CHEManager EUROPE

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THE NEWSPAPER FOR THE CHEMICAL AND LIFE SCIENCE MARKETS

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Middle East and India: Great opportunities in emerging markets.

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M&A-News:
Roche extended its $5.7 billion cash bid for U.S. gene decoder Illumina for a second time as the Swiss drugmaker sticks to its tried and tested M&A strategy of playing a long game. Illumina, which has adopted a „poison pill" defence strategy for Roche's unsolicited bid, said that Roche's offer remained „grossly inadequate."

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Sales & Profits
While some chemical companies have set ambitious targets for the near future, others have issued profit warnings. For instance, Bayer sees good perspectives for its businesses in the medium term, and Evonik has announced tangible plans for its long-awaited IPO. In contrast, Wacker, the world's No.2 maker of polysilicon, slashed its dividend and provided a gloomy outlook for this year. Read who else is optimistic and who is cautious.

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Focus On India
The Middle East is becoming the center of a booming region. And the growth perspectives of the area lie far beyond the boundaries of the Gulf region. From India to Maghreb a mainly Muslim economic region is rising. India, one of the fastest growing emerging markets, geographically connects the Middle East region with South East Asia. Several articles in this issue focus on the market conditions, challenges and opportunities for chemical and pharmaceutical companies in India.

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Chemicals
In-Cosmetics 2012 trade show will be held in Barcelona, Spain April 16-19. Read what's new on cosmetic ingredients and feedstocks, and in cosmetic regulation.

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Pharma
Do second-wave emerging markets have the potential to compete with China and India as manufacturing and sourcing destinations for pharma APIs?

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Right Trends, Right Markets

Lanxess' New CFO on Controlling Outside Influences in the Industry

Finance – For all the planning that goes into any company's strategy, there will always be outside factors that limit the ability to control one's financial destiny. Right now, those factors include the wavering euro and political indecisiveness in Europe; a debt crisis and upcoming presidential election in the U.S.; as well as a volatile raw materials market worldwide. Lanxess CFO Dr. Bernhard Düttmann talked to Brandi Schuster about how chemical companies can gain control over how outside factors influence their financial health and how his company stays one step ahead.

CHEManager Europe: Dr. Düttmann, the business climate today is full of uncertainties that affect the financial performance of companies. On the other hand, business in mature markets is stagnating while success in new markets such as the BRIC countries requires significant upfront investments. Is there a panacea for this situation?

B. Düttmann: The overall economic environment is currently unclear. The growth rates in the BRIC countries may not be as dynamic as they have been in the past, still there is a positive sentiment overall. The American market has performed slightly better than anticipated. The one looming question mark is hanging over the European market; right now. It's impossible to predict what will happen with the debt crisis.

In this kind of environment, it is therefore crucial for a chemical company to have the right strategy, the right products and to be focusing mega on the right trends.

What does that mean specifically for Lanxess?

B. Düttmann: The current shift from commodity to high-performance rubbers for tires is clearly benefiting our company. This trend will be given a boost by the EU's tire-labeling initiative, which is set to go in effect in November this year alongside labeling in South Korea.

Besides green mobility, we are also following the agricultural trend. The world's increasing population dictates that agro will remain a growing market. But agro also ties into mobility as well, with the trend moving away from petrochemicals and toward biofuels. Another trend we are supporting is urbanization, although growth in this area is currently restricted because of decreasing governmental investments in infrastructure. However, looking to Brazil or China, the trend is still healthy. And I should not forget the need for clean water – something that is often taken for granted in the developed parts of this world. Lanxess is one of the leading providers of water treatment chemicals and benefiting from this megatrend.

All this coupled with our focus on the BRIC markets leads me to be cautiously optimistic for 2012.

It sounds like Europe is the one weak spot on the horizon. Has the instability of the euro affected your business?

B. Düttmann: Is the euro instability a real or merely a politically-driven issue in the current environment? When we compare the fundamentals of the euro against the dollar, I don't see a weak euro. The German industry has certainly benefitted from the euro since our industry is a key exporter. I believe the euro will become stronger as soon as the political uncertainties have been removed.

Besides following the right trends, what else can chemical companies do to protect themselves from outside influences?

B. Düttmann: As I mentioned, it is important to be in the right markets with the right products. We have a clear growth target to achieve €1.4 billion EBITDA pre exceptionals in 2015. At the same time, we need to be able to adapt very quickly to changing order patterns. Flexibility is key. Lanxess proved this during the last crisis when we had to adapt quickly. That meant delaying large investment projects and managing capacities, which is not easy in the chemicals industry – you can't just switch off a chemicals plant!

Has this flexibility always been a part of Lanxess' strategy, or was it borne out of the financial crisis in 2008/2009?

B. Düttmann: The financial crisis certainly gave us the opportunity to see what we are capable of. It brought management and employees closer together with a high degree of solidarity. Lanxess also had to be flexible when it was spun off from Bayer in 2005. It was also in a very precarious situation then – businesses had to be sold, costs had to be cut. With this focus on track record, we run our growth plan and can react immediately if needed.

> *"The financial crisis gave us the opportunity to see what we are capable of."*

One outside influence that is not as easy to control is raw material prices, and the higher cost of raw materials has been dragging down the Q4 numbers for several chemical companies. How do you expect this to develop over the next 12 months, particularly in terms of volatility?

B. Düttmann: There was tremendous raw material inflation in the first three quarters of 2011; this finally let up in Q4. We now see some prices rebounding or at least leveling off. Reacting to this volatility is important. Lanxess has a clear price-before-volume strategy. This strategy has worked out well for us; over the last five to six years, we have consistently been able to pass along the cost of raw materials.

Has your company been affected by scarcities of strategic raw materials?

B. Düttmann: We are one of the biggest merchant buyers of butadiene. There haven't been a lot of investments in the last few years to bring up capacity for ethylene production, of which butadiene is a side product. In addition, the U.S is focusing more and more on light cracking. Nevertheless, our global procurement team does a great job in focusing on secure log-term contracts.

Another potential outside factor that affects the chemical industry is energy prices, particularly in Europe.

B. Düttmann: It certainly has an impact. We saw rising energy costs in 2011, even though our energy consumption per ton has been decreased over the years and we are always looking for more opportunities to further reduce our energy consumption per output.

Are the high energy prices in Western Europe a reason to take some production sites elsewhere?

B. Düttmann: There is no real concern if energy prices rise across the board globally; the concern is when they only rise in Europe while they fall in America, which is the case because of the growing interest in shale gas there. Also, in some countries, energy prices are subsidized by governments. And this is when it starts to become an issue.

Are these kinds of subsidies for energy-intensive industries missing in Western Europe?

B. Düttmann: I don't believe we need incentives on energy costs – what we definitely need to avoid are any extra burdens. Today in Germany we are in a good situation. We are cost competitive.

It would be a big mistake to overburden the industry with fees or rising energy costs, particularly in light of the jobs the industry brings to the country. The German chemical industry is one of the top four industries in Germany!

Looking to regions outside of Europe, how are you taking advantage of strong growth in emerging markets, particularly in the BRIC regions?

B. Düttmann: The most important factor here is that we are local in the BRIC countries. We're not just exporting there, but we're producing there as well. Specifically, we are investing heavily in China and India. We are also strengthening our footprint in Latin America. In 2005, our share of sales in the BRICS nations was about 12 %. Today it is 24 %.

Lanxess has just opened three new plants in India. Is it difficult to justify such investments when many companies are tightening their belts?

B. Düttmann: When deciding on investments we allocate resources with only one thing in mind – profitability. We apply strict financial criteria to every investment project. It must improve the company's overall profitability and must conform to an aggressive payback period. On top of our cost of capital, we assign a standard 1.5 percent risk premium and a country-specific premium. These criteria highlight how we go through every investment with great thoroughness.

The concept of "shareholder value" is a fine line to walk, particularly for a chemical company. How can a publically traded company find the right balance?

B. Düttmann: It is about credibility. We have laid out a clear growth plan to our investors. Our job is to deliver what we promise. That, along with our existing track record, is how we create value.

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CONTENT

UIC Cuts 2012 French Chemical Output Forecast

French chemical industry association UIC has cut its growth forecast for the country's chemical output next year to 1.8% from 2.4%, due to the economic crisis and customers waiting to restock.

For this year, however, UIC raised its production growth forecast to around 4.5% from the about 3% it had forecast in January, compared with 10.8% growth in 2010.

The raised estimate is thanks to a "very good" first quarter, with volumes up 7.1%, backed by demand from the car industry. Production growth began to weaken in the second quarter, taking total output growth to 7% in the first nine months of the year against 12.7% in the same period last year.

In the context of a general economic slowdown and great uncertainties linked to the sovereign debt crisis in the euro zone, the overall outlook in the industry is less clear, the UIC wrote in a statement. The uncertain climate, however, should not translate into violent collapse in chemical activities, but in growth rates that are significantly less high, the UIC added.

The French chemical industry is the second biggest in Europe after Germany and fifth worldwide, with sales of 77.1 billion euros ($104 billion) in 2010. France's listed chemical groups are specialty chemicals maker Arkema and industrial gases company Air Liquide . ■

Bayer Sets Ambitious Targets for 2014

Bayer sees good perspectives for its businesses in the medium term. "In the life science areas – HealthCare and CropScience – we anticipate further increases in sales and margins through 2014," CEO Dr. Marijn Dekkers said at the "Meet Management" investor conference in Leverkusen. Sales of Bayer HealthCare (see page 13) are expected to reach approx. €20 billion in 2014, while Bayer CropScience aims to raise sales to more than €8 billion. Bayer MaterialScience intends to further strengthen its leading position in the market. This subgroup plans to achieve volume gains in excess of the rate of global GDP growth. Targets are based on the most recent currency assumptions, including an exchange rate of $1.40 to the euro. ■

Altana Further Expands Business in 2011

Altana was able to further increase sales in the business year 2011 compared to the record year 2010, despite an increasingly challenging environment. Sales climbed to €1,617 million, corresponding to an increase of 5% compared to the previous year (€1,535 million). Adjusted for exchange rate as well as acquisition effects, the operating sales growth was also 5%. The development during the year, however, was rather heterogeneous. While sales in the first months of 2011 increased in the double-digit percentage area, Altana was confronted with declining sales momentum in the second half of the year.

Despite the growth in sales the Group's 2011 earnings figures remained slightly below the figures achieved in the previous year. This is mainly attributable to the costs of raw materials that increased significantly throughout the business year. Despite the implemented sales price increases and countermeasures relating to the company's fixed costs, it was not possible to fully offset the rise in the prices of materials for the year as a whole. As a result, earnings before interest, taxes, depreciation and amortization (EBITDA) in 2011 decreased slightly by 2% to €308 million, compared to €314 million in the previous year. At 19.1%, the EBITDA margin, however, remained at a high level and within the company's strategic target range of 18% to 20%. ■

Shell Inks China's First Shale Gas Deal

Royal Dutch Shell has signed a production sharing contract with China National Petroleum Corporation (CNPC) to develop a shale gas block in China, the first deal of its kind in the country. China is in the very early stages of tapping its potentially large shale gas resources and the government wants to identify the right technology to unlock them in the next few years, aiming for a leap in shale production by 2020.

China's top energy agency, the National Energy Administration (NEA) officially unveiled a target to produce 6.5 billion cubic metres (bcm) of shale gas by 2015, or roughly 6% of China's current total gas production. It intends to dramatically boost output to 60-100 bcm in 2020, a level some experts say is over-ambitious as it faces technological, environmental and regulatory roadblocks.

Zhang Yuqing, head of NEA's Oil and Gas Department, has said foreign firms can enter product sharing contracts with Chinese firms or provide engineering services. ■

Saudi Seeks to Calm Oil Price Worries

Top oil exporter Saudi Arabia sought to soothe fears about high oil prices, saying world supplies were well in excess of demand and that $125-a-barrel crude prices were not justified given the anemic state of the world economy. Saudi Oil Minister Ali al-Naimi said the kingdom had satisfied all of its customers' requests for oil and stood ready to raise output to full capacity of 12.5 million barrels per day (bpd), if needed.

Oil is trading above $123, just $24 short of an all-time high, as tighter Western sanctions on Iran threaten to slow the country's exports.

"Oil prices today are unjustifiable on a supply and demand basis," said Naimi. "We really don't understand why the prices are behaving the way they are." He said supply of oil was now out-pacing demand by more than 1 million bpd and that customers were not asking for extra crude.

Riyadh is now pumping 9.9 million bpd – the highest in decades – and is willing to produce at full capacity of 12.5 million bpd immediately, should demand warrant, Naimi said. He said he expected output next month to stay at 9.9 million bpd. Saudi spare production capacity now stands at 2.5 million bpd, he said. ■

Roche Extends Illumina Bid

Roche extended its $5.7 billion cash bid for U.S. gene decoder Illumina for a second time as the Swiss drugmaker sticks to its tried and tested M&A strategy of playing a long game. Roche is offering $44.50 per share for Illumina, but analysts expect the company ultimately to raise its offer for the San Diego-based group. Illumina, which has adopted a "poison pill" defence strategy for Roche's unsolicited bid, said that Roche's offer remained "grossly inadequate."

"Illumina is positioned to create far more value than Roche has offered. Our shareholders clearly agree," the company said in a statement. Only about 0.1% of Illumina's shares outstanding have so far been tendered to Roche, the Basel-based company said. Roche urged Illumina shareholders last week to take up its offer, originally made in January, which it views as "full and fair."

Investors have said Roche may have to raise its bid to around $60 per share to win Illumina, whose shares have come down from a six-month high of $55.39 hit when the offer was announced to close at $50.46 on Friday. ■

BASF Realigns Research

BASF is realigning its research and is focusing even more strongly on the market and the global customer industries.

Alongside the further development of the established business portfolio, the main research emphasis is being placed on growth and technology fields that address social challenges and offer BASF relevant business potential. For 2012, BASF is planning to increase its research and development spending to €1.7 billion (2011: €1.6 billion).

