basis."

In peristaltic pumps, fluid is drawn into a flexible tube and forced through it by the action of rollers squeezing and releasing the tube. Because nothing but the tube is ever in contact with the fluid, there is no risk of the fluid contaminating the pump, or of the pump contaminating the fluid, which is the principal benefit to Biochrom. The design also prevents backflow, so eliminating the need for check valves when the pump is not running. Accuracy of the delivered volume and flow rate are parameters that can be fully tailored through the size of the pump, the speed of the rotating rollers and the tube diameter.

Following a brief trial period, Biocrom purchased the Watson-Marlow Bredel 520UN/R2 IP66 rated peristaltic pump earlier this year. The pump can produce flow rates of 3.5 l/min. at pressures up to 2 bar. It also accepts analogue auto and manual control.

Compared with other positive displacement pumps, peristaltic pumps win on every count. They handle difficult fluids and suspended solids with ease, and provide precision dosing and metering without gas locking or crystallisation problems. Cleaning and maintenance tasks are quick and easy. They self-prime, can run dry and have no valves or seals to leak, corrode or clog.

"Since installation here at Cambridge, the 520UN/R2 has proved completely reliable: In fact I can't recall a single problem that required input from Watson-Marlow. We are very pleased with the pump and the peristaltic technology it employs."

▶ Contact:
Watson-Marlow Bredel Pumps Ltd.
Falmouth, England
Tel.: +44 1326 370370
Fax: +44 1326 376009
info@watson-marlow.co.uk
www.watson-marlow.co.uk

Quality and Productivity in PE-Production

Mehrer-Dry Cylinder Compressor Unit TVZ 1800/170/128-150Ex for compression of ethylene up to 60.4 bar.

PRODUCT Besides stability of the process a consequent temperature management is the main criteria for quality and productivity for PE-production. The Mehrer dry cylinder compressor unit TVZ 1800/170/128-150Ex is fulfilling this requirement by a most effective temperature monitoring and control system.

The compressor unit is combining two V-type compressors of series 900, which are directly driven by an intermediately positioned 150-kW-motor. Both V-type compressors are of 2-stage design, water cooled. At intake pressure of 8.685 bar(a) the unit is compressing 1,863.24 kg ethylene per hour up to 60.4 bar (a). The unit is suitable for operation in Ex-zone 1, according to ATEX.

▶ Josef Mehrer GmbH & Co. KG
Tel.: +49 74 3326 05 0
info@mehrer.de
www.mehrer.de

The CHEManager Europe team wishes you a happy and safe holiday season.

Demand, Supply and Financial Planning

Sales and Operations Planning Process for the Chemical Industry

Most companies, regardless of the industry, have some form of a sales and operations planning (S&OP) process to synchronize demand, supply and financial plans. However, the S&OP process is evolving to be more than just plan synchronization. Best-in-class companies are using S&OP to run the business at a strategic level by balancing marketing, sales, finance and operational plans in a continuous fashion to drive customer satisfaction while maximizing revenue potential. This evolution is even more transparent in the new "Flat World" and is enabled by integration of the extended supply chain thru both internal and external collaboration.

Raymond Adams
SAP

Fueled by the additional complexity that globalization has brought to the supply chain and by rising logistics and inventory costs, nearly 75% of process industry companies are actively redesigning their supply chains. This redesign continues to extend the supply chain to the partner ecosystem with a blend of business process excellence and technology enablement. In addition, this redesign is leveraging the flexibility of an enterprise Service Oriented Architecture (eSOA), allowing different business models for both the commodity and specialty chemical producer while at the same time utilizing a common technology platform. As a result of acquisitions and mergers, the chemical industry needs this flexibility in order to allow growing firms the autonomy to run various business models that will meet the needs of that respective profit center and yet still use a standard architectural platform for centralized IT support.

The New Vision

Chemical companies are no longer asking "is my supply plan linked to my demand plan." The concept of a single set of numbers is well implemented already within most firms. They are asking questions like "am I producing the most profitable products, what if I close this distribution center, or what happens if I change the price on this product family". With increasing capacity utilization being fueled by strong demand across the entire sector, chemical manufacturers now have pricing leverage which is leading to the desire to produce the most profitable product mix. Business managers are asking their supply chain leaders to provide simulation capabilities at a fundamentally strategic level. In addition to driving technology needs, this new vision is creating a shift in the importance of the supply chain within the organizational structure and generating more ownership of the S&OP process from the supply chain to the business. The supply chain organization still facilitates the process (and does most of the work), but the business is finally beginning to own the process.

The following examples reflect how some best-in-class companies are approaching this supply chain redesign:

Celanese: In order to better incorporate market input into the demand forecasting process, Celanese implemented CRM (customer relationship management) mobile sales to actively generate pull-driven demand from their customer installed base. This creates an unconstrained demand plan, which is then balanced with any known variable capacity issues. The adjusted supply plan is then used to generate the consensus financial plan in BPS (Business Process Simulation), closing the loop with a single set of numbers from a single, agreed-upon plan. "We strive for one set of numbers from a bottom-up forecast from sales to marketing to financial consensus" states Phil Bennett. "The tricky part is the integration piece and keeping the master data elements in sync."

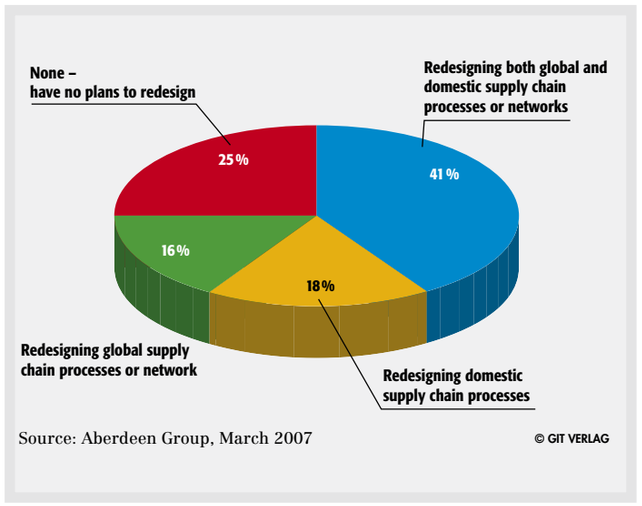


Fig. 1: Process industries are actively reinventing their supply chains.

Dupont: Dupont is a large, global business that encompasses both commodity and specialty producers. Thus, any technology or process implementation must balance between flexibility and the autonomy of individual businesses and the efficiency gained from corporate standards. Standards range from the business frameworks (DuPont is implementing Integrated Business Management), to metrics (SCOR and others) and of course, the information technology systems (SAP). Peter Compo, the corporate Director for Integrated Business Management, points out, however, that "just giving the businesses more and more integrated and automated data and metrics in standard formats does not lead in itself to business insight or better business operations. You also need models, at aggregate (business) levels to both make sense of the data and to even determine what data is needed for a given decision or analysis."

By taking a more dynamic approach, chemical companies are converting from a static S&OP process to a collaborative planning approach that extends the supply chain to suppliers, customers and toll manufacturers. At the same time, the technology framework must drive consensus amongst the key internal stakeholders in order to align tactical plans with the business strategy in an adaptive and responsive supply chain.

Within the organization, each function (finance, marketing, sales, demand and supply planners, operations, procurement, logistics, and R&D) must have an active role in the S&OP process and must be able to leverage the agreed upon plan in terms that are relevant for that respective function. The financial manager may be looking at the plan in gross margin whereas the marketing manager may be looking at the aggregated plan by minor market by region. The focus of the S&OP meeting will be different depending upon the business model and may shift with industry trends as well. For the commodity chemical producer, demand is still push-driven generated from historical forecast algorithms that adjust for patterns such as seasonality. With transportation constraints fueled by globalization, driver shortages and congestion on both the rail and ship lines, the logistics department now plays a much more active role in the S&OP process. With the specialty chemical producer, growth of the company is more dependent upon innovation and successful new product launches – over 30% of revenue is expected from products less than five years old. The R&D manager, in addition to driving a strong Stage Gate process, must be represented at the S&OP meeting to successfully launch new products with collaboration from marketing, sales and operations.

