Rob
Bryant

Europe's place within the global fine chemical industry

ROB BRYANT
Brychem, 34 The Drive, Orpington, Kent BR6 9AP, United Kingdom

INTRODUCTION

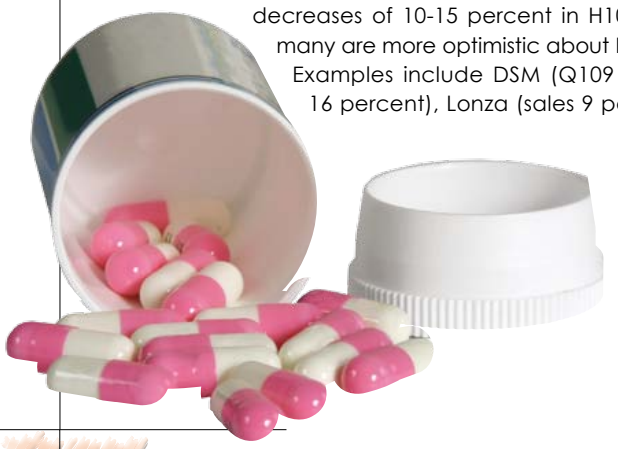
It hardly needs stating that the last two years have been challenging ones for European economies. The speciality and fine chemical industry have been unable to escape its effects. According to Cefic (European Chemical Industry Council), the volume of production in the speciality chemical sector decreased by 3.8 percent in 2008 and is expected to drop by another 9.3 percent in 2009. The first half of 2009 appears to have been worse than the latter part of the year (Figure1) Cefic optimistically predicts that production will grow by 5.5 percent in 2010 (2).

The outlook presented at press releases and statements made by fine chemical company representatives at major exhibitions in 2009 can be summarised as follows:

- Pharmaceutical fine chemical (PFC) demand was adversely affected by the collapse of funding for the emerging pharmaceutical sector (especially in the USA). Sales of PFCs for use in early stage clinical development were especially poor. Generally, European sales have fallen overall in this sector by 10-15 percent.
- Sales to the agrochemical industry have stood up better, with flat-to-slightly reduced sales being typical. The atypical sales growth at the farmer level in 2008 (up 16.5 percent from 2007 levels) will have dropped back to more normal levels by the end of this year (with sales growing by 2-3 percent). So the outlook for demand for agrochemical actives and intermediates will continue to be modest as the customers further reduce stock. The impact on suppliers has been a bonanza in 2008, when prices were high, but lower demand and greatly reduced prices (and margins) in 2009 and, probably, in 2010.

With their mixed portfolios, the larger European producers of fine chemicals have generally reported overall sales decreases of 10-15 percent in H109, although many are more optimistic about H209.

Examples include DSM (Q109 sales dip of 16 percent), Lonza (sales 9 percent lower



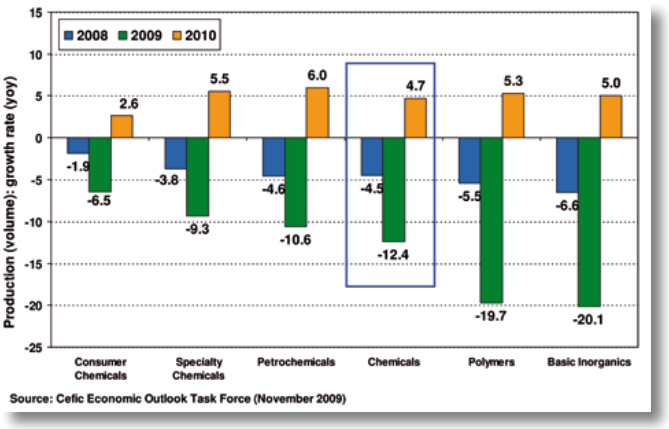


Figure1. EU chemicals production: sectoral outlook.
Source: Cefic Economic Outlook Task Force (November 2009)

Sept08-Sept09) and Saltigo reporting high single figure increased for its agrochemical division, but modest reductions for the pharmaceutical chemicals' sales. Modest growth is predicted in 2010. Special factors have insulated some companies, which have announced sales increases in 2009. Johnson Matthey benefited from the launch of generic Aderall XR; Specialist API producer, Hovione announced 21 percent sales growth in 2008 and is forecasting 12-16 percent increase in 2009. Confirming a more depressed general picture, the VCI (German/Swiss industry association) predicted an overall 12 percent sales decline for its members in 2009.