"To seize growth opportunities we are systematically expanding our product and technology portfolio, establishing an even more global presence and increasing our efforts to develop solutions for a sustainable future," Dr. Andreas Kreimeyer, member of the Board of Executive Directors of BASF and Research Executive Director said. ■

DOW CORNING

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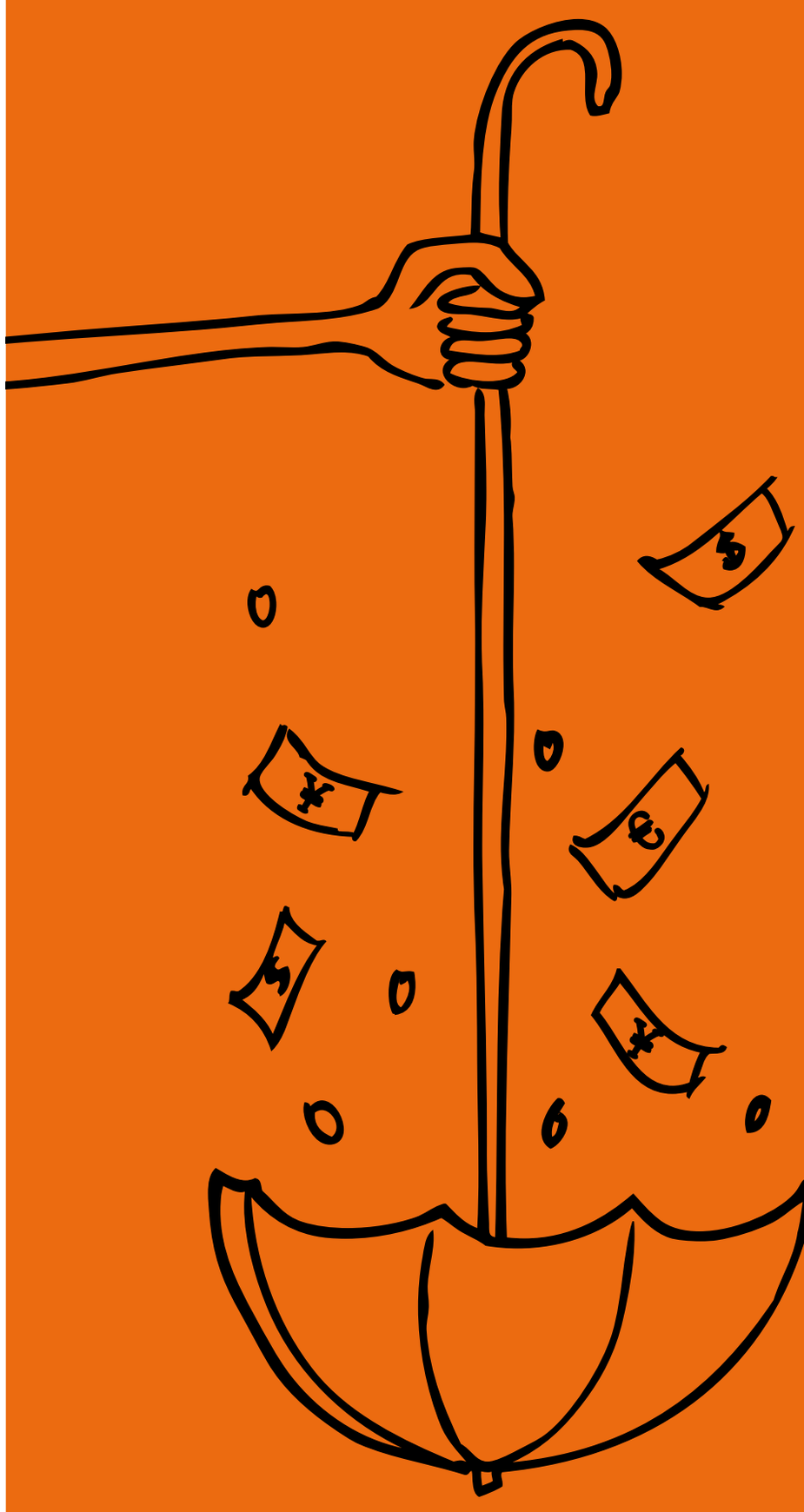

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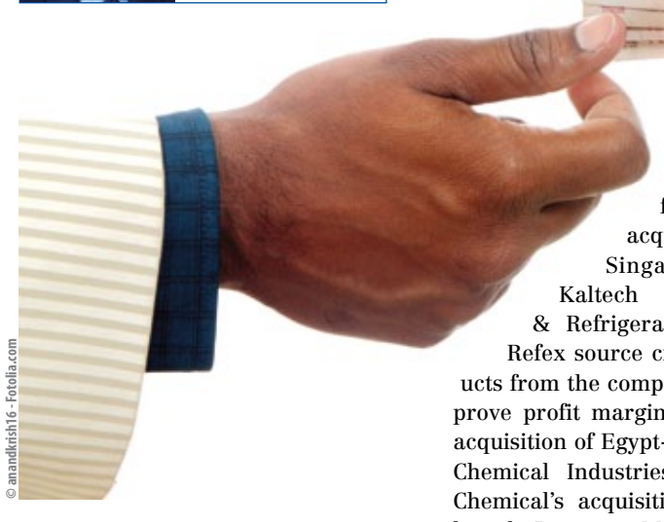
Cross-Border Buys

India Offers Opportunities for Thorough Investors

M&A in the Indian Chemical Industry – In 2011, United Phosphorus of India acquired a majority stake in Brazilian agrochemical company DVA Agro. This was the company's ninth outbound transaction since 2005 and like most of the others, was intended to give them ready market access to Brazil. In the same year, Japan-based Arysta's purchase of a stake in India's Devidayal (Sales) Ltd. gave them access to the Indian market.

Vir Lakshman
KPMG

Vikram Hosangady
KPMG



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Although both transactions had a common objective — market access — the ambitions of the acquirers were very different; in the former case, a large India-based multinational aspirant was aggressively pushing its "go global" strategy, and in the latter one of the world's largest chemical companies was seeking to participate in the India growth story.

Transaction Chemistry: Trends in Chemicals M&A in India

Over the past decade, India has been an active market for M&A in the chemicals sector, and barring the economic slowdown period, deal activity has increased gradually.

However, the dominant M&A theme has been cross-border transactions as Indian companies seek access to international markets, products and technologies, and international companies seek to participate more actively in the domestic market.

Of the 33 outbound chemical deals announced between 2005 and 2011, the U.S. was by far the preferred market, followed by the U.K., Germany and emerging markets such as Brazil, China, Egypt and Malaysia. The following key themes characterized most of these deals:

- Access to new products. For example, Navin Flourine's acquisition of Manchester Organics' fluorination chemistries helped the buyer enhance capabilities to undertake more complex fluorination projects in its specialty fluorochemicals portfolio.
- Accessing new markets or strengthening market presence. For example, United Phosphorus' acquisitions of Sipcam Isagro and DVA Agro helped the company gain a formidable position in the Brazilian crop protection market.
- Capacity access and strategic sourcing. For example, Refex Refrigerants' acquisition of Singapore-based Kaltech Engineering & Refrigeration helped Refex source critical products from the company and improve profit margins. Sanmar's acquisition of Egypt-based Trust Chemical Industries and Tata Chemical's acquisition of U.K.-based Brunner Mond helped both buyers increase their caustic soda capacity in the respective regions.

The following underlying themes were evident in the 14 domestic chemical deals announced between 2005 and 2011:

- Capacity access. For example, VV Titanium Pigments' acquisition of Kilburn Chemicals gave it access to additional capacities for manufacturing titanium dioxide to meet its growing export demand from international markets. Similarly, Aditya Birla's purchase of Kanoria Chemicals' chlor-alkali business helped the buyer more than double its existing capacity.
- Private equity investments supporting high growth. For example, Jacob Ballas' investment in Vivimed Labs helped the company grow its niche personal care ingredients portfolio and also to set up a U.S. FDA-compliant pharmaceutical API plant.
- Strengthening the product portfolio. For example, Coromandel International's acquisition of a majority stake in Sabero Organics helped the company become less dependent on its subsidy-supported fertilizer business and diversify into pesticides.

The 25 inbound chemical transactions between 2005 and 2011 were motivated essentially by two key themes:

- India market entry. For example, Eliokem's acquisition of Apar Industries' polymer business helped the company establish a strong presence in India while helping to serve as a platform to introduce Eliokem's broader product portfolio into India.
- Complementary product access. For example, Huntsman's acquisition of Laffans Petrochemicals' ethylene oxide derivatives business helped the company establish a presence in a business complementary to Huntsman's amine-based international product portfolio.

As the number of deals has increased, so has the average deal value — indicating a clear buyer preference for larger assets — though this is biased significantly toward outbound deals; the average deal size for inbound transactions in 2005-11 was $42 million.

India Catalyzed: Growth Drivers for the Indian Chemical Industry

The $65 billion Indian chemical industry, growing at 9% per annum, comprises the following key segments:

- Basic chemicals, including organic and inorganic chemicals, petrochemicals, synthetic fibers, chlor-alkali, industrial gases and fertilizers
- Specialty chemicals, including colorants, paints, water treatment chemicals, personal care ingredients, construction chemicals, polymer additives, preservatives and other specialty chemicals
- Agrochemicals, including insecticides, herbicides and fungicides

Growth in the sector is being driven by:

- Rising consumption. Consumption levels in the Indian chemical industry are significantly lower than world averages. For example, pesticide consumption is 0.5 kg/hectare in India versus 16 kg/hectare globally. With sustained economic growth, India's consumption levels are expected to steadily align with global levels.
- Growth in downstream products. India's chemical industry consumes approximately 30% of its own production. High growth rates in industrial products like pipes, packaging materials and plastics are driving growth in the upstream chemical value chain.
- Reducing dependence on imports. India remains a net importer of chemicals, and the industry has historically focused more on meeting domestic needs rather than tapping the global market. This is beginning to change as domestic capacities are being built to reduce import dependence and increase exports.
- Inherent factor advantages. India has abundant availability of trained manpower and skilled technical professionals, who are available at a lower cost compared with those in mature markets. This makes the country an attractive outsourcing, manufacturing and R&D location.
- Enabling regulatory framework. The Indian government allows 100% foreign direct investment (FDI) in the chemicals industry except for some hazardous chemicals. The agricultural sector is also expected to continue receiving policy thrusts (subsidies and incentive schemes), which will positively affect inputs such as fertilizers and agrochemicals.
- Supply side changes. The Indian chemical industry is highly fragmented (the top 10 companies in India contribute less than 15% of industry revenues and the top 100, less than 40%) and as smaller companies struggle to find economies of scale, consolidation in the market will continue, presenting international companies with an attractive entry point to the Indian market. Larger chemical companies are expected to continue pursuing their "go global" agenda and seek outbound acquisitions.

The Formula: Closing a Transaction in India Successfully

Foreign investors and companies evaluating deals in the Indian market should keep in mind the following considerations:

Decision Making

The shareholding and operations are often under the control of various family members and key associates. This may result in multiple decision makers or influencers. It is important to identify the key decision makers and influencers early in the transaction.

Cultural Factors

Indian sellers tend to be ambiguous and less upfront about their expectations from the transaction. Pride, peer pressure, family and other social factors also play on the minds of the vendors. In order to avoid protected negotiations, it is advisable to hold explicit discussions on scope, early on, to avoid ambiguities. Consider tailoring the transaction to manage softer issues such as succession planning, non-compete and vendor earn-out arrangements.

Price Expectations

India is a fast-growing market and recent transactions have taken place at rich multiples to reflect the strong growth potential. Indian sellers are all too aware of these multiples and will negotiate a hard bargain. Furthermore, business plans are often highly inflated and do not support market opportunities. This makes valuation a tricky exercise and doing diligence on the business plan is time well spent.

Availability and Quality of Information

The ability or willingness to deliver standard financial and operational data on the company may not be up to the expectations of an international buyer. The Indian chemical market is not well researched, and insights on a company's focus markets and competitive positioning are often difficult to find or not reliable. It is advisable to conduct detailed primary research and interviews with customers to get a sense of ground realities.

Knowing Your Counterparties

It is always advisable to conduct detailed background checks on creditors, customers, suppliers and other key business stakeholders to avoid nasty surprises post-deal.

Regulatory Issues

Certain investments are subject to Foreign Direct Investment/Foreign Investment Promotion Board/Competition Commission of India regulations, and listed targets are subject to takeover guidelines. Such approvals and processes may take three to 12 months. As a result it is important to appropriately evaluate transaction structuring options to comply with the Competition Act and tax jurisdiction matters.

Legal Recourse

In case of disputes arising from the transaction, Indian courts and other regulatory agencies may take several years before giving any verdict. Investors should consider escrow accounts, robust warranties and indemnities and well-defined arbitration mechanisms to speed up compensation. Perhaps even arbitration jurisdictions in other countries.

Governance Issues

There are a host of areas where governance standards fall well short of those a blue chip multinational acquirer would expect. As a result, the following aspects should be examined carefully during due diligence:

- Situations where the company participates in government tenders or public-private partnerships
- Extensive use of cash payments
- Real estate transactions and commission payments
- Labor intensive operations that may not meet minimum wage requirements
- Family-owned conglomerates with extensive related-party transactions

Outlook

Growth prospects for the chemical industry in India remain strong. The fragmental structure of the industry will provide investors with interesting opportunities. The challenge is to seize these opportunities at an affordable price. This is only possible by getting to know the vendor and the company in detail before doing the deal.

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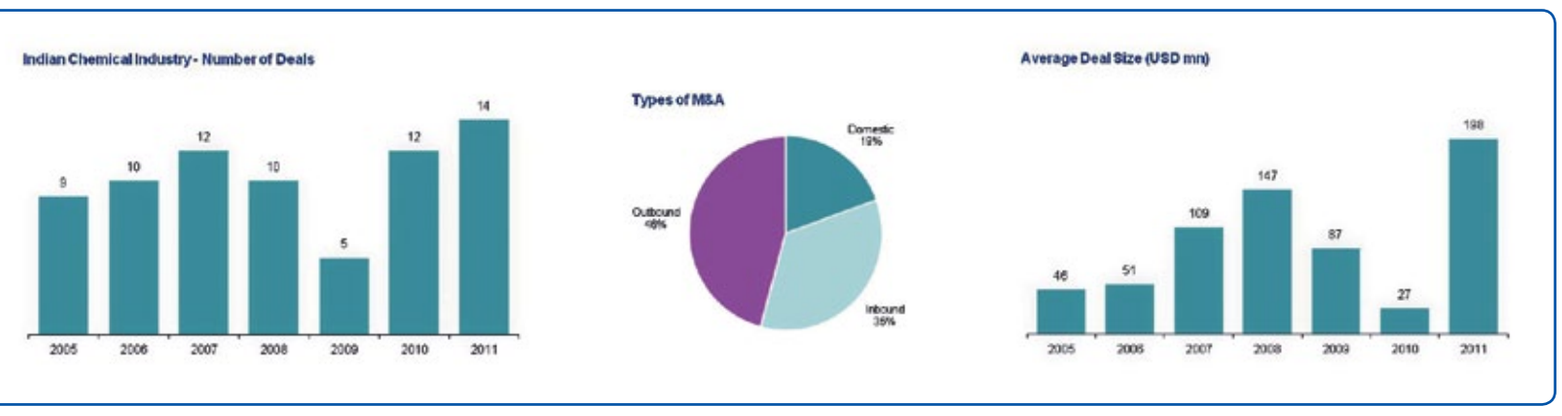

Emery Oleochemicals May Boost Fundraising For Expansion

Emery Oleochemicals, a manufacturer of plastic additives made mostly from palm oil, may sharply boost its fundraising as it plans to expand globally and explore tie-ups with companies in top palm oil producer Indonesia, its chief executive said. The Thai-Malaysian joint venture is reviewing its 480 million ringgit ($158.9 million) Islamic bond plan to fuel its growth to meet higher demand for oleochemicals, used in soaps and pharmaceuticals, Kongkrapan Intarajang said on Tuesday.

"Growth is going to be bigger than expected. We hope to announce something in the second quarter," Intarajang said in an interview on the sidelines of the Bursa Malaysia Palm Oil Conference.

A joint venture between the plantation division of Malaysia's Sime Darby, the world's largest palm oil firm by estate holdings, and the international arm of Thailand's PTT Global Chemical, Emery Oleochemicals is headquartered in Malaysia.

The firm operates about one million tons of oleochemical capacity across Europe, the United States and Asia, making it one of the biggest producers of specialty chemicals used also in cosmetics and soaps. ■

DuPont Sees Protein Demand Lifting Soy Sales

DuPont says it expects soy supplements to fuel much of the growth in its food ingredients business and for its products to help solve the widespread problem of weed tolerance to pesticides.

The company, best known for chemicals and Kevlar bulletproof fiber, has been steadily growing in the food sector since it bought Danish food ingredients maker Danisco last year. Food-related sales comprise nearly half of DuPont's roughly $38 billion annual revenue.

DuPont also has aggressively pushed back on opposition from environmental groups that its pesticides, insecticides and genetically modified seeds are damaging nature.

Sales of probiotics or bacteria that aid digestion, food enablers used in gums and food testing equipment are growing, but soy supplements, primarily protein derived from soybeans, should see the strongest growth in 2012, James Borel, an executive vice president with DuPont said. ■

Chevron Sees 20% Increase in Production By 2017

Chevron plans to increase output by a fifth in five years, driven by big Australian projects moving gas to energy-hungry Asian markets, while it also tries to squeeze another $150 million in cost savings out of its refining arm.