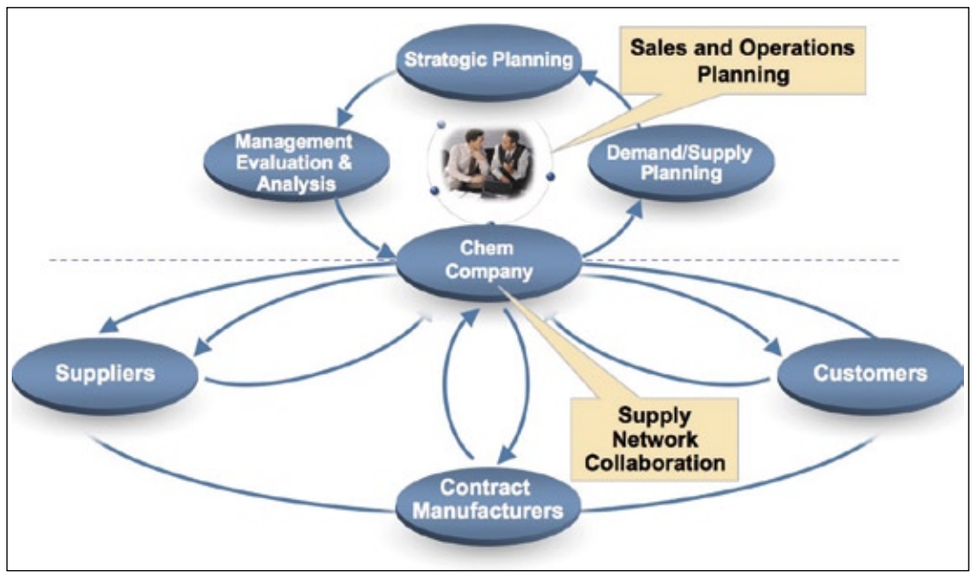


Fig. 2: Event tracking and administration.

Chemical companies have never been blessed with point of sale (POS) information such as a consumer goods producer. Thus, in order to generate an adaptive and responsive supply chain, both commodity and specialty chemical producers must extend the network to suppliers, customers and toll manufacturers. This approach involves leveraging technology with a service oriented architecture that includes these partners as part of the ecosystem. Demand patterns can be easily forecasted with a choice of statistical algorithms from many software providers – demand planners will analyze the sku's at detailed and aggregated levels to find the best match. These plans will then be used to generate the corresponding supply plan, which is then constrained with any known data elements (ie capacity restrictions, raw material availability, or any other modeled asset). These capabilities have existed for many years.

The challenge, however, is how to get closer to the customer by providing readily-accepted tools to the chemical sales force in the field (ie Exel) without requiring them to enter data in elaborate planning books that were designed for heavily-trained planners. Better yet, the goal is to get closer to the customer with direct B2B configurations through portals or XML files that do not require transaction fees or time-consuming EDI connections. Technology has now enabled these challenges and is carving the path for the vision of the chemical industry. The sales force can now enter market intelligence directly into an Exel pivot table and that data can then be directly loaded into the backend planning system. The once-dreaded EDI connections can now be encouraged and used as a competitive edge to improve forecasting, to simplify VMI setups, and to automate transactions for customers, suppliers and toll manufacturers. These fundamental changes are leading to an integrated business management process that is adaptive and responsive and prepared to respond to unexpected events through disciplined contingency planning.

Conclusions

The chemical industry will be ever-evolving and ever-changing. Change will be driven by globalization, regulations, green chemistry, nano and biotechnology, macro and micro-economic fluctuations and even climate changes. With each shift emerges a new business challenge. The technology platform must be service-driven to address each new business challenge and to enable a rapid response within the supply chain. With a service-oriented architecture, the supply chain will be able to be closely aligned to the business strategy and will once again become a competitive core competency and not just a shared cost center.

References available from the author.

▶ Contact:
Raymond Adams
SAP
Tel.: +1 610 661 4647
Fax: +1 610 661 4648
ray.adams@sap.com
www.sap.com

Speed Counts: The World's Top-computers

The twice-yearly list of the world's fastest supercomputers, already a closely watched event in the world of high performance computing, shows five new entrants in the Top 10, which includes sites in the U.S., Germany, India and Sweden. The 30th edition of the list was released at SC07, the international conference on high performance computing, networking, storage and analysis, in Reno, Nev. (U.S.)

The top 10 shows five new and one substantially upgraded system with five of these changes placing at the top five positions.

The no. 1 position was again claimed by the BlueGene/L System, a joint development of IBM and the Department of Energy's (DOE) National Nuclear Security Administration (NNSA) and installed at DOE's Lawrence Livermore National Laboratory in Livermore, Calif. Although the computer has occupied the no. 1 position since November 2004, the current system has been significantly expanded and now achieves a benchmark performance of 478.2 Tflop/s ("teraflops" or trillions of calculations per second), compared to 280.6 Tflop/s before its upgrade.

At No. 2 is a brand-new first installation of a newer version of the same type of system. The system called Jugene is installed in Germany at the Forschungszentrum Juelich (FZJ) and it achieved performance of 167.3 Tflop/s.

Jugene, the world's No. 2 in supercomputing, is installed in Germany's Forschungszentrum Juelich.

The no. 3 system is not only new, but also the first system for a new supercomputing center, the New Mexico Computing Applications Center (NMCAC) in Rio Rancho, N.M. The system, built by SGI and based on the Altix ICE 8200 model, posted a speed of 126.9 Tflop/s.

For the first time ever, India placed a system in the top 10. The Computational Research Laboratories, a wholly owned subsidiary of Tata Sons. In Pune, India, installed a Hewlett-Packard Cluster Platform 3000 BL460c system. They integrated this system with their own innovative routing technology and achieved 117.9 Tflop/s performance.

▶ www.top500.org

BASF Pioneers Softgrid Virtualization

BASF IT Services is to apply the technology of software virtualization on a large scale. Unlike earlier solutions, the new technology means that applications can be transferred to the user's PC independently of the operating system. The programs are no longer installed on each individual PC as usual, but are delivered dynamically to the user's workstation using a method similar to video streaming. This new technology makes an actual software installation as unnecessary as a potential uninstall at a later date. Entries in the "registry" – the computer's configuration database – are also a thing of the past. This leads to a considerable simplification of software provisioning. However, the end-user remains unaware of all this. The applications that run virtually on the user's PC look the same and work the same as programs that have been installed. Users thus start their applications locally as usual from their PCs, even though the programs are actually being provided by a central server. Previously, when these users needed to be supplied with new software, the packages had to undergo a comprehensive certification process. BASF IT Services used its in-house test facilities to check security and compatibility for each and every application. The main purpose of this testing was to avoid situations where the various programs could negatively affect each other. This can no longer occur with software virtualization: It is even possible to work with different versions of one program on the very same workstation. "The whole certification process is thus considerably shortened, and the customer therefore saves time, expenses and resources when provisioning the applications," said Harald Endres, Director of Customer and Workplace Services at BASF IT Services.

▶ BASF IT Services
Tel.: +49 621 60 58 497
touchIT@basf-it-services.com
www.basf.com

Fine Chemicals Custom Manufacturing

Part III – IP, Supply Contracts and Promotion

Intellectual property rights are the most sensitive interface between a fine chemical company and its customer. Most of the profits of the industry derive from drugs protected by patents. Any dissipation or misuse of the intellectual property (IP), either on the product or the manufacturing process, can cause serious damage. The supplier, its board, executives and employees may be held liable. It is, therefore, imperative that strict procedures for safeguarding the IP are put in place.