For the unlucky few, 2009 proved to be a punishing year. The final vestiges of Europe's dyestuff industry, Dystar, went into receivership. Isochem has been put up for sale, PCAS drastically reduced its payroll, following a sharp drop in non-PFC sales, and Chemtura continues to look for buyers.

For an industry that characterises itself by its innovation and dynamism, this sorry state of affairs is set to round off ten years of lack-lustre performance.

With many of the venerable names having gone to the wall or been swallowed up by value-destroying acquisitions, Europe's fine chemical industry needs to reinvent itself. That or slip quietly into obscurity and eventual oblivion. So how did this all come about?

Demand side

The two major life-science industries (the pharmaceutical and agrochemical industries) were spawned by the late-nineteenth century European fine chemical industry, with

Germany taking the lead in creating an organic chemistry based fine chemical industry. By the beginning of the twenty-first century, these "unruly off-spring" had become essentially divorced from their roots. Not only had the major companies evolved into vast multinational organisations, in which chemistry had become the poor relation, but a substantial part of the residual value of the chemical manufacturing business had been outsourced to the USA and Asian countries, such as China and India.

The consequences have been serious for the fine chemical industry in Europe. As was implicit in much of what Peter Pollak had to say in his round-up of the industry in last year's edition (3), the rump of the European fine chemicals industry is in a poor way and, what is worse, the outlook is no better. The key factors for this sad state of affairs include:

- The lifeblood of the pharmaceutical and agrochemical industries – **innovation** – has all but drained away, with low rates of new product approvals continuing to decline in both customer industries throughout the period 1995-2008 (see Figures 2 and 3).
- Europe's already over-regulated fine chemical industry is now regarded by the general public as, at best, needing ever stronger controls (!) or by more extreme voices (some of which are high up within the Brussels' Directoire) in need of abolition.
- With the image of chemistry being what it is today, and the ridiculous constraints on teaching children about the practical joys of this science, schools and universities are no longer able to attract the best and brightest of young people to a career in chemistry.

At one time, the pharmaceutical industry thought that it had solved the problem of its innovative slump by developing a new class of products: biopharmaceuticals ("biologics"). Between 1995-2005 these certainly boosted the industry's fortunes, but this approach has also began to run out of steam, with little sign that the newest great white hope, gene therapy, was reaching sufficient maturity to offer a new stream of proprietary products.

Since the bioscience industries have so far failed to solve the gap in the "trade balance", described by Peter Pollak last year (*ibid*), there is no immediate prospect for things to improve on the demand side for the European fine chemical industry.

Supply side

As stated already, during the 1990s, the supply of fine chemicals began to shift towards the East and this tendency accelerated into the new millennium. Using "photocopy process development" Asian companies were able to offer cheaper prices than Europe and the unconsidered, short-term outsourcing policies of the life-science industry have created a reverse-engineered industry in (principally) India and China.

Very recently, as the passion for the East wanes, it seems that the strengths of the European fine chemicals industry are coming back into fashion, at least among agrochemical sourcing managers. But is there sufficient capacity to address the needs of these disillusioned buyers? Is there enough of the old spirit and creativity left to offer the services needed? And would a newly emerging fine chemical company wish to concentrate on supplying the innovative part of the bioscience sector, as in the old days? It is the author's firm belief that there is a better approach to winning profitable business in the bioscience and other growing end-user sectors, where European companies can secure sustainable competitive advantage against Asian companies.

SOLUTION

Since time immemorial, it has been the case in human affairs that small, smart enterprises can and do beat large, unwieldy ones. The European fine chemical industry needs to look to its origins to see that what it was able to achieve in the 19th/20th centuries relied on being smart, not big. As the scale of operations increased, so the performance dropped off. And what was it that created added value? Good science and creative approach to technology. This was, and should again be, the hallmark of the industry. To misquote Bill Clinton: "It's ideas, stupid!" In fact, it is becoming increasingly clear that this is the only way in which the Europeans can compete with Asia in this industry.

The blueprint for the future success of the European fine chemical industry must be a return to innovative chemistry and technological flexibility. For all but a few companies in Europe, competing with Indian and Chinese companies on the basis of an ability to run *known* processes efficiently, is simply unrealistic.