Closer to home, in the Marcellus shale, the second-largest U.S. oil company said reservoir outcomes were exceeding expectations, although it was investing there at a "measured pace" in light of depressed North American natural gas prices.

After getting $850 million of savings from a multi-year restructuring of its refining and chemicals division, compared with $700 million originally planned, Chevron said it was now looking for a total of $1 billion in savings. ■

Japan's Asahi Kasei to Buy U.S. Zoll for $2.2 Billion

Japan's Asahi Kasei will buy U.S. medical equipment maker Zoll Medical for $2.21 billion as it looks to build a globally competitive healthcare business and reduce its reliance on its chemicals and fibers operations.

Asahi Kasei will buy Zoll in an agreed cash deal for $93 a share, a 24% premium to Zoll's closing price on Friday, the two companies said in a joint statement. The deal is Asahi Kasei's biggest acquisition by far.

The transaction, which adds to about $200 billion that Japanese firms have spent on overseas acquisitions in the past four years, is expected to close in the second quarter, the companies said. Asahi Kasei said it will finance the deal with loans. Asahi Kasei derives more than half its sales from its chemicals and fibers businesses and almost a third from homes and construction materials. Combined, those businesses generate close to 90% of operating income. ■

Wacker Chemie Warns on Profits

Wacker Chemie slashed its ividend and provided a gloomy outlook for this year, saying a fall in polysilicon price from a year ago would hurt its earnings. The German company's polysilicon is a key ingredient in the production of solar cells. But solar companies in Europe and the United States have been hit hard by oversupply, falling prices, low-cost Asian competition and lower government subsidies. Wacker Chemie said polysilicon prices were significantly lower than a year ago, but the fall was not continuing.

Munich-based Wacker Chemie said it plans to pay shareholders a dividend of 2.20 euros per share for 2011, compared with 3.20 euros a year earlier, after its net profit slumped by 23 percent to 356.1 million euros ($466.8 million). Core operating profit will likely decline by more than 10 percent this year, with an even bigger decline in net profit, the company said on Wednesday.

"Wacker is currently experiencing sales-volume increases at its polysilicon business. However, prices are well below the 2011 level," it said, adding it expects the economic situation to remain "challenging" until at least mid-year. Sales will edge up to about €5 billion in 2012, from €4.91 billion last year, which is above consensus in Thomson Reuters StarMine of €4.88 billion. ■

Styrolution New Priorities to Reinforce Position

Styrolution announced measures at major sites in Germany, South Korea and India to fast-track implementation of key strategic priorities. By extending and modernizing production facilities for styrene copolymers in Ludwigshafen, Germany, establishing a new Luran S (acrylonitrile styrene acrylate copolymers or ASA) production line in Ulsan, South Korea, and expanding ABS specialties in Vadodara, India, the company wants to drive selective, value-oriented growth in emerging markets and specialties. The company will support its cost leadership and improve the competitive position of its commodity business by optimizing capacity through its polystyrene and styrene monomer plants in Europe. To further improve capacity utilization of its European sites, Styrolution intends to cancel all offtake from the polystyrene and styrene monomer plants in Marl, Germany, which are operated by INEOS Industries. ■

Himadri Interested in Ruetgers

Indian group Himadri Chemicals is interested in bigger European peer Ruetgers Group, which is being put up for sale by private equity owner Triton."Once the (sales) process starts, we will definitely look at the company," chief executive Anurag Choudhary said.

Triton, which acquired Ruetgers in 2008, is looking to divest its holding in the chemicals maker, which primarily makes industrial products derived from distillation of coal tar.

A price tag of €700-750 million (925-$990 million) could be within reach, an industry source said.

Ruetgers distils coal tar to produce industrial pitch for use in aluminum smelters and the steel industry. Himadri previously expressed an interest in Ruetgers when former owner Degussa – now a part of Evonik – sold the unit in 2008. ■

Avantium/Danone Sign Partnership

Avantium announced its second major partnership for its YXY technology to produce PEF bottles. Danone Research and Avantium have entered into a Joint Development Agreement for the development of PEF bottles for Danone, number two worldwide in bottled water business. The agreement forms another cornerstone of Avantium's commercialization strategy to further co-develop the YXY technology for producing PEF bottles.

Based on the YXY technology, the Avantium and Danone Research joint objective is to contribute to the emergence of a new renewable material generation which will not be in direct competition with food. YXY is used as a fast and efficient chemical-catalytic technology to convert carbohydrates produced from plants, grains, energy crops, lignocellulosic matter, waste streams, waste paper or agricultural residues, into a wide variety of bio-based polymers. Based on ongoing R&D programs, Avantium will also continue to develop PEF from renewable feedstock not competing with food.

Avantium has recently opened its pilot plant in Geleen, the Netherlands, with the capacity of producing 40 tons of PEF for application development. The collaborations with Danone and The Coca-Cola Company are key to secure a smooth transition into the mass production phase of PEF bottles.

Avantium is in active discussion with other leading brand owners to develop PEF bottles, fibers and film. In the longer term Avantium will license its YXY technology to enable large scale, world-wide production and use of its bio-sourced plastic materials. ■

Evonik Expands Research Cooperation on Catalysis

Evonik Industries and the Leibniz Institute for Catalysis (LIKAT) are planning to expand their cooperation in the area of catalysis research for the long term. The Institute has been successfully working with Evonik in the field of catalysis for more than ten years and the parties recently agreed to extend their long-term cooperation.

For this purpose, the Advanced Intermediates Business Unit of Evonik has set up a new laboratory in the LIKAT facility, which will be dedicated to the development of new catalysts and the optimization of existing production processes. Evonik agreed to make a large investment available for this purpose in a framework agreement.

Catalysis is considered one of the most significant levers of efficient chemical production and is a key technology of the 21st century.

LIKAT, the largest European research institute in the area of applied catalysis, is an internationally leading institute for the research and development of homogeneous and heterogeneous catalysts as well as catalytic processes and technologies. The main focus of its scientific work is on gaining new insights in basic catalysis research and studying their application to technical concepts. ■

Clariant's Extra Effort for Cosmetics

Clariant has gone the extra mile for its cosmetics' industry customers with the achievement of global ISO 22716 Cosmetics Good Manufacturing Practice (GMP) certification for its global management system. The accomplishment reinforces Clariant's commitment to be a leading partner for the personal care industry, guaranteeing globally-consistent products and processes to support more efficient product development by customers. Clariant's accreditation follows a 10-month-long process, involving several hundred employees, to initiate the Cosmetics GMP across its business. The standardization of production, quality control, warehouse and logistic procedures assures worldwide consistent processes, product quality and availability, and services to Clariant's customers at a local level. By attaining ISO 22716, Clariant's processes also fulfill European guidelines for cosmetics production. ■

Middle East: The Next Level of Growth

A Competitive Logistics Infrastructure Brings the Region to the Forefront

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Having It All – While everybody is looking magnetized at the BRIC countries, another gigantic marketing area is evolving and growing with tremendous speed – and a lot less attention: from India to Maghreb a mainly Muslim economic region is rising. Driven by the more and more industrialized powerhouse in the Gulf region the marketing area comprises some of the most promising emerging markets in the world.

Dr. Josef Packowski
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Abdulsalam Al-Mazro
CEO, Al-Mazro Consulting

The Middle East seems to have everything it takes to become one of the most dynamic economic regions in the world: The oil-rich Gulf states have median GDPs per capita higher than that of the United States. With Qatar and Kuwait, two of the 10 nations with the world's highest GDPs per capita are located in the region. Saudi Arabia alone possesses about one-fifth of the world's proven oil reserves, ranks as the largest exporter of petroleum, and plays a leading role in OPEC.

But the region offers much more than just its feedstock advantage: The Gulf states have undertaken successful efforts toward economic diversification. The industrial structure has diversified in recent years and shifted from the pure production and export of crude oil and gas and the refining of petroleum toward basic petrochemicals like fertilizers and plastics.

Major Milestones

The government of Saudi Arabia has been proactively promoting the setup and growth of downstream industries through various initiatives like the National Industrial Development Cluster Program, Plaschem Park in Jubail, the Mineral City in Ras Al Kahir and the North Promise City. The National Industrial Development Cluster program is a government agency supervised by Ministry of Commerce and Industry and Ministry of Petroleum and Mineral Resources with the objective to lead the development of five-fast growing, export orientated industrial sectors like Automotive, Minerals & Metals Industry, Solar energy, Plastics & Packaging, and Home Appliances. They act as the expert facilitator helping investors to build their businesses and thrive. They also take a lead role in setting up the anchor project in each of the clusters mentioned above. The $2.5 billion Aluminum Flat Rolling investment, a JV between Ma'aden and Alcoa, is one of the first achievements of the cluster program and they have been instrumental in bringing other projects like Steel Flat Rolling and truck manufacturer Isuzu to the Kingdom of Saudi Arabia.

Plaschem Park in Jubail is a world class, globally competitive industrial cluster dedicated for downstream petrochemical and plastic conversion products. It is a combined initiative of the Royal Commission of Jubail & Yanbu, industries like Sadara and SABIC and Government bodies like the Ministry of Petroleum and Minerals or the National Cluster Program. The initial plan is to develop an area of 7 sq.km in Jubail 2nd industrial city near to the Sadara complex. The park will host a wide range of products which will carter to construction, automotive, packaging, electronics, Textile, Paints and Solvents industries in future.

The Ras-Al Khair Mineral City which is 60kms away to the North of Jubail, is currently under development and will be host to the Aluminum Joint Venture complex of Ma'aden and Alcoa, a port and many other mineral downstream industries once it is fully developed. The new city, RAKMIC (Ras Al Khair Mineral Industrial City), is planned to exploit the mineral deposits of phosphate and bauxite found within Saudi Arabia. Several major industrial plants are under construction in Ras Al-Khair at present, including a diammonium phosphate (DAP) plant, an aluminum smelter, an alumina refinery, ammonium plant and facilities to produce phosphoric and sulphuric acid. The mineral city is expected to attract Aluminum downstream industries in the extrusion, forging, casting and sheet applications. It is expected to create 7,600 direct industrial jobs through Ma'aden and Downstream industries.

> *"The Gulf states have undertaken successful efforts toward economic diversification."*

In February, 2012, the council of ministers approved to build a new industrial city on the Northern Border Province centered around the mining industry, called ' North Promise City' based on the promise by King Abdullah, to the people of Northern Border Province to share the prosperity and Development.

The city will cover 290 sq.km and will have industrial and utilities infrastructure designed to attract investors in downstream industries. An additional 150 sq.km adjoining the proposed industrial city in the Um Waal area has been allocated to set up projects of Ma'aden's phosphate industries. The city will be designed to work in close co-operation with Ras Al Khair. The new city will be linked to the new North-South Railway line that extends from the Jordanian border to Riyadh. The rail link will be designed for both passengers and industrial freight wagons, and will also provide links with Ras Al-Khair. The Saudi Port Authorities will also establish three new wharfs in the Ras Al Khair Port to serve the project.

The region is not only becoming more and more interesting as a producer of raw materials and finished goods, but also as a consumer market. The extended area is one of the most dynamic worldwide: The Middle East as a pivotal point of three continents can serve a population of 1.5 billion people from Pakistan to the Maghreb states and from Turkey to Central Africa.

Drivers Of Evolution

There are three main drivers advantaging the evolution of the area:

First: The feedstock advantage

Due to its feedstock advantage the Gulf region has been able to develop from an export region of raw materials to an export region of value-add products. As the example of Sadara shows the region will export more and more high value-added chemical products and performance plastics, aiming at the fastest-growing markets in the world in energy, transportation, infrastructure and consumer products – not primarily at the established markets. The planned exports from Sadara include about 45 % to Asia, 25 % to the Middle East and only 10 % to Europe. The feedstock will be supplied from the Saudi Aramco Total Refining and Petrochemical Company's (SATROP) refinery.

Second: The talent advantage

The size of the Saudi labor force for example has risen from 1.2 million in the late 1960s to 3.2 million forty years later. And it is still increasing by an average annual rate of more than 3 %. Especially the skilled labor has grown: The student enrollment has increased from 0.6 million to almost five million – this means an average annual growth of 7 %. The government is supporting this development by sponsoring the Human Resources Fund, which provides for the training of operators and technicians in selected institutes in Saudi Arabia. Forecasts show that by 2020, there will be around five million more people of working age in Saudi Arabia with a further seven million by 2035.

Third: The geographical advantage

As a region, the GCC has established as a global logistics hub due to its strategic location between Asia, Africa and Europe. Fueled by the rapid growth of emerging markets in Asia, India and Northern Africa its position as a global transit hub will lead to continuously increasing volumes of finished goods and raw materials being transported through the region. The greater area including the periphery of the Gulf states is a pivotal point between the East and the West, and it is also becoming a huge potential marketing area with access to 1.5 billion Muslim people between MENA and Asia. According to the Pew Research Center's Forum on Religion & Public Life the world's Muslim population is expected to increase by about 35 % in the next 20 years, rising from 1.6 billion in 2010 to 2.2 billion by 2030. Globally, the Muslim population is forecast to grow at about twice the rate of the non-Muslim population over the next two decades. The GCC states have the chance to establish as providers of special Muslim consumer products like halal food or halal cosmetic products. The potential extended consumer base might soon make up a quarter of the world's total projected population.

What Does This Mean for Supply Chain Management?

Efficient supply chains and the necessary logistics infrastructure are the most important success factors for the sustainable growth of the region. The cost of Middle Eastern production might be competitive, but in many cases the Supply Chain structures still are not. Historically the infrastructure in the petrochemical sector is most advanced. But new products and new customer call for more advanced logistics infrastructure. An example: Currently Saudi-Arabia possesses 4,232 km of pipelines for oil, 2,846 km of pipelines for gas and 1,183 km of pipelines for liquid petroleum gas. The total length of the national Railways amounts to a total of only 1,378 km. The rapidly growing pharmaceutical sector is currently constrained by a lack of infrastructure. Many international pharmaceutical companies depend on logistics service providers to be able to serve the fast-growing markets. Huge investments have been made, for example in shipping terminals like the Khalifa bin Salman Port in Bahrain, Jebel Ali in the UAE or Jeddah Islamic Port in Saudi Arabia. As far as the rail is concerned, the $7 billion Saudi Landbridge will create a new freight and passenger link between the Red Sea and the Arabian Gulf and connect Jeddah with Riyadh. The Landbridge is part of a 4,000km increase in track. The Gulf-wide Union railway (a $25 billion project) plans to connect the six member states of the GCC along the Arabian Gulf coastline from Kuwait City to Muscat in Oman, via Saudi Arabia. As a side effect it will offer a strategic alternative for the shipping route through the politically sensitive Strait of Hormuz.

Conclusion

In short: Not only is the economy in the Middle East developing and diversifying with enormous speed, the region is also about to become the center of one of the most dynamic marketing areas in the world. The main obstacle currently lies in the lack of competitive logistics infrastructure. If the region is able to solve this challenge, the growth perspectives of the area lie far behind the boundaries of the Gulf region.

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Chemical Control Legislation in India

Reducing Hazards While Protecting Competitive Edge

Checks and Balances on Chemicals – The Indian chemical industry is very diverse and covers basic chemicals and their intermediates, petrochemicals, fertilizers, paints, pesticides, bulk drugs and pharmaceuticals. It also contributes significantly toward the industrial and economic growth of the nation. One of the significant fallouts of the European Reach regulation is the reactionary approach by several countries of setting up equivalent or similar regulations to counterbalance the cross-frontier trade position. The major concerns regarding chemicals are their presence in the food chain; indiscriminate use of chemicals in consumer products, such as toys and cosmetics; worker safety; hazardous waste handling, its storage and disposal; and minimization of volatile organic compounds. Increasing consumer awareness and proactive initiatives by voluntary organizations have stepped up pressure for governments to formulate policies that can ensure adequate checks and balances on the chemical industry and safeguard the general population from potential chemical hazards.