Peter Pollak, Ph.D.

A controversial issue is the ownership of IP arising from the cooperation between customer and supplier. The customer holds the position that all IP resulting from a joint project belongs to him. His arguments are that firstly without the input from him there would have been no invention anyhow and secondly that he has paid for the development of the IP, either directly by funding the supplier's R&D work or indirectly through the price he pays for the product. The supplier maintains that IP is an essential prerequisite for his business. If he cannot advance his know-how, he will drop out of business sooner or later. Also, the customer would not have entrusted him with a project, if he had not been attracted by the supplier's know-how. These opposite views are a critical element in contract negotiations and can become a deal breaker. A pragmatic approach to resolve the problem is to allow the supplier to use the IP outside the area of the customer's direct interest. This can be defined for instance by a therapeutic category. Thus, the supplier is restricted to use the IP for the synthesis of PFCs outside the specific therapeutic category of the drug which is the object of the joint project.

Supply Contracts

Agreeing on the price for a fine chemical is only one, albeit an essential element of a custom manufacturing deal between the supplier (fine chemical company) and the customer (pharmaceutical company). It entails a considerable financial exposure – sometimes hundreds of millions of dollars –, covers an extended period of time, typically three to ten years, and has to take into account a number of imponderable elements of the cooperation. It is mandatory, therefore, to define the obligations of the partners and to hedge against unpredictable events by concluding a supply contract. Prior to enter into the contract negotiations, the partners should clearly define the scope and objectives that they wish to achieve. It should have the necessary provisions to cope with "what if's" like delays in drug approval/start-up of the production, substantial increase or decrease in demand (in the worst case: withdrawal of the drug), failure to meet the agreed-upon yield and throughput figures, unsolicited offers from third parties, subcontracting, takeover of one partner by a competitor, exchange rate fluctuations, force majeure incidents, etc. The main elements of a contract are the "commercial clauses", i.e. substantially quantities, prices and supply logistics, the "technical clauses", i.e. specifications or description of the services the custom manufacturer has to provide (incl. milestone plan) and the "legal clauses", i.e. IP ownership, warranties, indemnities, exit and other boiler plate clauses which lay out the parties' reciprocal responsibilities. The commercial and technical clauses are drafted by specialists from the involved activities. Key commercial, technical & legal elements of a supply contract are listed in table 1. Independently of the degree of elaboration of the contract, a successful deal will rely on the mutual trust of the parties. This also means that arbitration rather than court litigation is the usual way of settling a dispute. As part of a supply agreement, customers often ask for "cost transparency". This is a biased request, which can cause unpleasant discussions on the just Costs of Goods Sold.

Table 1: Key Elements of a Supply Contract

Commercial	Technical & Regulatory	Legal
▪ Product	▪ Product Specifications	▪ Duration (Extension/ Cancellation)
▪ Quantities	▪ Process Description	▪ Investment Guarantees
▪ Prices (Price / Qty / 3rd Party Offers)	▪ Analytical Methods	▪ Force Majeure
▪ Currencies	▪ Process Improvements	▪ Insurance Coverage
▪ Forecasts	▪ Change Control	▪ Confidentiality
▪ Provision of Starting Materials	▪ Plant Description	▪ Intellectual Property Rights
▪ Call-Off Orders	▪ Quality Control and Assurance	▪ Liabilities*
▪ Shipments	▪ Batch Records	▪ Compliance With Laws and Regulations
▪ Packaging/Labeling	▪ Audits & Inspections	▪ Applicable Law/Arbitration
▪ Back-Up Capacity	▪ Dmf (= Drug Master File)	▪ Exit Strategy
	▪ Safety, Health & Environment	

* Liabilities for consequential damage, such as claims of patients against the drug company, are usually waived.

Table 2: Cost Efficiency of Promotional Tools

Low → Efficiency → High	High ←	Cost ←	Low
	▪ Booths At Trade Fairs	▪ Customer Visits ▪ Plant Tours ▪ Customer Events	▪ Networking/Key Account Management ▪ Articles in Trade Magazines ▪ Interviews With Executives
	▪ Advertising	▪ Poster Sessions ▪ Company Brochures	▪ Company Websites ▪ Press/News Releases
		▪ Monthly "News From …"	▪ Product Listings

Promotion

Promotion is an indispensable marketing tool in the Fine Chemicals Industry. Three particularities have to be duly considered.

As the business transactions occur within the chemical industry, specialized – and not mass media have to be chosen for conveying the message.

The small size of most companies call for a very careful management of the promotional budget.

In contrast to advertisements of the consumer good industry, a direct generation of sales cannot be expected from advertisements. The prime scope of promotion is to cultivate the "brand recognition" of a company. It should give the customer the confidence, that he has made the right choice.

In table 2, a number of promotional tools are listed in a cost/reward matrix. The underlying consideration was the capability to attract and keep customers. For other objectives, such as attraction of investors or young talents, the ranking would be different.

Under these premises key account management, cultivating personal contacts at all hierarchical levels, publishing articles in trade magazines and having top executives interviewed by editors of well known news media are the most cost effective promotional tools. Personal contacts with existing and potential customers, either as visits at their offices or as tours at the suppliers' plants are equally efficient, but more costly. The participation at the leading trade shows, namely CPhI (Chemical and Pharmaceutical Ingredients), Informex and Chemspec, are expensive, but they allow a large number of contacts. It is recommended to arrange appointments ahead of time, and also to take advantage of the presence of many customers for organizing an evening event. Websites have become useful in providing first hand information. In order to be effective, they must be updated regularly and they have to be accessible with a few clicks. The latter is a challenge for large chemical companies, which have a small Fine Chemicals business unit only. The magazines with the largest target groups and thus the first choice for advertising are Chemical & Engineering News, Chemical Business, Chemical Week, Scrip, Speciality Chemicals Magazine, and CHEManager Europe.

Company newsletters are the least efficient promotional tool. Recipients will receive dozens of monthly newsletters from all kinds of stakeholders, which usually are discarded immediately.

The contents for the promotional material are provided by business and corporate development. As the case may be, they will seek for assistance from technical functions. The form of promotional literature and the organization of events are the task of the advertising department in a larger company, respectively of specialized agencies for smaller ones. The budget for the out of pocket expenses for promotion typically is not more than 0.5 % of sales.

Business Perspective

The future will bring both challenges and opportunities for fine chemicals marketing: Out of the global production value of fine chemicals of about $85 billion, approximately 60 % are still produced in-house. Therefore, even without considering the demand growth, there is a huge reservoir of opportunities, $35 billion for pharmaceutical fine chemicals alone!

▶ Contact:
Peter Pollak, Ph.D.
Fine Chemicals Business Consultant
Reinach, Switzerland
Tel. +41 61 713 8158
Fax +41 61 713 8159
peterpollak@swissonline.ch

The article is based on the book 'Fine Chemicals – The Industry and the Business' by Peter Pollak, John Wiley & Sons 2007 (www.wiley.com/chemistry), ISBN 978-0-470-05075-0

EFCG Publishes Excipients Paper

The European Fine Chemicals Group (EFCG), a Cefic sector group, has developed a position paper on excipients used in pharmaceutical manufacturing. The paper explains that the manufacture of excipients destined for use in European medicines is neither regulated nor controlled as it should be and that regulations and standards should be enforced to avoid any potential risk to the health of EU patients and consumers. With the implementation of the EU Directive 2001/83/EC (amended by Directive 2004/27/EC) into national law, it is now mandatory that all active pharmaceutical ingredients, and the yet-to-be-defined list of certain excipients used in pharmaceutical manufacturing, must be produced in compliance with current Good Manufacturing Practice.