Existing Laws in India

About 15 acts and 19 rules govern chemicals in India. These can be classified into the following groups:

- Import and export
- Manufacturing of chemicals
- Transportation of chemicals
- Consumers' interest in using chemicals
- Protection of human health and environment

Regulations have been framed for each of these groups. However, the Environment (Protection) Act of 1986 serves as an umbrella to link regulations without interfering with the autonomy of other rules. Various ministries and regulatory agencies at the national and state level are responsible for implementing the laws.

India has woken up to the need for regulatory policies to protect human health and the environment from the hazards posed by chemicals. The Ministry of Environment and Forest (MoEF) has for the first time created electronic waste management rules, which will take effect May 1. These rules recognize producers' accountability for recycling and reducing e-waste. The Indian government is also proposing to adopt the Globally Harmonized System (GHS) of classification and labeling of chemicals. The highlights of the policy have been discussed with the various stakeholders and the MoEF is set to finalize the framework of this regulation that could be implemented early next year. With India set to implement the new GHS rules in phases, the industry is expecting radical revision of laws on handling and storage of hazardous chemicals.

Drawbacks of the Indian Regulatory System

- No single nodal agency or ministry ensures proper implementation of the existing regulations.
- None of the ministries or departments have prepared databases of the chemicals addressed by them in respect to their proper classification and identification, properties, applications and uses, labeling, and handling.
- There is little primary or secondary research carried on the effect of chemicals (toxicity, exposure and antidotes) on the environment and human safety.
- There is little effort to collate data of accidents during manufacture, transportation or use of chemicals.

Thus, a comprehensive chemicals management framework with clearly defined objectives and assigned responsibilities is a necessity if India is to align its chemical policy with those being developed and implemented by other nations.

The Way Forward

It would be advantageous if chemicals management could be brought under a single nodal agency, for the administration of the proposed Indian chemical policy and to provide technical and scientific support. This could be the receiving body for information submitted during notification on the intrinsic properties of the chemicals, and it could maintain a comprehensive central database on all notified chemicals.

This agency also could support state governments in effective enforcement of the Indian chemical policy. The agency would provide access to non-confidential information for the general public and establish an efficient and secure data exchange network with state governments for commercially sensitive information.

It may also be necessary to consider comprehensive, dedicated legislation for uses and restrictions of chemicals with a view to meeting the objectives stated above. The legislation could incorporate some of the existing regulations, and the respective administrative agencies could be brought under the proposed nodal agency. Another objective would be to gradually merge all existing regulations dealing with various chemicals — industrial chemicals, plant protection chemicals, biocides, cosmetics, chemicals used for the preparation of pharmaceuticals — into one umbrella policy, i.e. the Indian chemical policy.

Before the establishment of the nodal agency, it may be necessary to carry out a feasibility study and a cost/benefit analysis of the proposed regulatory framework.

Possible Implementation Strategy

Considering that any legislation in this regard must simultaneously account for the survival and sustenance of the Indian industrial units working at various scales of operations, and that upstream suppliers and downstream users will have to adjust the design of products, processes and technologies, a phased approach can be considered.

Learning from the trend of existing chemical regulations and, most importantly, in order to reduce the burden on the Indian chemical industry while not compromising the objectives of the proposed policy, the following implementation measures can be considered:

Phase 1: Identify "very hazardous" and high volume use chemicals for notification and registration.

- Every chemical manufacturer submits a notification to the nodal agency or its authorized body providing basic information on the identity and volume of the chemical. The notification period could be for one year from the date the proposed policy is implemented by the government of India.
- Non-Indian companies that export these chemicals into India shall have to comply with the proposed policy through a legal representative in India.
- After the notification period, an inventory shall be available from the nodal agency or its authorized body for all the chemicals put on the Indian markets.
- All the notifiers of similar chemical substances shall be in one group, known as a data sharing group (DSG).
- Evaluation of the inventory by the expert chemical committee at the nodal agency or authorized body could lead to the identification of very toxic substances that shall have to be taken up for the advanced process of registration.
- Registration would involve submitting detailed information on physico-chemical, toxicological and eco-toxicological properties of the substance.

Phase 2: Expand the list of substances from "very hazardous" to "hazardous" and proceed as above.

- Notification and registration of products (preparations and articles) containing the hazardous chemicals beyond a specified percent.
- Identify chemicals for banning or restricting their use with authorization.

Phase 3: Expand the list of substances to all chemicals.

Leveling the Playing Field

India's proposed chemical policy and the globally harmonized system (GHS) of classification and labeling of chemical substances will trigger staggered phase out of all toxic chemicals and thus reduce hazards arising from these toxic chemicals. Some of the salient points of India's draft GHS rules are:

- Responsibilities in the supply chain will be prescribed.
- All dangerous goods will have to have a UN number and proper shipping name according to their assigned hazard classification and composition.
- Suitable labeling and packaging will have to be used, along with updated safety data sheets.
- People engaged in the handling, storage and transport of dangerous goods will have to be trained.

In addition, the proposed chemical policy will restrict deliberate relocation of production of toxic chemicals from other countries to India, as similar requirements will exist in India and thus such operations will not have any perceived advantages of moving to India. It will create a level playing field for Indian companies competing with other international suppliers of chemicals.

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Navigating a Growing Market

Regulations, Infrastructure and Logistics in India

Opportunities Challenges – India offers many opportunities for the chemical industry. With rising urban and rural incomes, consumption has gone up, leading to greater demand. Since the chemical industry caters to nearly every end-use industry, it is well positioned to grow further. However, to generate profitable growth, the Indian chemical industry needs to have a thorough understanding of the economic framework, resources and market structures.

Prasad Chandran
Chairman, BASF Companies in India & Head South Asia

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The opportunities for the chemical industry in India are manifold. Today, India is the third largest market for chemicals in Asia and is expected to grow 7.6% a year till 2020. With increasing purchasing power for all groups of the population, consumers want to buy longer lasting goods and goods that improve their quality of life and status. This offers tremendous scope for innovations from the chemical industry. Hence the demand for chemicals in India is founded on a strong domestic demand rather than on exports.

India is a large country with federal regulations, but it also has a pronounced regional diversity. Customers of the chemical industry are located in hubs around the city centers of Mumbai, Chennai, Ahmedabad, Bangalore and Delhi. For the pharmaceutical and coatings industry, Hyderabad also plays a big role. The state of Gujarat in northwest India is working progressively on an industrial policy specifically for the chemical industry. Overall, the country is making huge efforts to improve and expand basic infrastructure such as ports, roads and power supply. India's neighboring South Asian countries Pakistan, Sri Lanka and Bangladesh are also growing as attractive markets for many customer industries. Last but not least, investments in research and development are strongly fostered by policymakers, especially in pharmaceuticals and high-tech industries. But in spite of these developments, India is not an easy market for chemical companies.

Focus on Costs and Availability

Being an oil importer, the country and its local, national and private companies did not focus strongly on the expansion into basic chemical building blocks. Cracker products are still not largely available, although the recent investment in two steam crackers will expand the Indian ethylene capacity from 2.8 million tons to 4.7 million tons. Refinery capacity is limited to around 200 million tons. In spite of strong investments in the national energy infrastructure, there is a large demand-supply gap. As a consequence, most chemical companies run their own power generating units, which increases manufacturing costs strongly because of lack of economies of scale.

Another cost driver is logistics. The national government and local authorities have made major efforts to expand and improve roads and ports. Nevertheless, demand far exceeds the availability of infrastructure and logistics services. This leads to long import procedures and transportation time. In most parts of the country, neither rivers nor pipelines for transportation of bulk materials are available. Hence, road transport remains the only option. Of particular relevance for the chemical industry is the quality of warehouses, tank farms and trucks to store and transport its hazardous goods. Special care needs to be taken in selecting logistics partners, training support and upgrading.

People Count

India has a young, highly educated and skilled workforce, with an abundance of well-educated engineers. Skilled workers with high motivation are also easily available for positions in sales, marketing and supply chain as well as laboratory and technical support functions. But when it comes to hiring the right talent with relevant industry knowledge, the chemical industry faces a tough challenge. Senior scientific research roles and higher managerial levels are difficult to fill. One reason is that in large Indian cities the demand for highly skilled employees is very high. This leads to rapidly increasing salaries and a volatile employment situation. Another aspect is the lack of experience that the young workforce has in meeting the requirements of senior managerial roles and scientific depth. In chemical operations, plant operators and craftsmen often need intensive training by the company to run modern chemical plants. As of now, India does not have an education system based on education-cum-work-experience. Chemical companies can change this by collaborating with academic institutes.

BASF is partnering with academic institutions to give relevant industry experience to college students through workshops and internships. Six years ago, BASF began a Ph.D. program at its R&D center in Mumbai, aimed at students with strong practical skills who did not have the opportunity to join a prestigious research institute. In 2010, the first group of Ph.D.s completed the program and joined BASF as employees. BASF has also offered to work with state governments to take up skill development initiatives that can increase employability in India's growing chemical industry.

Complex Regulatory Framework

Being a federal country with 28 states and seven union territories, India's duty and taxation system is complex, expensive and puts a burden on intra-India trade. Owing to the complex regulatory framework, chemical companies are advised to keep their business model simple in order to contain costs. Indian authorities are set to introduce major tax reforms in goods and service tax (GST). If implemented, it will benefit the chemical industry immensely as various levies such as excise, service tax, states tax, value added tax (VAT), entry tax and purchase tax will be eliminated and replaced by a single tax.

Apart from the state of Gujarat, which has an industry-specific investment policy, many states do not provide a one-window clearing process for investors, especially when land acquisition is part of the project. The chemical industry still faces considerable challenges regarding the industry's public perception. As a result, many communities do not welcome investments for chemical plants. State governments have responded with in-depth environmental assessments for new projects.

The International Council of Chemical Associations (ICCA) actively supports Indian companies and regulators in spreading Responsible Care principles in India. BASF is supporting this, most strongly by implementing its high international environmental and safety standards in operating its chemical plants in India.

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Oxea Expects Further Growth

Oxea, supplier of Oxo Intermediates and Oxo Derivatives, announced interim trading results for the two month period ending February 29, 2012. Oxea's operating performance in the first quarter of 2012 improved compared to the fourth quarter of 2011 despite significant raw materials price increases at the beginning of 2012. Based on currently available information average monthly volume increased by 8.1%; average monthly revenue increased by 9.5%; and average monthly adjusted EBITDA increased by 19.2%.

The improvement in operating performance has been driven in part by restocking activities by our customers along the value chain reversing the destocking trend seen in the fourth quarter of 2011. For the two months ended February 29 revenues were €239.7 million and adjusted EBITDA was €28.2 million. Estimate results for the month ending March 31, 2012 should be consistent with January and February 2012 results, Oxea said.

Oxo industry growth continues to be strong, consistent with the broader global chemical industry development. Global demand for Oxo chemicals is expected to increase over the period from 2012 to 2015. ■

Clariant: Building Blocks for India

Clariant is offering India's chemical processing community new opportunities to benefit from the efficiency-enhancement and performance-boosting potential of its portfolio of fine chemical building blocks and enhancers.

Clariant produces Glyoxal and Glyoxylic acid. These two molecules offer the smallest possible bifunctional entities from which a wide variety of aliphatic, aromatic molecules and heterocycles can be synthesized. Their structure makes them highly flexible to tailor-made C2 derivatives with a wide range of reactivity and specificity for a wide variety of applications: pharmaceutical and agrochemical intermediates, flavors and fragrances, cosmetics, dyestuff, fine chemicals, polymers and other specialty chemicals.

Developments of these intermediates include mandelic and phenyl acetic acids, 2- coumaranone, glyoxylic acid esters, dimethoxyethyl amines, dimethoxyethanal and a large number of their derivatives, as well as the new solvents Highsolv P99 and Highsolv E99. ■

Watson Close to $7 Billion Actavis Drug Deal

Watson Pharmaceuticals is close to buying Swiss-based Actavis for around $7 billion, marking the latest deal between generics companies racing to achieve economies of scale, three sources familiar with the matter said. The deal would see U.S.-based Watson, already among the world's five largest generic drugmakers, paying between €5.0 billion and €5.5 billion ($6.6-7.3 billion) for Actavis, a business of comparable size to its own.

After rapid expansion in the early 2000s, Actavis underwent a leveraged buyout in 2007 by Icelandic tycoon Bjorgolfur Thor Bjorgolfsson, which left Deutsche Bank holding billions of euros of its debt. It has since been seen as a target for either an eventual trade sale or an initial public offering.

Targeting Actavis is a bold move for Watson, whose previous biggest acquisition was the $1.75 billion purchase of Arrow Group in 2009, which established a foothold for the company in Europe. The much larger acquisition of Actavis could be made to work since there would be scope for significant synergies, including the possible closure of some manufacturing capacity in the United States. ■

Univar Expands Relationship with BASF Pharma

Univar announced the expansion of its agreement with BASF Pharma with the introduction of BASF's legacy Cognis Pharmaline range for pharmaceutical applications to its portfolio. Cognis Pharmaline is a range of high-purity oleochemicals for topical applications and solubilisation, consisting of more than 20 brands. Univar has been distributing BASF's speciality pharma ingredients in Sweden, Finland, and Norway since 2003 and expanded into the Baltics in 2011.

"The expanded range will provide high-performance products that meet the specific needs of the pharmaceutical industry," Dr. Jochen Seifert, senior key account manager, BASF Pharma said. "Univar's extensive on-the-ground distribution network and strong links in the region has given us a valuable insight into this marketplace." ■

VECAP Reports Improved Results

The Voluntary Emissions Control Action Programme (VECAP) European Annual Progress Report shows a significant overall reduction in potential emissions of flame retardants to the environment; representing the most significant achievement in the programme since its beginning.

Testimony to the success of the scheme is the reduction of Tetrabromobisphenol-A's (TBBPA) potential land emissions to zero and the drop in potential water and air emissions to the lowest achievable level.

Further development of the voluntary programme led to a better understanding of user disposal practices, resulting in a significant drop in potential emissions of Decabromodiphenyl ether (Deca-BDE) to land. In addition, potential emissions to air have progressively decreased over the last four years.

Implementation of best practices in handling Hexabromocyclododecane (HBCD) packaging waste by a large majority of users resulted in a significant reduction in potential emissions to land since data collection started four years ago. ■

Huber's Expansion of Indian Silica Plant on Schedule

Huber Engineered Materials announced the expansion of its precipitated silica plant in Jhagadia, India is on schedule and set for completion in the Q4 of 2012.

The expansion would double the precipitated silica production capacity to 35,000 metric tons in India, Martin Schulting, Global Director of Sales for Huber's Silica business unit said. Huber will be well-positioned to continue supporting customers' growth with an array of high quality oral care, food and industrial grade silicas and silicates, he added.

The additional capacity will enable to capture growth in both the regulated and non-regulated markets in one of the world's fastest growing regions, Schulting explained. ■

Cosmetics

What's inside? Insight into cosmetic regulation.

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Pharma

API manufacturing on the move?

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Pharmaceutical Tracking

From creation to consumer.

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Activism

Does the Consumer Drive Actives Development?

Seeking Effective Ingredients – Active ingredients in personal care formulations also activate sales. Consumers desire to see visible results and have raised expectations for genuine efficacy of personal care products, making functionality an increasingly imperative factor. This holds particularly true for the resiliently growing anti-aging skin care segment. Savvy personal care formulators understand this and are marketing their products by emphasizing their active ingredients to informed consumers.

Adapting to prevalent economic conditions, consumers have gained confidence in their spending patterns and are investing in themselves; consequently, the personal care market has rebounded with an uptick in sales. According to Kline's preliminary data, 2011 saw the U.S. cosmetics and toiletries market grow by a rigorous 3.5%, a solid improvement over the previous year's 2.4% and maintaining the recovery from 2009's aberrant decline. Consumers are still seeking value, but they are prepared to pay more for products that offer specific benefits and visible results. This has allowed formulators to diversify and offer products with validated activity claims at a more premium cost, consequently active suppliers are focusing on specific consumer issues, such as anti-aging, anti-acne, slimming or sun protection.