▶ www.efcg.cefic.org

Ciba Launches New Stylings for Plastics

Ciba has launched a series of 10 novel color stylings for plastics to extend its Xymara range. Focusing strongly on the bronze, gold and copper tones forecast to make an appearance in 2008 and 2009, the new range also features a number of other shades, including a deep chocolate brown, juicy berry tones, an iridescent blue green and an electric aqua green. Marc Dumont, global head of marketing, business line Plastics said, "The effects can be varied from totally transparent to fully opaque. And they all sparkle with gold, some in two tones, some in tiny sprinkles and others in glossy liquid flow."

▶ www.xymara.com

Helsinn Obtained Accreditation by PMDA

In view of the submission of several drug master files to the Pharmaceuticals and Medical Devices Agency (PMDA) in the coming months, Helsinn Chemicals has submitted the request for accreditation to the Japanese Health Authorities at the beginning of this year. Helsinn has recently received full accreditation from the PMDA. It is expected to also receive the accreditation for Helsinn Advanced Synthesis, while Helsinn Chemicals Ireland already received the accreditation in May.

▶ www.helsinn.com

FDA Inspects Hovione's Technology Transfer Center

Hovione's Technology Transfer Center (TTC) in New Jersey (U.S.) has passed successfully a pre-approval inspection by the U.S. Food and Drug Administration (FDA). This inspection covered the TTC's first commercial product – a high potency small molecule active pharmaceutical ingredient (API) for an injectable formulation. Approval is expected in Q1 2008, with a launch foreseen later in the year. This inspection is the first at the New Jersey since it started to operate as an R&D facility in September 2002.

▶ www.hovione.com

Rhodia to Discontinue Paracetamol Activity

Rhodia Organics has presented plans to discontinue the current paracetamol activities on its Roussillon site. The ending of these production activities, which should be effective by the end of 2008, forms part of the strategy to refocus Rhodia Organics' business portfolio. The economic analysis of this market revealed a difficult competitive situation. The considerable efforts made to cut costs have failed to prevent a decline in this business activity and to restore its competitiveness. Plans to discontinue the paracetamol activity on the Roussillon site will have a direct impact on 43 jobs. Rhodia said it will work to facilitate the redeployment of its employees.

▶ www.rhodia-organics.com

All For One

Two Chemical Distribution Networks Join Forces

Continued Page 1

formed in order to be able to get better conditions whereas Omni-Chem was established in order to build up a national distribution network.

F. Buehler: With Omni-Chem, we wanted to reach out to customers with multiple locations. Penta came from the other direction, looking to aggregate requirements and interface with suppliers. Nowadays, Omni-Chem has moved away from simply focusing on customers to being equally focused on suppliers. I would say Penta has gone the other way, not only looking to see what they can offer to suppliers, but also to their customers as well. From today's standpoint, there is very little difference in our two organizations in terms of what we do.

B. Soyke: We also see ourselves as a European distribution network, which offers the manufacturers a platform for the distribution of their products. It's difficult to see the differences between Penta and Omni-Chem. We have a lot of qualities in common, which is why we think a collaboration between the two organizations makes sense. With our cooperation, medium-sized distributors have a chance to be competitive on an international level. We are a viable alternative to the major players in the industry.

F. Buehler: I think that's an important point; we're trying to position our respective organizations and alliances as an alternative for our customers and our suppliers on the pan-European and North American levels. In fact, we are an alternative to conglomerates in that respect.

But what sets you as an alliance apart from the major industry players?

F. Buehler: Where we are not differentiated is in the scale and scope of our organization. At Omni-Chem, we're a $1.5 billion organization collectively, so we have the critical mass and scale of large-scale, integrated chemical distribution. We have 105 locations across North America with more than 2,400 employees.

What makes us different is that we are 15 privately owned companies, and as a result, those companies tend to behave in the marketplace as a small-scale, family-owned operation.

This makes them much more service-oriented than the competition. What sets us apart in the eyes of our customers is the range and quality of services that we are able to bring to the marketplace. In North America, we thrive on smaller customers – a market segment that is underserved by large multinational corporations.

Does Omni-Chem have similar collaborations elsewhere in the world?

F. Buehler: In the last year, we've added a company in Mexico to our group, which will help us reach even beyond that country all the way into Brazil and Guatemala. We also have sourcing capabilities in Asia. Our cooperation with Penta will help us extend our reach into Europe as well. And, of course, vice versa for Penta.

And, Dr. Soyke, is this the first time for such an agreement for Penta?

B. Soyke: There are simply not that many alternatives if you look at the situation from a global perspective. I'm not aware of any other alliance or collaboration that works like Omni-Chem and Penta. For me, it was just a matter of time before our two organizations came together.

What can you tell us about the details of the contract you've signed?

F. Buehler: There are a variety of things that we intend to do together, but at the end of the day, it really boils down to two ideas: One would be collaborating together through our partnerships in servicing customers that have locations and business facilities on both continents. As the global distributors get larger and larger – and the more consolidation that occurs – it really creates a significant opportunity for us as a group of European and North American regional chemical distributors. In many cases, customers are looking for alternatives, but the number of alternatives is going down through the process of consolidation. Being able to present Omni-Chem and Penta together as an option creates a significant opportunity.

There's also the opportunity to collaborate on the sourcing side, whether it be with our strategic suppliers or also for suppliers who may be emerging in other parts of the world that are looking for channels to market to Europe and in North America. Here we are able to work together from both a sourcing and procurement standpoint.

B. Soyke: The cooperation creates the opportunity for us to offer services and solutions to customers and suppliers on both continents. We will be able to provide customers who have plants in Europe and North America with sourcing options. As it is now, there are only two choices for global chemical distribution – with our cooperation, we are creating a third. Being a group of independent companies, there are some things that we can bring to the table that our competitors cannot: customized service.

It's no secret that consolidation has been an ongoing trend in distribution. What does this mean for medium-sized companies?

B. Soyke: I see it as an opportunity. From the producers' point of view, they don't like too much concentration; it's clear that they want to have a small number of powerful distributors. On the other hand, they don't want to put all of the eggs in one basket, a philosophy that causes problems for the other big players.

We have to recognize that most of the business in chemical distribution is really a regional business. A regional distributor knows its customers and their needs very well, and they are also prepared to make smaller deliveries – something that can create problems in bigger companies. Big is not always beautiful.

▶ www.pentachem.de
▶ www.omni-chem.com

EU Chemical Industry: Slowdown Expected for 2008

Cefic, the European Chemical Industry Council, expects output in the chemical industry (excluding pharmaceuticals) to grow by 2.6% in 2007, compared to 2.1% in 2006. The 2007 growth figure lies above the average growth rate over the last five years, which is due in part to recovery from technical problems in several petrochemical installations in 2006. The year 2008 may show a slowdown and the business of chemistry may reach a growth rate of 1.9%.

During the first seven months of 2007, output of the chemical industry (excluding pharmaceuticals) rose by 2.7% compared to the same period of the previous year. The chemical business confidence index remained at a high level until losing momentum in October 2007. Accelerated growth in chemicals (excluding pharmaceuticals) is partly based on strong growth rates in industry in general and especially in important chemical downstream user industries, such as automotive or machinery and equipment. All chemicals sectors benefited from a relatively good macroeconomic environment for the EU. Domestic demand remained strong and, despite the weakening of the U.S. dollar, exports continued to grow. However, data show increasing import pressure for some chemicals subsectors such as polymers and specialty chemicals.

For the whole of 2007, all segments are expected to show positive growth figures. Consumer chemicals should outperform all other chemicals sub-sectors. Petrochemicals are showing a recovery in 2007 after a very modest year 2006, mainly caused by maintenance and technical problems. Polymers are also recovering from low growth last year, although strong industrial demand is partially satisfied by rising imports. Basic Inorganics are expected to show only moderate growth figures, and are suffering from increasing competitive pressure due, among other things, to high energy prices. Pharmaceuticals will not be able to equal their extraordinary growth performance of 2006, but will still be among the growth leaders in 2007 and 2008. Specialty chemicals will experience slightly slower growth due to lower demand from overall manufacturing industries in Europe.

Looking ahead, Cefic expects an output growth of 2.3% in 2008 for the EU chemical industry as a whole (including pharmaceuticals), moving down from 3% in 2007. The decline in 2008 would be caused by the dampening effects already existing in 2007, but materialising only with some months' delay, and a general cooling down of the world economy.

The prospects for the EU chemical industry are, however, sensitive to a number of serious downside risks. First, the continuing U.S. dollar weakness against the euro weighs more and more heavily on the export performance of EU industry. Secondly, continuously high oil prices, though they have apparently so far had only a limited dampening effect on the overall macro-economic environment, will lead to higher production costs and lower consumer and business confidence. Last but not least, the financial crisis in the USA could have a stronger than expected impact on the world economy.

After a good year 2007, the world economy is expected to lose some momentum in 2008, but growth should remain fairly robust. Cefic estimates world GDP growth will decrease from 3.5% this year to 3.3% next year. High economic growth, especially in the emerging Asia countries, but also in Eastern Europe and South America, continues to offer interesting trade opportunities for Europe, though the strong euro risks threatening to undermine EU industry competitiveness.

▶ www.cefic.org

chemanager@gitverlag.com

Exemplary Economy

Lithuania is One of the Largest Biotechnology Markets in Central and Eastern Europe

International experts, observing, analysing and evaluating European economies' development, have named Lithuania as one of the most successful economies in the entire European Union. The International Monetary Fund (IMD); the World Bank; the Economist Intelligence Unit (the research subdivision of "The Economist" magazine); and the European Commission declare that Lithuania maintains an exceptional economic progress, based on macro stability and economic flexibility.

Titas Anuškevicius
General Director of the Lithuanian Development Agency

Photo: Pixelio

In its report "Doing Business in 2007: How to Reform," the World Bank announced that is Lithuania the easiest place to do business among the Baltic States and all new EU members. Part of the Baltic Sea Region and home to many of the world's leading companies, the country provides fast access to huge markets in the north, east and west. Lithuania also pursues one of the most business-friendly tax policies in the European Union. Lithuania's corporate tax is among the lowest and the overall tax burden is one of the smallest in the EU.

Country Of Biotechnologies

Lithuania is leading in certain economic sectors not only in the Baltic States, but also in the Region of Central and Eastern Europe as well as in the world. According to Ernst & Young, the Lithuanian biotechnology market is one of the largest in Central and Eastern Europe, and the European Commission claims that biotechnology industry will become the main engine of the European economic growth in the first decades of the 21st century.

According to experts, significant scientific research is carried out in the Lithuanian biotech sector; molecular biotechnology is well-developed and has a bright future outlook. Although the Lithuanian biotechnology sector is not large in terms of the number of companies, experts with top-level qualifications employed and state-of-the-art equipment acquired by the companies ensure their competitiveness on the global scientific products market. Lithuanian products do not have equivalents in Central and Eastern Europe and, thus, all the conditions are in place for further development of biotechnology research and its effective use in increasing the competitiveness of Lithuania's industry.

Four biotech companies – SICOR Biotech (development and production of protein-based pharmaceuticals), Fermentas (biological products for genetic engineering, molecular biology, and medical diagnostics), Biocentras (the use of micro-organisms to remove pollution), and Biok (manufacture of cosmetic products) make the core of the Lithuanian biotechnology sector. Today Lithuanian biotech companies export their products to 86 countries.

Alongside companies, there are also quite a few public research centres working in the area of biotechnology. Lithuanian biotechnology research centres have accumulated a great intellectual potential and achieved good results in the chemical and biochemical research of protein, enzymes and nucleic acid for pharmaceutical application, as well as the molecular biology research of prokaryote and eukaryote cells. Lithuanian biotech research centres also prepare high-quality specialists in cooperation with domestic and foreign companies and academic institutions. Specialists of various areas of biotechnology – biochemists, chemists, geneticists, microbiologists, bioengineers, etc. – are prepared at the faculties of Natural Sciences and Chemistry of Vilnius University, as well as at the Faculty of Fundamental Sciences of Vilnius Gediminas Technical University.

The Lithuanian Development Agency (LDA), providing free-of-charge fast and efficient support for starting business in Lithuania, invites foreign businesses to refresh their investment portfolio and discover new opportunities in the prospering Lithuanian economy.

▶ Contact:
Violeta Makauskiene
Lithuanian Development Agency (LDA)
Vilnius, Lithuania
violeta.makauskiene@lda.lt
www.lda.lt

Schott Opens Russian Site

Schott has officially opened its first manufacturing site in Russia together with its Belgian joint venture partner AGC Flat Glass Europe. Schott Flat Glass Russia processes flat glass for international and local manufacturers of ovens and refrigerators in Russia and the Baltic States. The manufacturing site is located in Bor, near Russia's fourth largest city Nizhny Novgorod.

The facility currently employees 70 workers for the cutting, grinding, drilling, screen printing and thermal toughening of soda-lime glass. By the end of 2008, the number of employees is expected to reach 100 to meet growing regional demand.

Currently, the markets for home appliances in Eastern Europe and the Commonwealth of Independent States (CIS) are the fastest growing markets worldwide, as incomes rise and old appliances are replaced. In Russia alone, over half of all refrigerators and ovens are over twelve years old. In the CIS, over five million refrigerators and three million ovens are manufactured annually.

▶ www.schott.com

Sasol Expands Business in China

Sasol announced the opening of an office in Shanghai to market its diverse range of chemical solvents in China. Sasol Chemicals Shanghai (SCS) will initially market products from the global Sasol Solvents business. Sasol Solvents operates plants in South Africa and Germany and supplies a wide range of products, including glycol ethers, C3/C4 alcohols, esters and acids, ethanol, ethyl acrylate, fine chemicals and aldehydes, glacial acrylic acid, ketones, methanol, n-butyl acrylate and mining chemicals. These are used in aerosol, agricultural, cosmetic, fragrance, mining, packaging, paint, adhesive, pharmaceutical, polish, printing and other applications.

Sasol also recently announced plans to increase its octene production at Secunda in South Africa by 100,000 t/y and will also double its methyl iso-butyl ketone (MIBK) output at Sasolburg, near Johannesburg.

▶ www.sasol.com

Rhodia Creates New Innovation Center

To mark the 75th anniversary of the birth of Pierre-Gilles de Gennes, winner of the Nobel Prize for Physics in 1991, Rhodia has announced the creation of the Pierre-Gilles de Gennes Innovation Center on its Pessac site in the greater Bordeaux area. This facility will be officially inaugurated during a ceremony on Dec. 11. In this way, Rhodia said it will pay tribute to this research scientist who, for 20 years, made a substantial contribution to the scientific and technical strategy of Rhône-Poulenc – and, subsequently, of the Rhodia Group – as a member of the company's Scientific Council and Board of Directors.

▶ www.rhodia.com

BASF: Tile Adhesive Plant in China

BASF celebrated the opening of its first plant for PCI tile adhesives in the southern Chinese city of Foshan. It will serve the local construction chemicals sector with tiling technologies and solutions. With an annual production capacity of more than 50,000 mt, this facility will turn out a broad product range, including tile adhesives, leveling products, tile grouts, waterproofing materials, primer and silicone sealants.

▶ www.basf.com

BMS Transits into Business Park

The Bayer MaterialScience site in New Martinsville has completed its transition from a commodity chemical plant to a state-of-the-art chemicals facility and business park. Bayer has also announced its first tenant at the new business park – the River Valley BioRefinery, which will build a biodiesel facility. Bayer MaterialScience said it will continue to invest in the New Martinsville plant's infrastructure.