Consumer Trending

The last decade has seen the emergence of the more aware consumer. "Label reading" is no longer the exception, and, with easy access to information, consumers are making more educated choices. Clever marketing can certainly draw consumers' attention, but ultimately a product has to deliver.

As is the case with people consciously avoiding certain food additives — occasionally, as the consequence of a media theme du jour — some personal care ingredients become undesirable. Examples include otherwise commonly used additives such as silicones or parabens. Conversely, consumers are receptive to positively endorsed ingredients, and marketers avail themselves of this fact by emphasizing these ingredients. Vitamins, collagen and co-enzyme Q10 have long been the most obvious examples, while currently the inclusion of hyaluronic acid is deemed an asset most in demand within cosmetic products. The commonality of these positively perceived constituents is that they are almost always active ingredients.

"Luxury" Actives

With a growing number of personal care products stressing the inclusion of active ingredients in their formulations, consumers are learning to differentiate between various actives and in turn seek higher-end solutions. Until recently, higher-end actives were predominantly exclusive to luxury channel products. However, otherwise costly specialty actives are now appearing in more affordable product formulations. Certainly, the concentration and type of specialty actives used tends to differ in luxury and sub-premium products, but usage even in lower concentrations in an increased number of finished products bodes well for specialty active manufacturers. The growing inclusion of higher-end active ingredients in lower-end products where cost is particularly sensitive has encouraged specialty active suppliers to think beyond the claimed performance of their active ingredients and focus on the price/efficacy ratio of their products. The premium pricing that they may lose is compensated by greater demand and greater volumes.

The better informed and discerning consumer has afforded specialty actives marketers excellent opportunities to diversify. No longer are specialty actives the preserve of women's skin-care applications. Rather, as the consequence of consumers having greater awareness of the efficacy of certain actives, the market has responded by using actives and their proven market cachet in products as diverse as hair-care, male-grooming products, slimming and sun-protection. Fresh and original applications, such as active make-up systems bolstered by more flexible delivery systems, also show great promise.

Hair Care

While anti-aging actives represent by far the most important functionality, hair care actives — predominantly proteins and their hydrolysates — follow with sales accounting for 15.7% of the total U.S. and 9.1% of the European market. With hair care products being the second-most requested product class by consumers according to Kline's Consumer Insights of Personal Care Innovation report, enhancing this product class with specialty actives has been a shrewd and well received undertaking. Hair care is also unique in that it benefits from several important purchase drivers: necessity, aesthetics and hygiene are three powerful drivers, whereas most product classes tend to draw on one only.

Active Male Grooming

Within finished products a new, largely underdeveloped segment — male-grooming products — has become the focus for several personal care marketers. Seeking new possibilities in maturing markets, such as Europe and the United States, personal care marketers have recognized the male-grooming segment as an untapped and potent opportunity. This confidence is reflected in this segment growing faster than the industry average in these regions. While cleansers and moisturizers are the biggest movers, consumption of functional anti-aging products is also growing. This trend has prompted specialty actives suppliers to develop dedicated product ranges; for example, Sederma has developed specific products for men based on birch sap.

Naturals: Green for Growth

The green trend, the growing consumer awareness of health, environmental and sustainability concerns, has been driving the active ingredients market for more than a decade. The strength of this driver didn't come from marketing efforts but rather as an expression of consumer zeitgeist. The market for natural personal care products has posted double-digit growth since 2006. Specialty actives suppliers have accommodated this growth by developing natural-sourced actives, and eco-certifying some of their products for the needs of fully natural brands. This has also resulted in the rapid growth of the botanical actives segment with an estimated CAGR of 4% expected in the United States by 2015, and 5% in Europe during the same period. Plant-based ingredients within a formulation used to be persuasive enough to entice personal care consumers, but a product's function and efficacy are essentially regarded as at least as important as the active ingredient source. Consequently, formulators are increasingly seeking to use botanicals as substantiated functional ingredients. Natural-sourced biotechnology products are also benefitting from the naturals growth, while biotechs are crucially considered as natural by consumers and they often offer equally desirable high efficacy. This is borne out by biotech active ingredients enjoying a similarly healthy growth rate to substantiated botanical actives.

In maturing markets such as Western Europe and the United States, impelled by the ever more engaged and informed consumer, personal care product marketers have two potent engines to drive innovation and reinvigorate growth: specialty actives and naturals — and ultimately a potent combination of both. Moreover, specialty actives are discovering and creating new markets by clever and practical diversification of applications. The consumer is active. The consumer has set standards: Products are to be as natural and effective as possible. Canny marketers and formulators are listening, responding and innovating, and Kline's research finds that their efforts are being rewarded.

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Rethinking Procurement

Unilever Aims to Halve Environmental Footprint

The Front Line for Sustainable Growth – No corporate sustainability strategy can be credible without considering the environmental, social and economic effect of a company's entire supply chain. The requirement for true sustainable growth necessitates that procurement departments become strategic functions, developing and delivering business metrics rather than simply squeezing costs.

Jan Kees Vis
Global Director Sustainable Sourcing Development, Unilever

In 2009, Unilever launched Compass, its new business strategy aiming to double the size of the business. Then in 2010, the Unilever Sustainable Living Plan set out how the company intended to deliver true sustainable growth: by halving its environmental footprint by 2020, sourcing all of its agricultural raw materials sustainably, and improving the health and well-being of more than a billion people around the world.

The model considers three key areas: social (including factors such as human rights, working standards, and health and safety), economic (including the company's effect on the economies, the supplier companies and the infrastructure in the local markets in which it operates) and environmental (primarily material, water and energy use, greenhouse gas emissions, biodiversity, and waste).

Unilever's footprint extends far beyond its own operations. During the development of the Sustainable Living Plan, Unilever conducted a life cycle analysis of 1,600 representative products. This work was very revealing, for example, the key contributors to Unilever's greenhouse gas emissions come from the sourcing of raw materials (26% of the total) and consumer use (68% of the total). Manufacturing and logistics together contribute only 5%. This shows Unilever cannot meet its goals alone.

In areas such as raw material production and consumer use, Unilever had a low degree of control but a high degree of influence. Harnessing the power of its brands and its supply chain partners to encourage consumer and business behavior change has therefore become a key focus. Unilever works with around 8,000 raw materials suppliers, and approximately 50% of the raw materials it buys are renewable.

Unilever needs to work with the most innovative companies and persuade them to share their ideas and invest in capacity. But competing to work with the best companies means Unilever has to offer mutual benefits. The payoff to supply chain partners is that they will be able to exploit Unilever's global scale, growth potential and premium brands. Unilever has had to offer longer-term commitments to its key partners and develop a new procurement culture, employing a lighter touch and working more transparently.

Change will necessarily be gradual. This year, Unilever aims to source 30% of its agricultural raw materials sustainably. By 2015, this figure will rise to 50%, and the goal is 100% by 2020. However, there are big challenges ahead.

First Challenge: Scale

In raw material markets where companies like Unilever are key customers, they can use their scale to help drive change and encourage best practices, but market-moving customers have to work fast to encourage suppliers to provide sustainable materials on the scale they need. For example, Unilever is the world's biggest buyer of palm oil, procuring more than one million tons each year, and is currently the largest buyer of GreenPalm certificates in the market.

In the long term, Unilever's ambition is to develop segregated and traceable sources of supply. Although the company has started this, it will take time to achieve; in the interim we will continue to buy GreenPalm certificates.

However, one company cannot transform the market alone. More companies must act on similar commitments. In markets where such companies are smaller players and their ability to influence the market is correspondingly less, they need to find ways of working with non-competitive companies to build their sustainability efforts.

As Unilever makes progress on its top 10 agricultural raw materials, its focus will shift toward the "next 30" ingredients, where collaboration with other buyers becomes even more important.

Second Challenge: A Fragmented Primary Producer Base

On the agricultural side, smallholder farmers make up 85% of the world's farmers. Simply identifying all the possible sources of sustainably produced raw materials therefore becomes a huge logistical challenge. It has committed to improve the livelihoods of 500,000 smallholder farmers in the supply chain, providing them with tools and support to deliver sustainable yields. By doing so, the quality of farmers' livelihoods should improve, while food security should increase and collaboration on certification systems should bring the cost of traceability down.

Third Challenge: Developing Common Standards

Only a third of Unilever's agricultural raw materials can be sourced against current certification standards. Its brands are working to certify their raw materials with certifications like Rainforest Alliance and FairTrade and through roundtables like the Forest Stewardship Council and the Roundtable on Sustainable Palm Oil. In regions where there is no global or national standard, it has to work with industry bodies and roundtables to develop them and ensure that primary producers apply them.

For the other two-thirds of its renewables, it has developed standards in the last 15 years, which are now embodied in the Unilever Sustainable Agriculture Code. Suppliers are asked to assess their farmers against 11 key indicators, from using less water and pesticides to grow crops, to protecting biodiversity. A new piece of software has been developed to help farmers keep track of their progress and identify opportunities for continuous improvement.

Partnering to Win

The common theme in all aspects of this work is collaboration — not always a strength for large multinationals. In developing the Unilever Sustainable Living Plan, the company recognized that it had to accelerate the development of a collaborative business culture.

A major step forward has been through the development of a program called Partner to Win, working with suppliers on collaborative innovation and sustainability programs, in which Unilever shares consumer insights that drive R&D focus.

The Non-Renewable Challenge

Unilever is now looking at how it can responsibly source its non-renewable materials, which account for around 50% of inputs. It has mapped all its non-renewable raw materials (both mined and petrochemicals) to the primary raw materials and will deploy, in cooperation with suppliers, a program of reduce, replace and recycle to lower its dependency on these materials, and to reduce the carbon and water footprints attached to them. A pilot project with the Quarry Working Group of The Forest Trust is investigating labor conditions in some of the quarries it uses.

Procurement strategies need to understand and support the ecosystems of suppliers, customers and consumers. Price-based relationships are over. Value-based relationships are the key to a sustainable future.

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Wacker Expands Polymer Site in China Wacker Chemie said it is expanding its Chinese polymer activities by investing around €40 million in building two new production facilities at its Nanjing site. The company said it is expanding the site's existing facilities for vinyl acetate-ethylene copolymer (VAE) dispersions by adding a new reactor with an annual capacity of 60,000 metric tons. This measure will double Nanjing's VAE dispersion capacity to about 120,000 metric tons per year, making the complex one of the biggest of its kind in China, according to Wacker. The new reactor is scheduled to come on stream in mid-2013. At Nanjing, Wacker is also building a new plant to produce polyvinyl acetate (PVAc) solid resins with an annual capacity of 20,000 metric tons. This plant is due for completion in early 2013.

DSM and Agennix Sign Contract DSM Pharmaceutical Products and Agennix have signed a new contract under which DSM will continue to manufacture talactoferrin for Agennix at commercial levels. DSM is currently manufacturing talactoferrin for use in ongoing clinical trials, including the FORTIS-M trial in non-small cell lung cancer (NSCLC), and will continue to supply clinical trials as well as a potential commercial launch.

Rajesh Malik, M.D., Chief Medical Officer and Management Board member of Agennix, said, "We are pleased to continue our productive relationship with DSM. Their long-term experience with talactoferrin will be invaluable as we work with them in preparation for a potential product approval and subsequent commercialization of talactoferrin. It is important for Agennix to put in place now the key elements of the talactoferrin supply chain, and expanding our contract with DSM is an important part of this process." Agennix is a biopharmaceutical company focused on developing novel therapies that have the potential to substantially improve the length and quality of life of critically ill patients in areas of major unmet medical need.

Villaume Kal, Vice President of DSM BioSolutions, a business unit of DSM Pharmaceutical Products, stated, "This agreement recognizes intensive collaboration between DSM and Agennix. DSM's process design for application in large scale manufacturing largely contributed to this success and we are delighted to continue our support of Agennix." Under the contract, DSM will manufacture the oral Dendritic Cell Mediated Immunotherapy (DCMI) talactoferrin for Agennix at commercial levels in anticipation of positive Phase III clinical data and product approval. The contract includes the opportunity to significantly expand production capacity as needed.

Shell eyes Pennsylvania site for new chemical plant Royal Dutch Shell may build a multibillion-dollar chemical complex on the site of what is now a zinc plant about 30 miles (48 kilometers) north of Pittsburgh. The move is part of a manufacturing shift to cheap natural gas from fracking, in which chemical-laced water and sand are blasted deep below ground. The selection of the site, in Monaca, Pa., is a boost to Pennsylvania politicians, who had aggressively wooed Shell with promises of tax abatements. Shell did not disclose any tax deals when it announced the site, but Pennsylvania legislators had proposed slashing corporate income and other taxes for 15 years for manufacturers investing at least $1 billion in the state. Shell signed an option agreement to buy the site of Horsehead Holding Corp.'s current zinc production facility on the Ohio River. Horsehead is building a new plant in North Carolina. Shell's chemical complex would turn ethane from natural gas into ethylene. Shell would then turn the ethylene into the lucrative chemical polyethylene, used to make packaging, cushions and clothing.

Evonik starts new organics production facility in Shanghai Evonik Industries broke ground to mark the official start of the construction for its multimillion-euro investment in Shanghai. At the ceremony, Klaus Engel, chairman of the Evonik executive board, said, "This investment is in line with our priority to expand our business in the emerging markets." The plant is expected to be operational in 2013. It will supply innovative ingredients and specialty surfactants based on renewable raw materials for the personal care, household care and industrial specialties industry. It will serve markets primarily in China and Asia Pacific, with an annual capacity of 80 kt. The new production plant will be built at Evonik's multi-user site in Shanghai Chemical Industry Park, which is in the Yangtze River Delta Economic Zone. Parallel to the construction of the new production plant, Evonik is expanding its R&D center at its Xinzhuang site in Shanghai, with an investment of €23 million. The expansion includes laboratories for research and development, application technology, and technical service, with aims to develop product applications and provide technology service for customers throughout China and Asia Pacific.

C-C Coupling Kit from Evocatal

Enantiopure 2-hydroxy-ketones are interesting and lucrative intermediate products in the chemical and pharmaceutical industries. With the help of specific enzymes, researchers are able to efficiently produce a variety of substituted compounds in the class. Up until now, however, those for this application have not been available commercially. The newly-released C-C Coupling Kit from biotechnology specialist Evocatal takes advantage of the biocatalytic potential of TPP-enzymes (Thiamine pyrophosphate-dependent enzymes) to produce enantiopure 2-hydroxy-ketones. The kit includes a range of seven different TPP-enzymes together with the relevant cofactor. Use of the kit provides customers with the ability to identify the most effective biocatalysts for their specific applications. Additionally, evocatal offers in-house enzyme screening services. ■

BioAmber Produces Bio-based 1,4-Butanediol

BioAmber Inc. has scaled up its hydrogenation catalyst technology under license from DuPont and converted multi-ton quantities of bio-succinic acid into 100% bio-based 1,4-butanediol (1,4-BDO), tetrahydrofuran (THF) and gamma-butyrolactone (GBL).

BioAmber believes the global addressable market for these products exceeds $4 billion, and that they are principally used to make polyesters, polyurethanes, spandex and biodegradable plastics.

Using bio-succinic acid made at its French facility as a starting material, BioAmber successfully completed a 1,4-BDO production campaign in collaboration with one of the world's leading commercial catalyst suppliers and a toll manufacturer possessing large-scale hydrogenation reactors and distillation columns.

"This is the culmination of two years of work and an important milestone in the development of our bio-based 1,4-BDO platform. We have been able to couple the DuPont catalyst technology with our bio-succinic acid production to manufacture high purity bio-based 1,4-BDO at demonstration scale," Jim Millis, BioAmber's Chief Technology Officer said. "We are developing an integrated plant engineering design that combines the production of bio-succinic acid and bio-based 1,4-BDO on a single site," he added. ■

What's Inside?