▶ www.bayermaterialscience.com

chemanager@gitverlag.com


Harri Kerminen

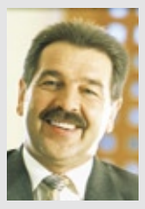
Kemira Group Appoints New CEO Kemira Group's board of directors has appointed Harri Kerminen as the new CEO of Kemira Group, effective Jan. 1. Kerminen is currently president of Kemira Pulp and Paper, Kemira's largest business area. With effect from the same date, Kemira's current president and CEO, Lasse Kurkilahti will become senior adviser to the Board of Kemira Group. Kurkilahti will remain as senior adviser for the first quarter of 2008, after which his contract with Kemira will come to an end in line with a prior agreement.

▶ www.kemira.com


François Hincker

New Vice-President for Rhodia Engineering Plastics Rhodia has appointed François Hincker as Vice President of the company's Engineering Plastics business unit reporting to Laurent Schmitt, President Rhodia Polyamide. Hincker also becomes a member of the Rhodia Polyamide Executive Committee. Prior to joining Rhodia, Hincker was Vice President General Manager Europe at Gates Corporation in Belgium – a rubber belt, hoses and hydraulics products manufacturer for automotive and off-road vehicles and industrial applications.

▶ www.rhodia.com


Walter Galinat


Klaus Bischoff

Merck Names New Managers Merck KGaA has realigned the leadership of its Chemicals divisions. The current head of Liquid Crystals, Dr. Paul Breddels, has decided to leave the company for personal reasons. Walter Galinat, previous head of the Performance & Life Science Chemicals division (PLS), has assumed leadership of the Liquid Crystals (LC) division. Furthermore Klaus Bischoff, previous country manager of the Merck Group in Taiwan, has become the new head of the PLS division. Before taking over the leadership of the PLS division in 2006, Walter Galinat had already served for six years as head of the predecessor divisions Analytics & Reagents and Life Science & Analytics.

▶ www.merck.de

Whyte Chemicals Announces Board Changes Whyte Chemicals (WCL) has appointed Richard Milner-Moore to managing director of WCL. He was previously director of polymers operations; this responsibility has been passed to Nick Howell. Prior to joining WCL, Milner-Moore has been with DSM UK as managing director. Furthermore John Drummondas has been appointed to business development director for WCL in addition to his role as director of organics.

▶ www.whytechemicals.co.uk

New Head of Agrolinz' Melamine Business Unit Marketing Rainer Höfling assumed the post of head of marketing within the Melamine Business Unit of Agrolinz Melamine International. Rainer Höfling had previously occupied numerous managerial appointments at Neste Chemicals and PCD Polymere. He was last employed in a respected Austrian industrial company, where as the CEO, he bore responsibility for a workforce of around 200 and the development, sales, marketing, production and logistics areas.

▶ www.agrolinz.com

Excelsyn Appoints Non-Executive Director Pharma and biotech services company, Excelsyn, has announced the appointment of Dr. Reg Shaw as non-executive director. Formerly managing director, Biopharmaceutical Operations at Wyeth Medica Ireland, Shaw had overall responsibility for the world's largest single-site biopharmaceutical campus, overseeing 1200 staff and leveraging corporate investment in the areas of neurotherapeutics, mammalian expression and protein discovery. Prior to joining Wyeth in 1999, Shaw spent 25 years with SmithKline Beecham Corporation in a number of global, senior management positions.

▶ www.excelsyn.com

Ashland Named Leader for New Technology Center Tim Tufts has been selected as the new leader of the recently announced technology center that Ashland is constructing in Shanghai, China. As technology manager for Ashland China, Tufts will serve as a member of the Ashland China Leadership Team and report to Ashland China President Dale MacDonald.

▶ www.ashland.com


Joris Merckx

Chemetall Named Head of Surface Treatment Business Joris Merckx has been appointed to the board of Chemetall and managing director of Chemetall's global surface treatment business. Chemetall, a unit of Rockwood Holdings, is a supplier of technological solutions for the treatment of metal surfaces and innovative, metal-based fine chemicals.

▶ www.chemetall.com


Peter Moeller

Changes within Executive Board of Schwarz Pharma The supervisory board of Schwarz Pharma has announced that Detlef Thielgen, Chief Executive Officer and Executive Board Member, has resigned in order to focus on his function as Chief Financial Officer of UCB S.A. in Brussels. The Supervisory Board has appointed Peter Moeller to new Chief Executive Officer of Schwarz Pharma. As of January 1, 2007 Peter Moeller has been appointed to Executive Board Member of Schwarz Pharma and is responsible for legal affairs. Furthermore the Supervisory Board of has appointed Simon Looman to new Executive Board Member effective from Jan. 1, 2008 on. In his new function he will be Chief Operating Officer.

▶ www.schwarzpharma.com

Teijin Aramid Names Technical Account Manager Teijin Aramid has appointed Rob Woudman as Application Development Engineer/Technical Account Manager at the Composites Marketing & Sales Department. As such he is responsible for extension of the technical knowledge within the Composites Department and supports Sales Account Managers in general technical issues. He joined Teijin Aramid in 2000. In his last position as Energy/Utility Engineer he was responsible for set-up of energy technology at the production plant in Emmen. Rob Woudman completed the study Chemical Technology at the Enschede Institute of Technology in Enschede.

▶ www.teijinaramid.com

JPK Instruments: Fastest Growing

JPK Instruments has been titled the fastest growing company of the nanotech industry on the Deloitte Technology Fast 50 ranking, which it in its fifth year. JPK Instruments develops, produces and markets base technologies enabling analytical access at an atomic and molecular level. The leading companies in Germany's high-tech industries were determined on the basis of their compounded percentage sales growth rates of the past five years. JPK achieved a growth rate of over 970 %. JPK Instruments made second place in the life sciences industry its core business and third place in the New Technologies segment.

▶ www.jpk-instruments.com

Evonik Invites Applications for Award

Evonik Industries has launched the European Science-to-Business Award 2008. The award is aimed at talented researchers and young entrepreneurs under the age of 38, working in a team with a maximum of three members. The winning team, selected by an international jury, will receive a cash prize of €100,000 and the opportunity to attend a management course at the University of St. Gallen. Entries must be received by March 31, 2008. The patron of the award is Dr. Arend Oetker, president of the Donors' Association for the Promotion of Science and Humanities in Germany. Application documents and detailed information are available from Evonik's website.

▶ www.evonik.com/award

IChemE Launches New Award

The Dhirubhai Ambani Award, designed to recognize life-changing chemical engineering innovation projects, has been launched by the Institution of Chemical Engineers (IChemE), with £10,000 in prize money. The award, sponsored by Indian petrochemical manufacturing company Reliance Industries, is named after the father of Reliance Chairman, Mukesh Ambani. Inspired by the work of Professor Howard Bradbury, based at the Australian National University, who devised a life-saving process to eliminate cyanide in cassava flour, the first Dhirubhai Ambani Award for Outstanding Chemical Engineering Innovation for the Resource-Poor People, will be presented at ChemEng '08 in Birmingham, UK in October 2008.

▶ www.icheme.org
▶ www.ril.com

Drogas Vigo Wins Stewardship Award

ESIG has announced that the winner of its sixth Product Stewardship Award is Drogas Vigo, a Spanish company. The award was presented to Drogas Vigo at Cefic's Responsible Care Conference in October in Paris. The winner was selected by an independent jury made up of senior representatives from the European Commission, European Parliament, media and trade associations. The jury said it was impressed by the innovative approach of Drogas Vigo's product stewardship strategy. This strategy included the use of cryogenic technology to reduce volatile organic compounds emissions, improved storage facilities to prevent environmental leakages, customer site appraisals and the hosting of seminars on the explosion and fire risk from static electricity.