Role of Safety in Cosmetic Regulation

Health & Beauty – There are many practical differences in the regulation of cosmetics in various jurisdictions around the world. However, an important feature common to all schemes is the onus on the manufacturer to produce a safety assessment before marketing a cosmetic product.

The history of cosmetic regulation is tightly intertwined with the discipline of toxicology and safety assessment. One of the first modern legislative instruments used to control the use of cosmetics was the establishment of the United States Food, Drug and Cosmetic (FD&C) Act in 1938. This legislation was enacted in part due to adverse reactions of a product called Lash Lure. Importantly, the FD&C was also the first law to prescribe animal toxicity testing (1958).

Trust vs. Regulatory Responsibilities

The common denominator for government, suppliers of cosmetic products and the public is the idea of trust. Underlying trust is that cosmetic products, when used in the manner that they are intended (or even in forseeable misuse), are safe.

For cosmetics, safety assessment is usually encoded in legal/regulatory responsibilities and a requirement for manufacturers to assess the risks of their products before placing them on the market.

The dilemma for all is how to demonstrate safety when it is not possible in an objective manner to draw a line between "safe" and "unsafe" exposures to cosmetics. Safety implies the absence of risk, but for scientists, it is practically impossible to prove something that does not exist. In reality, safety is translated in the modern world as the assessment of risk and the subsequent management of it. The scientific process for safety assessment of cosmetics has emerged over the past two decades as a discipline allowing for a consistent, conservative and standardized approach. The complex nature of such safety assessments leads to the temptation in some sections of the community to call for zero-risk policies.

EU Test Ban on Animal Experimentation

The European Union (EU) test ban on animal experimentation marked an important change in the safety assessment process between the EU and the rest of the world. The 7th amendment to the EU Cosmetics Directive prohibits animal-tested cosmetics in Europe after 2013. It was intended that the 2013 deadline could be further extended in case alternative and validated methods were not available in time. It is now apparent that for many important toxicity endpoints alternative methods are not available. These include skin sensitization, repeat dose toxicity, carcinogenicity, and reproductive toxicity. The test ban can be partly credited with the rapid development of alternative in vitro testing techniques that have been validated and approved by the Organisation for Economic Co-operation and Development (OECD) for endpoints such as skin and eye irritation, skin penetration and phototoxicity. In addition the test ban has promoted screening procedures based on previous knowledge (e.g. structure activity relationships) or exposure (e.g. the use of threshold of toxicology concern).

The plausibility of whether a very small exposure to a chemical can translate to health effects in people has been a community conundrum for decades. The conundrum continues as scientific advances are made in understanding the biological events such as the importance of chemical induced endocrine activity or epigenetic changes in disease formation. There is no doubt that basic toxicity testing in animals is needed to address such questions.

Regulation

The extent of regulation and the content of cosmetic regulations differ around the world. In the US, Australia and some parts of Asia and Africa, premarket notification or registration of cosmetic products is not required. The burden is on the manufacturer to sell products that are safe and are accompanied by clear instructions to ensure the product can be used safely. The manufacturer is responsible for product assurance. Such self regulation approaches may work best in jurisdictions where legal instruments around product liability are robust.

Most other parts of world have specific laws or arrangements specifying requirements for cosmetics before they are placed on the market. These work by regulating; premarket registration and approval, and/or, notification and post market surveillance systems (including product quality during manufacture).

Pre-market notification is a very common regulatory instrument worldwide and is a requirement in Europe, Canada, Japan, and South East Asia (ASEAN countries). The South American countries belonging to the Mercosur trading block also have a mixture of premarket notification for some products (those with comparatively low risk) and product registration requirements for other cosmetic products.

There are different definitions of what constitutes a cosmetic and these differences relate to the extent of what constitutes a physiological effect. For instance in Australia and Canada any product that claims to have a physiological effect is considered a medicine/therapeutic while in other schemes some physiological effects are considered cosmetic. In Europe and Japan, the definition extends to protection and keeping in good order (thus intimating a physiological interaction).

The practical significance of different definitions is that the same product is regulated differently. For most categories of cosmetics the distinction is clear and definitions aligned. However for some borderline products, the differences in definitions are important. For example some sunscreens and dental products are regulated as therapeutic goods in Australia and Canada, while in Japan and the EU the same products are regulated as cosmetics.

Allowable Ingredients

One of the fundamental building blocks of cosmetic regulations is the control of allowable ingredients by their function. Thus if colorants, preservatives or UV filters are not present on a positive (allowed) ingredients list, it is not allowed to be present in a cosmetic product. In addition if an ingredient is on a restricted use (negative) list then the ingredient cannot be used in a cosmetic product. Ingredient lists vary between jurisdictions and whilst some jurisdictions maintain their own expert evaluation of ingredients and their own lists (Europe, USA, Canada) other jurisdictions without the expertise and/or financial capability adopt available ingredient lists according to local requirements. For instance the EU positive list for colorants includes approximately 150 compounds while the US list contains less than 70. In Brazil, the allowable list of UV filters is based on the EU list, however includes UV filters approved in the US and not in the EU.

The primary ingredient reviews underpinning listings are mainly conducted in the EU and the US. Expert committees with high levels of technical competence conduct these reviews. In the US the review panel is funded by industry while in the EU it is funded by the European Commission.

Conclusion

Although there are important differences in the definition, regulation and control of cosmetics between international borders, safety assessment is a common thread for the continued global community trust in cosmetics.

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Silicones Help Consumers Turn Back the Beauty Clock

Scientists may never discover the fountain of youth, but that doesn't mean you have to look your age. Personal care products containing silicones help minimize the appearance of lines and wrinkles, keep your skin feeling silky smooth, and restore your hair's luster, smoothness and volume, so you can look as young as you feel.

More than half of all beauty and personal care products contain at least one silicone product – the material widely recognized for its performance-enhancing properties in skin-, hair- and sun-care products, color cosmetics and antiperspirants. Studies show that adding just one cent worth of silicone to a 300-gram hair-conditioning rinse can provide twice the dry-combing benefits and increase the hair's shine by 20%.


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"Consumers want beauty and personal care products that deliver results, are easy to use and affordable, and require minimal reapplication," Kevin Murphy, global marketing manager for Dow Corning's Xiameter brand said. "Silicone technology is fueling the next generation of products that provide these benefits simultaneously, promoting a more youthful appearance."

In recent years, silicones have enabled the creation of products with multifunctional benefits, such as sun protection and conditioning for hair, and cosmetics that feel better on the skin and offer extended wear. These convenient, new options offer consumers twice the benefits in just one product, saving both time and money.

Silicones can be combined with a wide variety of other ingredients, offering consumers a greater selection of products that meet their individual needs and preferences. For example, silicones can be blended with organic materials such as butters and oils to satisfy market demand for naturally derived products as well as ingredients such as vitamins, antioxidants and minerals without compromising comfort or performance. ■

Poliya Signs Distribution Agreement with Azelis Italia

Poliya Composite Resins and Polymers announced that it has entered into a marketing and distribution agreement with Azelis, a Pan-European specialty chemicals distributor.

Serge Gradys, International Business Manager Azelis Composites stated, "We are delighted to sign this agreement with Poliya, representing their Polipol customized UPR- polyester resins, Polijel high performance custom coloured gelcoat brands, and complimentary composite products in Italy."

Gianni Ostelli, Regional Business Manager Azelis Composites, added, "Azelis will be supplying products manufactured by Poliya in Turkey as well as in their new Italian plant. This will enable us to provide more efficient logistics, faster response times, reduced lead times and better service."

"Italy is an important market for Poliya. After our recent, production agreement with Novaresine, we foresee great opportunities to expand our overall presence. We are confident our partnership with Azelis will provide a boost to Poliya's growth in the region and their experienced team of professionals will help increase our sales greatly," Buelent Oeztuna, CEO of Poliya said. ■

Reverdia-Joint Venture Launched

Reverdia, the joint venture between Royal DSM and Roquette Frères, has been formally approved by the relevant regulatory authorities. Reverdia aims to build on its emerging leadership position for bio-based succinic acid through its proprietary production technology and by ensuring reliable supply to meet the evolving market demands. Reverdia combines DSM's expertise in Materials Sciences, and biotechnology together with Roquette's know-how in plant-based raw material processing.

Bio-based succinic acid is derived from non-fossil feedstock and produced with sustainable production technologies that minimize carbon footprint. It is a building block that can be used in the manufacture of polymers, resins and many other products. Key applications include footwear, packaging and paints.

The new facility, scheduled to be operational by the end of Q3 2012 will have a capacity of about 10 kt, and is located on the Roquette site in Cassano Spinola, Italy. The proximity to the port of Genoa ensures efficient global logistics. ■

Will API Manufacturing Move out of India and China?

The Potential of Second Wave Emerging Markets as a Potential Sourcing Destination

Sourcing – In recent years many companies have touted their expansion into emerging markets as a means of lowering costs, increasing sales and expanding their global presence. Much of the manufacturing investment and expansion has been focused in India and China. However, as the costs of manufacturing rise in India and China, other countries are being explored as alternative sourcing destinations. Another factor contributing to the search for additional manufacturing destinations has been the increased publicity of quality issues and import bans over the past few years, including in India and China. Western regulatory bodies are becoming increasingly rigorous in their inspections and review of regulatory submissions. The US FDA has banned imports from multiple Indian companies, while the EDQM has suspended COSs held by a number of Chinese and Indian companies.

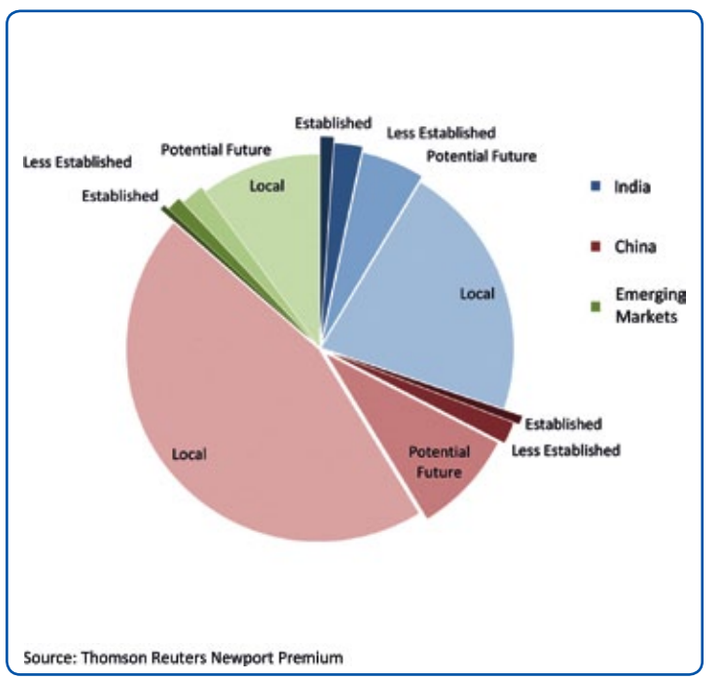

Fig. 1: API Manufacturers in India, China, and Emerging Sourcing Markets

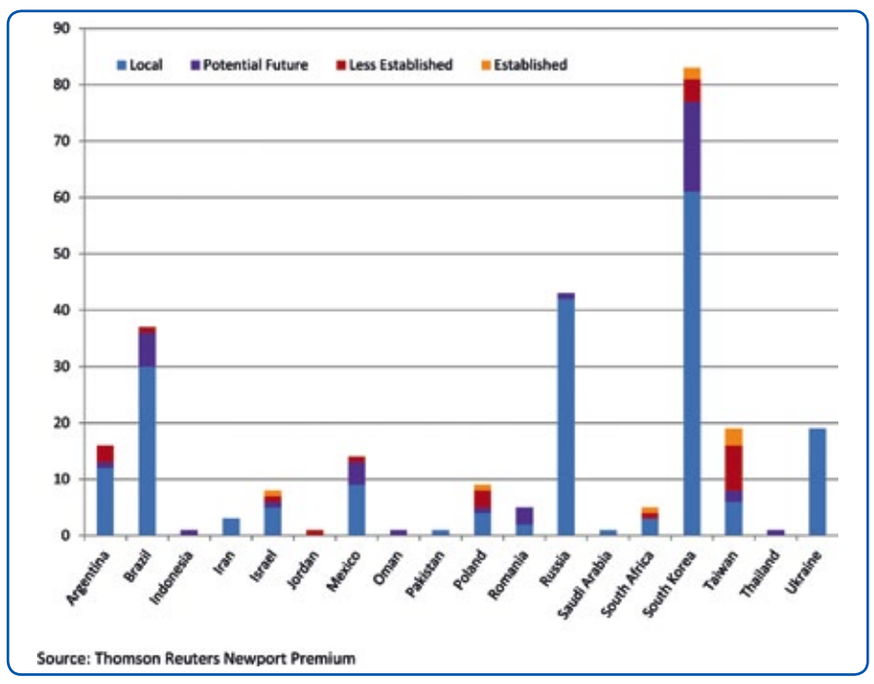

Fig. 2: Detailed View of API Manufacturers in Emerging Markets

When compared to the more than 1,600 API manufacturers in India and China, there is relatively little API manufacturing in second wave emerging markets (figure 1). Although a large number of the companies in India and China continue to be locally focused, many have invested in facility upgrades and supplying regulated markets. Similarly, most of the manufacturers in the emerging sourcing markets are primarily regionally focused but within each of these emerging regions there are some companies with experience supplying regulated markets (figure 2).

A number of analysts have commented on the great potential Brazil and Russia have for local API manufacturing. Currently, both countries rely heavily on imported active ingredients. Brazil has a small number of manufacturers with experience supplying regulated markets, while in Russia there are currently no locally owned API manufacturers with that kind of experience. However, the Russian government has outlined investing over $1billion into the domestic pharmaceutical market, with some of that money charted to improve and increase local API production. Russia has also stated that there will be a requirement of local manufacturing in order to sell products in the country. However, it is unclear if this requirement is specific to active ingredients, dose manufacturing, or simply the packaging of products. Currently, Russia only produces only 15 % of the active ingredients consumed in the country and the lack of applied GMP is a significant hurdle to supplying regulated markets.

Dr. Reddy's' Active Pharmaceutical Ingredients Unit Bollaram, Hyderabad, India is one of many state-of-the-art production facilities for APIs in Asia.

The most promising alternative sourcing options for regulated market players are South Korea, Taiwan, or Eastern Europe. These regions offer more API manufacturers with experience supplying regulated markets than others. South Korea has been an API sourcing choice for Japanese companies for a number of years, which has encouraged manufacturers in the country to develop quality processes. The accession of Poland and other Eastern European countries into the EU has prompted API manufacturers in the region to meet EMEA manufacturing standards while offering a lower cost base than other European markets. Over the past few years the government of Taiwan has invested over $2.5billion into the local pharmaceutical market in addition to establishing a more stringent local Food and Drug Administration.

If one looks more closely at the manufacturers in other emerging regions, most of the companies offer little experience in regulated markets. There is no indication that these countries can offer better price at acceptable quality of API compared to what is produced in India or China. It is unlikely that any of the emerging countries will take over from India and China the position as the primary source of active ingredients. Although in each of the countries there exist individual companies that offer attractive sourcing options, overall China and India will continue to be the major sourcing destinations for the foreseeable future.

Increasing competition and industry consolidation will continue to push manufacturers to search for strategic advantages and lower costs. Additional emerging markets are expected to grow as pharmaceutical consumers, as they experience expanding access to healthcare and rising GDPs. While some of the emerging markets may have aspirations to become major players in the global API manufacturing field, at this time we do not anticipate API manufacturing to move out of India and China. Emerging markets will continue to be of interest to many companies looking to diversify, but as sourcing destinations it is unlikely they will be able to compete on the same scale as India and China.

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Going Back to Nature

A Look at Processing Systems for White Biotech Applications

Biotechnology – The concept of 'White Biotech' is nothing new. People have been using natural products to create health-giving products for millennia. However in the first half of the 20th century organic chemistry developed ways to create many of these products artificially: some using oil, a diminishing resource; many more using other chemicals and highly polluting, energy consuming processes. As we have all become increasingly aware of the limitations of the world's oil reserves, and the need to protect the environment, so biotechnology has taken over.

White biotech is the name given to that particular branch of biotechnology that is concerned with industrial processes. It uses living cells – from yeast, moulds, bacteria and plants – and enzymes to synthesize products that are easily degradable, require less energy and create less waste during their production.

The equipment used for white biotech processing all fall within the scope of supply of the GEA Group

Thorsten Vammen
Director at GEA Liquid Processing in Skanderborg, Denmark

– fermenters, separators, evaporators, freeze- and spray-dryers, etc. – but, according to Thorsten Vammen, Director at GEA Liquid Processing in Skanderborg, Denmark, it's not only the equipment that's the key to success. "It's important to have the right equipment of course, but it's the way in which they are put together that really matters," he explained.

There are three key drivers that fuel industrial biotech: the need to reduce reliance on fossil fuels; the need to maximise plant efficiency and profit; and the desire of the buying public to put only 'natural' products in and on their bodies. In this sense industrial biotech ticks all the boxes. But, although it is a rapidly growing market, it's also a very competitive one. To succeed, biotech companies need to be at least one step ahead of the game.

Planning For Success

For GEA Liquid Processing the opportunity is to build equipment that is complementary, that is designed to work well together, then combine the experience and industry understanding of its engineers to project manage the building of installations for maximum efficiency, both in development and operation.

For example, the plant needs to have all its component parts put together in a smart way to eliminate contamination, avoid dead ends and air pockets, make it easy to clean and ensure that the plant works in harmony. Some of the cells used in biotech processing are very sensitive to contamination from the outside and from the last batch; carrying cells from one to another can be disastrous. Designing the plant in the right way helps prevent these expensive mistakes.

Similarly, time saved during design, installation and commissioning, through a fundamental understanding of how the equipment works as a system, is immediately reflected in reduced costs and helps produce better products of greater consistency, and bring them to market faster.

A few weeks delay in start-up for a new factory will cost much more than any additional expenses paid up-front for professional project management. With this in mind GEA Liquid Processing also offers its Fast Track implementation process. This sees the plant and the building being built on separate parallel tracks right from the start of the project. Over several projects the company has proved it possible to reduce the execution time by up to eight months, meaning products get to market earlier and eight months more production up front. This provides a dramatic improvement on a project's Return on Investment.

The Environmental Gain

Building a plant that is efficient and minimises the effect on the environment can save money, long term. The initial investment might be a little higher but the total cost of ownership will be lower, more than compensating for the additional up-front expenditure. Less use of power reduces fuel bills, avoids penalties for unacceptable emissions and saves resources. Efficient use of chemicals and the clever use of water – including closed circuit systems – minimises disposal costs. Good cleaning means less down time and can reduce the need to use preservatives. Heat recovery systems save money and help the environment too so they make good commercial sense.

There can be little doubt that, as the world continues to find ways of reducing its reliance on oil and chemical processing, biotech processing will continue its upward trend. Those who stand to take the greatest rewards from this revolution are likely to be those who exploit this natural phenomenon most efficiently.

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India's Insights into Serialization

Tracking Pharmaceuticals from Creation to Consumer

Securing Medication – India is among the first countries to require pharmaceutical companies to serialize their products. PharmaSecure works with Indian manufacturers to mark medicines with identification codes to meet these regulations. Now that EU member nations are beginning to require tracking of medicines, European pharmaceutical manufacturers can learn from lessons on the ground in India.

Serialization and Authentication Technology

An era of pharmaceutical serialization has begun. Around the world, countries are beginning to mandate the barcoding of pharmaceuticals in order to increase supply chain security and block entry points for counterfeit drugs. India is among the first countries to mandate such regulations and, in the coming year, every individual drug package for export produced in the country will include a unique identification number that is traceable along the supply chain. Not only will the identification codes protect brands and consumers, but also they will offer precise distribution intelligence that will allow for improved medical distribution of medicines. As other countries implement similar regulations, India's example provides insight into the challenges and benefits of this new era of serialization.

India 2013: Regulations Ahead of Europe in Implementation

In January 2011, India's Directorate General of Foreign Trade (DGFT) issued Public Notice No. 21, mandating unique numbers and bar codes for tertiary, secondary and primary packaging for all pharmaceuticals exported from the country. The three-phase implementation began in October 2011 with bar codes required for all tertiary packaging, followed by July 2012 for secondary packaging and January 2013 for primary packaging. Once fully implemented, the regulations will result in the serialization of over $10 billion worth of low-cost generic drugs exported from India annually.

The DGFT Mandate has proved an extremely important milestone for the pharmaceutical industry worldwide. It is one of the first of its kind in terms of pharmaceutical regulation and it is the first time a large number of packages, including even inexpensive products, will be serialized in a cost-effective manner. Companies in India are quickly putting serialization systems into place to meet the requirements.

In May 2010, the Council of the European Union adopted the Falsified Medicines Directive of which, among other things, would require drug manufacturers to print traceable serial numbers on all medicine packages. The Council gave all EU countries 18 months to legislate the Directive into national law; in turn these laws will give drug manufacturers three years to implement serialization. Meeting the robust capacity and scale demanded by the Directive in the coming four years will be no small feat. It requires immediate strategic planning on behalf of pharmaceutical companies in order to reach the target deadlines.

PharmaSecure experience

PharmaSecure has worked with Indian pharmaceutical companies since 2010 to serialize and track their products by means of mobile authentication. With the DGFT mandate in place PharmaSecure has entered the export market and are providing serialization solutions for top manufacturers in India. By issuing unique identification codes to billions of export drugs, the low-cost protection of life saving drugs destined to markets across the developing world. Distributors along the supply chain now have the capability to trace their products and consumers the ability to verify the authenticity of their medicine.

The basic idea behind PharmaSecure's solution is simple: print a unique, random, alphanumeric code onto tertiary, secondary and primary packages. This system enables random generation of trillions of unique codes, end-to-end encrypted transmission of the codes to the site of manufacturing and product verification.

Looked at more in depth, our platform consists of the following modules that provide scalability, security and consumer usability:

- Serialization and code management generates unique flexible, attribute codes together with compliance data.
- Line management communicates with packaging line hardware and streams codes to printers.
- Global verification server enables authentication for serial codes anywhere in the world. Codes can be verified through multiple channels such as SMS, web, mobile application and call center.
- Data analytics enables the creation of customizable data based on authentication instances providing key business intelligence data
- Two-way consumer communication upon authentication allows consumers to access valuable healthcare services.

Lessons for European manufacturers

The recent McKinsey's report on India Pharma 2020 forecasts the India pharmaceutical market to be worth $55 billion by 2020. India ranks globally tenth in value and third in volume with 70 to 80 % of the India pharmaceutical market low-cost generic drugs. As emerging markets continue to grow as major players in the industry, countries like India are leading not only in growth but in supply chain security.

India — even with its logistical challenges, narrow profit margins, and tight regulatory time constraints — is proving that mass serialization is more than possible, it's a vital step in global health management. As Indian pharmaceutical manufactures incorporate serialization systems like PharmaSecure's, they enable consumers around the world to authenticate that their medicine is genuine and provide traceability for handlers along the supply chain. If India's complex, unorganized market can successfully implement serialization at high volumes, European manufactures can tackle the forthcoming challenge of serialization.

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Healthcare Business Driving Growth

German chemicals and drugs group Bayer expects higher profit margins and sales at its healthcare division over the next three years, where product launches are set to boost prescription drug sales by 16 %.

The healthcare division, which also makes non-prescription and animal health drugs, contrast agents and blood glucose meters, is aiming for sales of roughly €20 billion ($26.2 billion) in 2014, up from €17.2 billion last year, Germany's largest drugmaker said (see page 2).

Adjusted earnings before interest, taxes, depreciation and amortization (EBITDA) at the unit should reach at least 28 % of sales by the same date, up from 27.4 % in 2011, it added.

Bayer is pinning its hopes on new drug launches to lift earnings in the coming years, while its plastics division struggles with high raw materials costs.

The company has said its four most promising drugs, led by newly-launched anti-clotting pill Xarelto, have the potential to rack up combined annual sales of as much as 5 billion euros, although little of that will be seen this year. ■

Sanofi to Close Plant in England

French drugmaker Sanofi said it plans to close a plant in northern England as it contends with European health spending cuts and growing competition from generic drugs. The Fawdon plant near Newcastle, which makes drugs including top-selling blood-thinner Plavix for the British and European markets, is expected to close by 2015 with a loss of around 450 jobs, a company spokesman said. Sanofi is reorganizing some of its research and development and manufacturing operations as it prepares for the arrival of generic rivals to Plavix in May.

The company had disclosed plans in September to reduce its R&D headcount to 10,000 from 13,000 — excluding Genzyme, the firm it bought last year that makes treatments for rare genetic disorders. ■

Turkish Drugmaker Up For Sale

GlaxoSmithKline and rivals including Pfizer are preparing second-round bids for Turkey's Mustafa Nevzat Ilac Sanayi, a maker of injectable generic drugs, that may be worth as much as $800 million, four people familiar with the process said. The keen interest in the Istanbul-based business, also known as MN Pharmaceuticals, underscores the race by Western drugmakers to expand in emerging markets, where sales are growing much faster than in Europe and the United States.

Two sources said the owners would prefer to sell a minority stake, if the price was high enough, but that Western firms would like full control. Other international pharmaceutical companies that have eyed the business include Fresenius, Merck & Co., Mylan, Abbott and Amgen. However, no more than five will be short-listed for the auction's second stage. ■

For Increased Patient Safety

EU Initiative against Falsified Medicines to Reach Next Milestone

Drug Safety – To fight the alarming increase of falsified medicinal products detected, the European Parliament and the Council of the European Union released the Directive 2011/62/EU in the middle of last year. From the pharmaceutical industry's perspective, the key measures described are a requirement for safety features that will allow to validate the authenticity of drugs and the introduction of a system to verify individual medicinal packs.

Dr. Stefan Artlich
Bayer Technology Services

As a general rule, all prescription medicines will have to bear the safety features unless they find their way onto the 'whitelist' of exemptions. For non-prescription OTC products, it's vice-versa: They are exempted from the safety feature requirements unless they are part of the 'blacklist' e.g. as a result of an assessment of the falsification risk.

The manufacture of active pharmaceutical ingredients (APIs) will have to comply with the principles and guidelines of good manufacturing practice (GMP) even if they are produced outside of the EU. Amongst others, this will be ensured through audits of the API manufacturers as well as by a written confirmation of the pharmaceutical manufacturer that he himself has verified compliance of his API manufacturer with GMP rules.

Concept Paper for Public Consultation

Whilst the directive already covers GMP for APIs extensively, details regarding the other topics will be determined separately by means of 'Delegated Acts' that the EU Commission is going to enact. In preparation thereof, the commission published a concept paper in November 2011 and has invited all stakeholders to comment. The document outlines different scenarios for the individual topics including pros and cons and lists a set of consultation items to be explicitly addressed in the responses.

Presumably, the policy option to leave the product coding scheme to each individual manufacturer's choice is just mentioned for the sake of completeness as it would lead to an unmanageable coding variety in Europe. Getting this harmonised as part of the 'Delegated Acts' is therefore a must that needs to cover a product number and a randomised serial number at a minimum. Batch number and expiry date are two additional conceivable elements of a harmonised product coding scheme, in idea that is jointly supported by the European Federation of Pharmaceutical Industries and Associations (EFPIA) together with the European associations of community pharmacists (PGEU), full-line wholesalers (GIRP), and parallel distributors (EAEPC). With regard to the question whether to use a linear barcode, a two-dimensional barcode or an RFID chip as data carrier, EFPIA and the other associations are equally aligned and together vote for the usage of the two-dimensional Data Matrix code.

Verification of Drugs

Anticipating the European law making process currently underway, EFPIA developed its 'Point-of-Dispense' verification model that is based on the coding of each medicinal pack with product number, randomised serial number, batch ID and expiry date. This data is encoded in a Data Matrix code and printed on the pack by the manufacturer who simultaneously transfers this information to a central verification repository. Upon dispense of the medicine in a pharmacy, the pharmacist scans the pack code and his Point-of-Sales system launches a verification request to the central repository. If the latter knows a pack of the scanned identity, it marks the pack as 'dispensed' and the pharmacist hands it over to the patient. If the verification request fails however, the pharmacist knows that he holds a pack in hands that he must not dispense to the patient.

In 2009 / 2010, EFPIA has proven the feasibility of its verification model in a pilot project where the concept was successfully applied in day-to-day operations of selected Swedish pharmacies. Furthermore, the model is well in line with what is outlined in the commission's concept paper: The 'checkout' of each pack in the verification repository upon dispense to the patient must be mandatory.

Directive 2011/62 already includes one provision that is important from the manufacturers' perspective: The costs of the central repository will have to be borne by them. But how could the architecture of such a system look like for an EU with currently 27 member states? And what about the accompanying organisation? Regarding the latter, the concept paper takes three alternatives into consideration: In case of a stakeholder-governed organisation, the 'Delegated Acts' would set out the objectives of the verification system to be achieved and define the obligations on the relevant stakeholders but leave everything else – such as the establishment and operation of the system as well as the rules for usage – to the collaborative decision of pharmaceutical companies, wholesalers, and pharmacists. The other two alternatives for the organisational setup that the concept paper sets forth are the 'EU Governance' by the EU Commission themselves or the European Medicines Agency (EMA) acting on their behalf and the 'National Governance' by official national bodies.

System Architecture and Organisational Aspects

With respect to the system landscape, EFPIA together with its partners from the other stakeholder associations propose a setup that is composed of an EU Central Hub and connected national systems. The EU Central Hub serves as the entry point for pharmaceutical companies and parallel distributors to feed their pack data via a single European gateway into the different national systems. In each country, both product verification and checkout of the pack upon dispense occur against the data contained in the national repository.

For the development of the national systems, different variants can be thought of: National stakeholder organisations could decide to develop their own system e.g. in order to perfectly embed it into a pre-existing IT infrastructure in the pharmacies. The downside of this approach is the need to acquire the necessary knowhow and to bear the costs for system design and implementation all alone. It could as well be that several countries liaise to develop and operate a joint system. And finally, the 'Greenfield' approach is an offer where a European stakeholder organisation would develop one verification repository template that would then be parameterised to national needs so as to end up with a set of parameterised Greenfield instances that are all operated by the European organisation on behalf of the individual national stakeholder organisations.

Thismakes clear: Out of the three organisation alternatives outlined in the concept paper, it's the 'Stakeholder Governance' model that is preferred by manufacturers, wholesalers, and pharmacists.

Continues Page 15 ▶

For Increased Patient Safety

◀ Continued **Page 14**

Thereto Dr. Martin Friedrich, Head ofProduct Tracking and Authentication at Bayer Technology Services GmbH and Program Manager at EFPIA: "Having all partners at one table is key for the success and makes concerns unfounded that the pharmaceutical industry could try to enforce any distinct interests to compensate that they have to pay for the system."