▶ www.esig.org

LRI Award to Roman Ashauer

Cefic's Long-range Research Initiative (LRI) has awarded a €100,000 study grant for research in the field of ecotoxicology to Dr. Roman Ashauer from the Swiss Federal Institute of Aquatic Science and Technology. Dr. Ashauer won the grant for his work, "Improving the definition of water quality criteria: linking organism recovery times to mechanism of action and acute-to-chronic ratios." Considered an expert in his field, this young German researcher received the award in Brussels. The competition was run in partnership with the European Society of Environmental Toxicology and Chemistry (SETAC).

▶ www.cefic-lri.org, www.setac.org

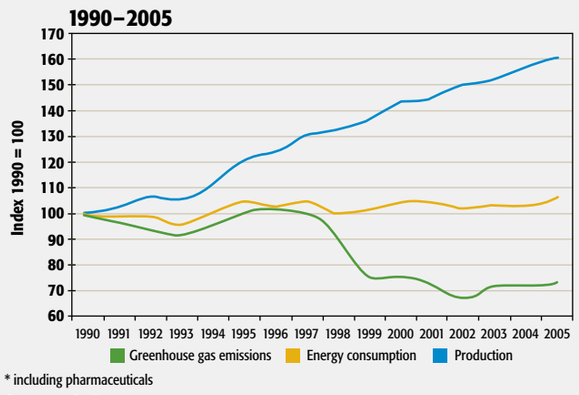
Excelsyn Awarded Dti Grant

Pharma intermediate and ingredient producers Excelsyn Molecular Development (Holywell, UK) said it has received a £350k Dti Spring Innovation Award to fund continuing research into new production routes for the synthesis of new pharmaceutical intermediates in collaboration with Bangor University, North Wales, UK. This new grant will continue a two-year programme, which applied an improved transaminase technology to produce the unnatural amino acid tert-L-leucine (tert-butyl glycine or TBG). TBG is used for the synthesis of several new drug candidates.

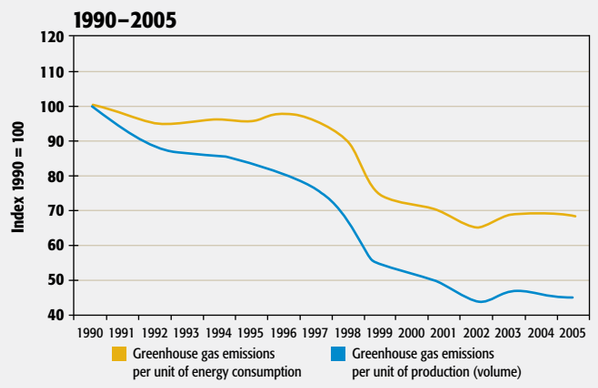
▶ www.excelsyn.com
▶ www.bangor.ac.uk

Sustainable Development in the EU Chemicals* Industry

Greenhouse gas emissions, energy consumption and production



Greenhouse gas emissions per unit of energy consumption and per unit of production



* including pharmaceuticals

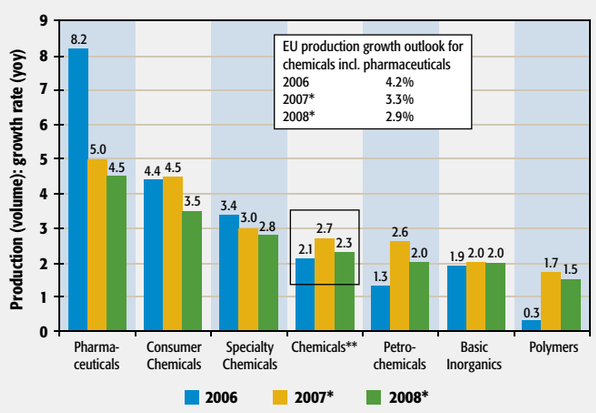
Source: Cefic

© GIT VERLAG

The chemical industry works to develop cleaner and safer technologies, waste-recycling processes and new products to safeguard the environment (biotechnology processes, catalysts, membranes, desulphurisation plants, etc.). One aspect is increased energy efficiency. In addition to increasing the energy efficiency of its own processes, the chemical industry also helps to increase the energy efficiency of downstream users and their products through innovative inputs. Between 1990 and 2005, production in the EU chemical industry (including pharmaceuticals) rose by 60%, while total energy consumption was rather stable and greenhouse gas (GHG) emissions fell by almost 30%. Hence, GHG emissions per unit of energy consumption have been reduced by more than 30% and GHG emissions per unit of production have been more than halved since 1990. This shows the enormous effort that the chemical industry is making to minimise the environmental impact of its production.

EU Chemicals Outlook 2007–08

Production growth outlook

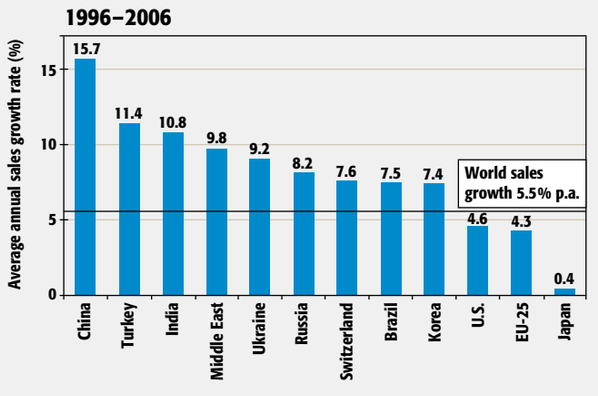


Source: Cefic

All chemical sub sectors showed positive growth in 2006. Consumer chemicals were the growth leader with 4.4%, followed by specialty chemicals (3.4%), basic inorganics (1.9%) and petrochemicals (1.3%). Polymers growth has been almost stagnating with a growth rate of 0.3%. This led to a growth rate of 2.1% for chemicals in 2006. For 2007, the outlook for most sub sectors shows rising growth rates in comparison to 2006, specialty chemicals and pharmaceuticals being the exception.

Chemical Sales 1996–2006

Chemical sales 1996–2006
Sales growth rates of selected regions and countries

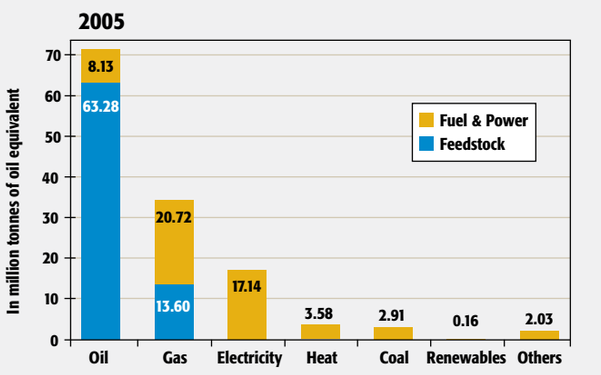


© GIT VERLAG

On a world wide level, chemicals sales grew yearly by 5.5% over the last ten years. The EU with an average sales growth rate of 4.3% is below world growth and also below the USA. Japan shows a meagre sales growth rate of 0.4%. The high growth countries and regions are China, Turkey, India, Middle East, Ukraine, Russia and Switzerland, with sales growth rates between 15.7% (China) and 7.6% (Switzerland). Brazil and Korea are also among the top growth performers with around 7.5% annual average sales growth between 1996 and 2006.

Industrial Energy Usage in Europe

EU chemical* industry energy consumption by source



* including pharmaceuticals

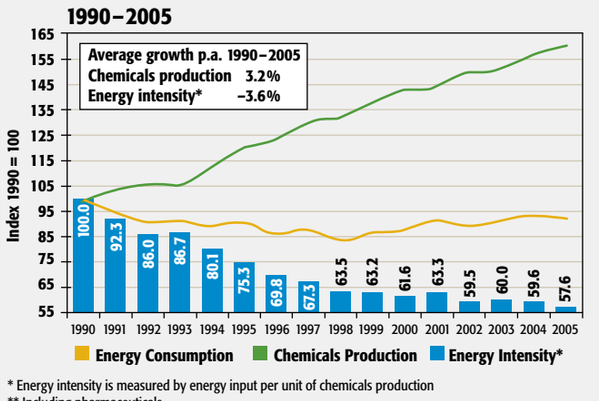
Source: Eurostat

© GIT VERLAG

The chemical industry upgrades energy and raw materials into products required by other industrial sectors as well as by final consumers. The cost of these inputs is a prime factor in competitiveness on world markets.

From the energy sector, it consumes coal, oil products, natural gas, electricity and renewables, using them both as raw materials (feedstock) and as power and fuel. In 2005, the European chemical industry (including pharmaceuticals) used a total of 131 million tonnes of oil equivalent (TOE) of energy.

Energy intensity* in the EU chemical industry**



* Energy intensity is measured by energy input per unit of chemicals production
** Including pharmaceuticals

Source: Cefic and Eurostat

© GIT VERLAG

For many years, the EU chemical industry has made strenuous efforts to improve energy efficiency, reducing its fuel and power consumption per unit of production. In 2005, energy consumption per unit of production (including pharmaceuticals) was 42% lower than in 1990. In other words, over the last 15 years the chemical industry has succeeded in increasing continuously its output while at the same time keeping its energy input constant: consequently, the chemical industry lowered its energy intensity by 3.6% annually.

IMPRINT

Publisher:
GIT VERLAG GmbH & Co. KG
Roesslerstr. 90
64293 Darmstadt
Tel.: +49 6151 8090 0
Fax: +49 6151 8090 144
info@gitverlag.com
www.gitverlag.com

Managing & Publishing Director
Dr. Michael Schön

Head of Sales & Marketing
Anna Seidinger

Product Management
Dr. Michael Klinge
Tel.: +49 6151 8090 165
m.klinge@gitverlag.com

Editor-in-Chief
Brandi Hertig Schuster
Tel.: +49 6151 8090 166
b.schuster@gitverlag.com

Editors
Dr. Michael Klinge
Tel.: +49 6151 8090 165
m.klinge@gitverlag.com

Dr. Roy Fox
Tel.: +49 6151 8090 128
r.fox@gitverlag.com

Editorial
Wolfgang Sieß
Tel.: +49 6151 8090 240
w.siess@gitverlag.com

Dr. Dieter Wirth
Tel.: +49 6151 8090 160
d.wirth@gitverlag.com

Dr. Birgit Megges
b.megges@gitverlag.com

Media Consultants
Thorsten Kritzer
Tel.: +49 6151 8090 246
t.kritzer@gitverlag.com

Miryam Preußer
Tel.: +49 6151 8090 134
m.preusser@gitverlag.com

Dr. Michael Reubold
Tel.: +1 201 748 8810 (USA)
m.reubold@gitverlag.com

Ronny Schumann
Tel.: +49 6151 8090 164
r.schumann@gitverlag.com

Roland Thomé
Tel.: +49 6151 8090 238
r.thome@gitverlag.com

Corinna Matz-Grund
Tel.: +49 6151 8090 217
c.matz-grund@gitverlag.com

Team Assistants
Lisa Rausch
Tel.: +49 6151 8090 263
l.rausch@gitverlag.com

Christiane Rothermel
Tel.: +49 6151 8090 150
c.rothermel@gitverlag.com

Freelancers
Dr. Sonja Andres

Production Managers
GIT VERLAG GmbH & Co. KG
Dietmar Edhofer (Management)
Claudia Vogel (Advertising)
Mattias Funk (Layout)
Elke Palzer, Ramona Rehbein (Litho)

Reprints
Christine Mühl
Tel.: +49 6151 8090 169
c.muehl@gitverlag.com

Subscription/Reader Service:
Tel.: +49 6151 8090 115
readerservice@gitverlag.com

Bank Account
Dresdner Bank Darmstadt, Germany
Account No. 01715501/00,
Routing No. 50880050

The current price list is valid from 1 October 2007

CHEManager Europe appears 10 times in 2007.

Print run: 15,000
Third year 2007
Subscriptions
10 issues €94,5
incl. postage
single copy €12,60
plus postage

Students receive a discount of 50% upon presentation of a valid certificate. Subscription orders can be canceled within 1 week in writing. Dispatch complaints are possible only within 4 weeks after publishing date. Subscription cancellations are accepted 6 weeks before end of year.

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

All names, designation, or signs in this issue, whether referred to and/or shown, could be trade names of the respective owner.

Printed by
Echo Druck und Service GmbH
Holzhofallee 25–31
64295 Darmstadt

Volume 3, November 2007

GIT VERLAG
A Wiley Company
www.gitverlag.com

Printed in Germany
ISSN 1861-0404

D-Cycloserine Reduces Cocaine-Seeking Behavior in Laboratory Mice

Scientists at the U.S. Department of Energy's Brookhaven National Laboratory have provided further evidence that a drug known as D-cycloserine could play a role in helping to extinguish the craving behaviors associated with drug addiction. Their study found that mice treated with D-cycloserine were less likely to spend time in an environment where they had previously been trained to expect cocaine than mice treated with a placebo.

"Since the association between drugs and the places where they are used can trigger craving and/or relapse in humans, a medication that could aid in the reduction or even extinction of such responses could be a powerful tool in the treatment of addiction," said Carlos Bermeo, a Stony Brook University graduate student working under the direction of Brookhaven Lab neuroscientist Panayotis (Peter) Thanos.

D-cycloserine was originally developed as an antibiotic. But it has also been shown to extinguish conditioned fear in pre-clinical (animal) studies, and has been successfully tested in human clinical trials for the treatment of acrophobia (fear of heights). This finding led several researchers to wonder whether D-cycloserine could extinguish drug-seeking behaviors as well.

In 2006, a group of scientists not affiliated with Brookhaven Lab tested this hypothesis in rats. They found that D-cycloserine facilitated the extinction of "cocaine conditioned place preference" – the tendency for the animals to spend more time in a chamber where they had been trained to expect cocaine than in a chamber where they had no access to the drug.

The Brookhaven study builds on the previous work and adds information on the drug dose effect, the lasting properties of the treatment, and the locomotor effects of this compound.

Bermeo and Thanos' group worked with C57bL/c mice. Animals were first trained to receive cocaine in a particular environment. Once conditioned place preference was established (that is, animals willingly spent more time in a cocaine-paired environment than in a "neutral" environment), the mice were treated with either D-cycloserine or saline and allowed to spend forty minutes in either the previously cocaine-paired environment (with the drug no longer available) or the neutral environment.

Mice treated with D-cycloserine showed less preference for the cocaine-paired environment and did this more rapidly than mice treated with saline. The low dose (15 milligrams D-cycloserine per kilogram of body weight, given intraperitonially) showed a 10 percent decrease in time spent in the previously cocaine-paired environment, and the high dose (30 mg/kg i.p.) showed a 17% decrease in the time spent in the previously cocaine-paired environment. The high dose produced a more pronounced and consistent extinction than the lower dose.

Interestingly, animals treated with the high dose of D-cycloserine exhibited lower locomotor activity compared to both the low-dose D-cycloserine group and the saline-treated animals. These two groups exhibited similar levels of locomotor activity. This indicates that dosing may have to be fine tuned to achieve optimal efficacy with minimum side effects.

"It's important to remember that these are very preliminary results from a small animal study," Thanos cautioned. "Much further research will be required before testing this drug in humans. But it is inspiring to know that this drug may show promise in treating cocaine addiction, which continues to take a toll on society and for which no pharmacological treatment currently exists."

▶ www.bnl.gov

INDEX