It's Time to Start – Now

What are the next steps? Once having received all answers to the November public consultation paper in the end of April, the EU Commission will publish all answers and comments on their website. This will serve as an input for the further work of the commission that along several steps will finally result in the publication of the 'Delegated Acts' in 2014. Subsequently, the EU member states will have three years time to turn them into national law. Seemingly a long timeframe but the experience from the requirements of the Turkish Ministry of Health and the introduction of the non-serialised Data Matrix coding in France reveals the considerable amount of work that manufacturers are facing. Thereto again Dr. Friedrich: "At first, each company needs to have a master plan that considers the existing IT infrastructure and all packaging sites delivering to the EU with their typically widespread equipment diversityas it evolved over time. The next steps are then the revision of the medium-term budget planning and the selection and assignment of capable suppliers. Those who start late will not be ready in time as there is already a competition for the short resources in the market."

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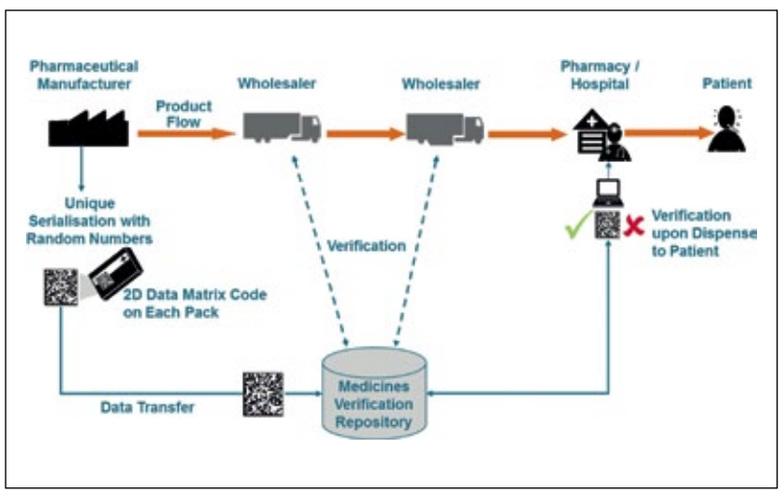


Fig. 1: Point-of-Dispense verification model. The dotted arrows indicate that it will be possible but not mandatory for wholesalers to verify medicinal packs. **© EFPIA**

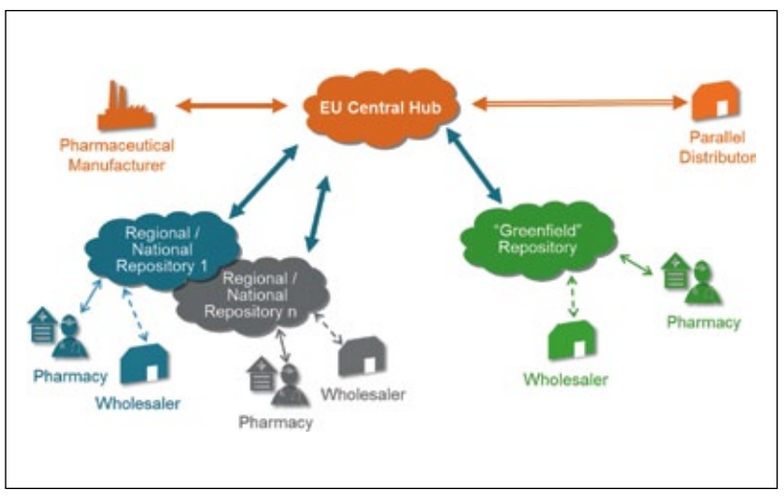


Fig. 2: System Landscape for a European Medicines Verification System. **© EFPIA**

Solvias Research Team Receives Sandmeyer Award 2012

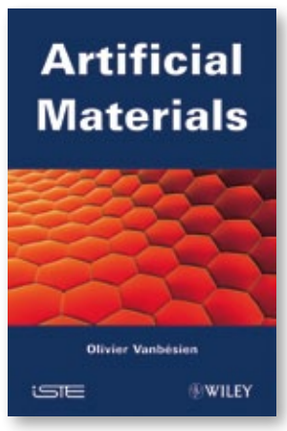
The Swiss Chemical Society has awarded the Sandmeyer Award 2012 to a research team from Solvias. Working for Sanofi Pasteur, the team developed an innovative, efficient and fully synthetic process for protoporphyrin IX, a precursor of hemoglobin.

The research team is made up of Dr. Dirk Spielvogel, Dr. Dietmar Flubacher, Dr. Andreas Boudier, Markus Müller and Dr. Pierre Martin from the Chemical Development and Catalysis department at Solvias.

Protoporphyrin IX is an essential co-factor in the biotechnological vaccine production process at Sanofi Pasteur. Changes to the law relating impurities of animal origin made it impossible to use this substance, which is extracted from blood. However, the researchers found an effective alternative in just a few months: they developed a fully synthetic means of access, which resulted - among other things - in the first substance samples for biotechnological process validation. Thanks to these efforts, the team entered new conceptual territory in the synthesis of porphyrins.

The award is sponsored by KPMG. ■

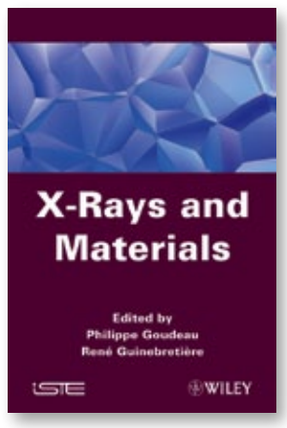
Man-Made Materials



This book addresses artificial materials including photonic crystals (PC) and metamaterials (MM). A first part is devoted to design concepts: negative permeability and permittivity for negative refraction, periodic structures, transformation optics. The second part concerns PC and MM in stop band regime: from cavities, guides to high impedance surfaces. Abnormal refraction, less than one and negative, in PC and MM are studied in a third part, addressing super-focusing and cloaking. Then, applications for telecommunications, lasers and imaging systems are explored.

▶ Artificial Materials
Olivier Vanbésien
John Wiley & Sons
2012, Hardcover, €152
ISBN: 978-1-84821-335-7

X-Rays and Materials



This book presents reviews of various aspects of radiation/matter interactions, be these instrumental developments, the application of the study of the interaction of X-rays and materials to a particular scientific field, or specific methodological approaches. The overall aim of the book is to provide reference summaries for a range of specific subject areas within a pedagogical framework.

The book consists of five chapters on the subject of X-ray diffraction, scattering and absorption. Chapter 1 gives a detailed presentation of the capabilities and potential of beam lines dedicated to condensed matter studies at the SOLEIL synchrotron radiation source. Chapter 2 focuses on the study of nanoparticles using small-angle X-ray scattering. Chapter 3 discusses the quantitative studies of this scattering signal used to analyze these characteristics in detail. Chapter 4 discusses relaxor materials, which are ceramics with a particularly complex microstructure. Chapter 5 discusses an approach enabling the in situ analysis of these phase transitions and their associated microstructural changes.

▶ X-Rays and Materials
Philippe Goudeau
John Wiley & Sons
2012, Hardcover, €125
ISBN: 978-1-84821-342-5

Hovione Appoints VP Particle Design BU Hovione said it has appointed Dr. Colin Minchom as vice president of its Particle Design business unit. Dr. Minchom was most recently with Patheon where he held the position of vice president, Pharmaceutical Development Services for North America. Based in East Windsor, NJ, Dr. Minchom will report to Hovione's CEO Guy Villax.

Dr. Minchom's 29-year career includes extensive experience in the process, science and global regulation of drug development with emphasis on dosage forms and drug delivery. Prior to this role at Patheon, Dr. Minchom was head of Pharmaceutical Sciences at Cerebrus, a UK privately held pharmaceutical company and has also held positions of increasing scientific and management responsibility at Eli Lilly and E.R. Squibb in formulation and product development, project management and product management.

Brenntag expands Management Board During the past five years Brenntag has significantly developed its operations in Asia-Pacific as part of its on-going strategy to grow in emerging markets.

Jürgen Buchsteiner, currently CFO of the Group will take over responsibility for the region on the Management Board in addition to his on-going responsibilities for the Group's Mergers & Acquisitions function worldwide.

Georg Müller, currently Vice President Corporate Finance & Investor Relations joins the Management Board of Brenntag AG effective April 1, 2012 following the decision in the regular Supervisory Board Meeting. From July 1, 2012 he will take over the role as CFO from Jürgen Buchsteiner.

The expansion of the Management Board from three to four members and an additional focus on Asia-Pacific recognizes the continued growth of the Group and its commitment to further develop emerging markets. Jürgen Buchsteiner, who has been pivotal in the acquisition strategy in Asia-Pacific, emphasizes the importance of the region in the medium and long term strategy.

Veolia's COO Leaves in Reshuffle Veolia Environnement's chief operating officer has left in a further management reshuffle of the French waste, water, energy and transport group following a failed board coup. Denis Gasquet is leaving with immediate effect, the company said in a statement. Also departing are secretary general Olivier Orsini and Jean-Pierre Fremont, senior executive vice-president of public entities and European affairs.

The restructuring plan put in place by Chief Executive Antoine Frerot aims to reel in much of an expansion undertaken by the company's founder and former chief executive Henri Proglio. Proglio responded by leading a so-far unsuccessful effort to orchestrate a boardroom coup against Frerot.

In another appointment, Veolia's Sylvain Boucher has joined the company's executive committee of seven people.

Dow's William Kruper Earns ACS Award for Affordable Green Chemistry William J. (Jack) Kruper has been honored with the American Chemistry Society (ACS) Award for Affordable Green Chemistry. Dr. Kruper earned the award for successfully developing a new process for converting glycerin to epichlorohydrin, an intermediate in the production of liquid epoxy resins commonly used in the electronics industry.

Dr. Kruper addressed the ACS Division of Inorganic Chemistry in accepting the award, which recognizes outstanding scientific discoveries that lay the foundation for more environmentally-advanced products, more cost effective manufacturing processes, and more novel technologies that improve the quality of our everyday lives.

The Capabilities Premium in Mergers & Acquisitions

Fig. 1

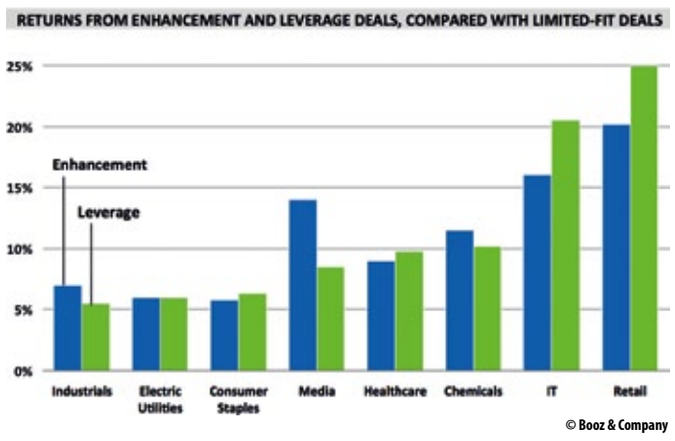
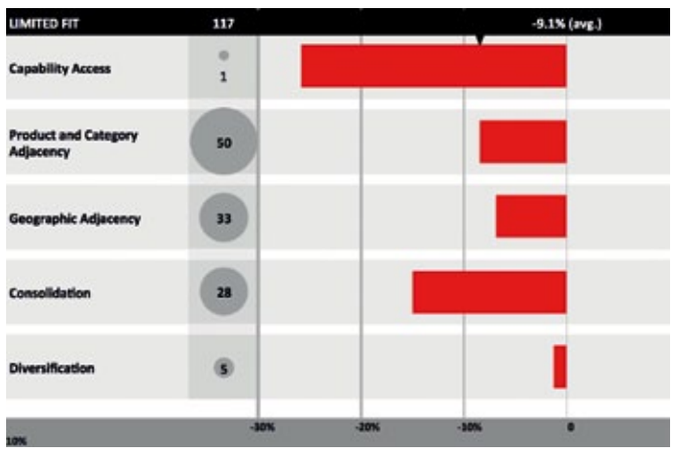


Fig. 2

Fig. 3

Fig. 4



Mergers and acquisitions designed from the start to enhance or leverage companies' distinctive strengths significantly outperform transactions that are not capabilities-driven, according to a new study released by management consulting firm Booz & Company. The study looked at 320 transactions that took place between 2001 and 2009 in eight industry sectors including chemicals, healthcare, and industrials, calculating shareholder return over the two years post-close and incorporating post-close performance data from 2001 to 2011. These transactions included, among others, Novartis' acquisition of Alcon, which leveraged Novartis' capabilities in science-driven innovation to further develop Alcon's contact lens and eye medicine business.

Specifically, the study found that transactions designed to enhance or leverage core capabilities produced an additional 12 percentage points of annual shareholder return, on average, compared to deals with limited capabilities fit.

Although some industries had stronger results than others (Fig. 1), all industries studied showed significant performance premiums for capabilities-driven transactions.

To isolate potential M&A success factors, the study divided the deals by their stated intent (Fig. 2-4), thus capturing the prevailing view of the purpose of each deal. Five classifications of intent were used:
The goal of Capability Access deals is to appropriate some capability that the target company had and that the acquirer wanted or needed.

In Product and Category Adjacency deals a company bought a business with a product, service, or brand related to, but not identical to, its existing business categories. Johnson & Johnson's acquisition of Pfizer's over-the-counter drug division (Pfizer Consumer Healthcare) in 2006 was a well-known deal of this sort.

The idea behind Geographic Adjacency deals is to use M&A to expand into a new location.

Consolidation deals are intended to take advantage of synergies and economies of scale, usually between two companies with similar businesses.

Diversification deals allow companies to enter a new or unrelated sector, typically with the rationale of insulating results against the business cycle. We then cross-categorized the deals by their capabilities system fit.

When taken together, the study found that transactions leveraging capabilities generated greater improvement in annual total shareholder return (+3.9 percentage points compared with market indexes) than those enhancing capabilities (+0.4 percentage points). Both of those outperformed deals with limited capabilities fit (-9.1 percentage points).

Leverage deals are those in which the acquirer applies its current capabilities system to incoming products and services, and enhancement transactions are those in which the buyer acquires new capabilities to fill in gaps or respond to market changes. Limited-fit deals don't improve or apply the buyer's core capabilities in any major way and often bring the buyer products or services that require capabilities it does not have.

Touch of Nature – The cosmetic industry's increasing need for natural-based products has led producers and suppliers of cosmetic ingredients to respond. For instance, Clariant will launch three new lines of vegetal-based biopolymers under the theme "Touch of Nature" at the upcoming in-cosmetics show in Barcelona. The natural-based products are extracted from fungal sources and can be applied as active ingredients and sensory boosters in skin and hair care. The three product lines already are in commercial trials with customers. Early reports suggest that, besides offering a top-drawer environmental profile, the vegetal biopolymers also outperform synthetic and animal-based products on sensorial properties.

Joint Venture for Bio-based Polymers

NatureWorks, a bio-plastics manufacturer, and BioAmber, a producer of bio-succinic acid, have created AmberWorks, a joint venture to bring a new family of bio-based compounded polymer solutions to market. With the formation of the joint venture, NatureWorks plans to commercialize a new family of compounded PLA/PBS resin grades (photo: pellets), and is immediately offering samples of developmental grades aimed at thermoforming and injection-molding processes. This new family of developmental compounded resins is designed for food service ware applications. Based on market interest, further formulated solutions optimized for a number of different applications beyond food service will be assessed over the coming 12 to 24 months.

While an assessment of the European Union chemical regulation REACH status is underway, research and development samples are available in Europe at NatureWorks Europe (email:nw_europe@natureworksllc.com), Naarden, The Netherlands. The regulatory status of these grades in other geographies is under review.

BioAmber owns PLA/PBS compounding intellectual property and applies biotechnology and chemical processing to produce renewable chemicals. These renewable chemicals deliver high-performance, low-carbon-footprint building blocks that are cost competitive with their petrochemical equivalents. Beyond its Ingeo PLA technology platform, NatureWorks brings to the joint venture a global commercial presence, established customer relationships, developed applications across a breadth of industries and deep experience in commercializing new polymers. ■

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