Curiously, the increasing focus of the large multinational bioscience companies on expanding sales into the fast growing economies (where marketing clout can compensate for lack of new proprietary products) offers hope for all smart players in the supply of fine chemicals. It means that fine chemical companies that can develop lower cost processes, by using their chemistry and technology skills, can generate a new source of cost saving that is far more powerful than the majority of modern, non- technocratic bioscience company managers imagine. Rather than snipping away at costs, they can be slashed. And, given the rush to market that has typified the last 10-15 years, most processes can be improved, often by a wide margin.

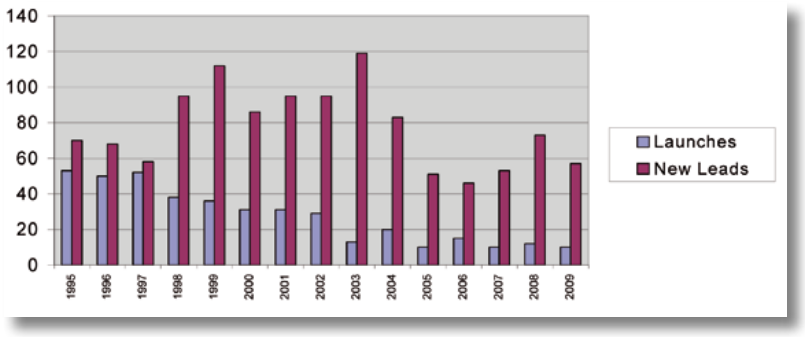


Figure 2. New Developments and Launches of active ingredients between April 1995 – April 2009. *Source: Ag Chem New Compound Review, 27 (2009), published by Agranova (www.agranova.co.uk).*

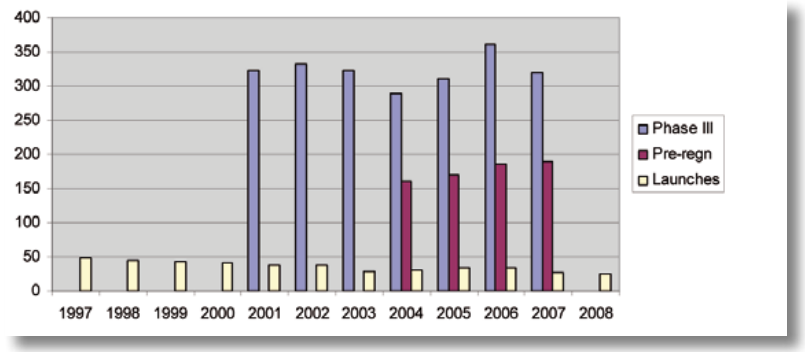


Figure 3. New chemical entities introduced in global pharmaceutical markets between 1997-2009. *Source: IMS Health.*

However, selling process development to customers is not easy. One of the major challenges is that the people dealing with fine chemical suppliers generally have little or no scientific background. Selling the concept of cost advantage through improved process technology faces numerous challenges:

- Sunk capital costs – writing off a substantial investment in an existing production unit can, understandably, create a major barrier to improving processes.
- Registration – it is an increasingly irritating fact of life that the over-regulation of life-science manufacturing processes "locks them in", by erecting substantial financial barriers to change, as well as creating unattractive lead times to implementation.
- Allied to the re-registration issue is the problem that novel technologies often throw up new impurities that might be expected to lead to concerns about matching existing impurity profiles.
- Not-invented-here ("NIH") syndrome, whereby internal resistance to outside ideas defeats an otherwise sound business decision. Everyone in the industry is familiar with the ease with which good proposals can be killed by vested interests.

Many of these objections carry over to the parameters that govern the development of processes to make active ingredients for generic suppliers. This has meant that fine chemical producers within this sub-sector of the life-science business perpetuate many sub-optimal processes beyond patent expiry and well-beyond. And when the originators finally succumb to outsourcing their raw material needs, guess what? They select suppliers that copied their original processes in order to avoid serious costs in re-registration. If these policies had been adopted by the car industry, we'd all still be driving Model T Fords! During the past twenty years, this customer conservatism has enabled the relatively un-innovative Asian competition to decimate the European fine chemical industry, since differentiation has been based on capital and running costs, rather than the biggest single cost factor in most fine chemical processes, that of the raw materials.

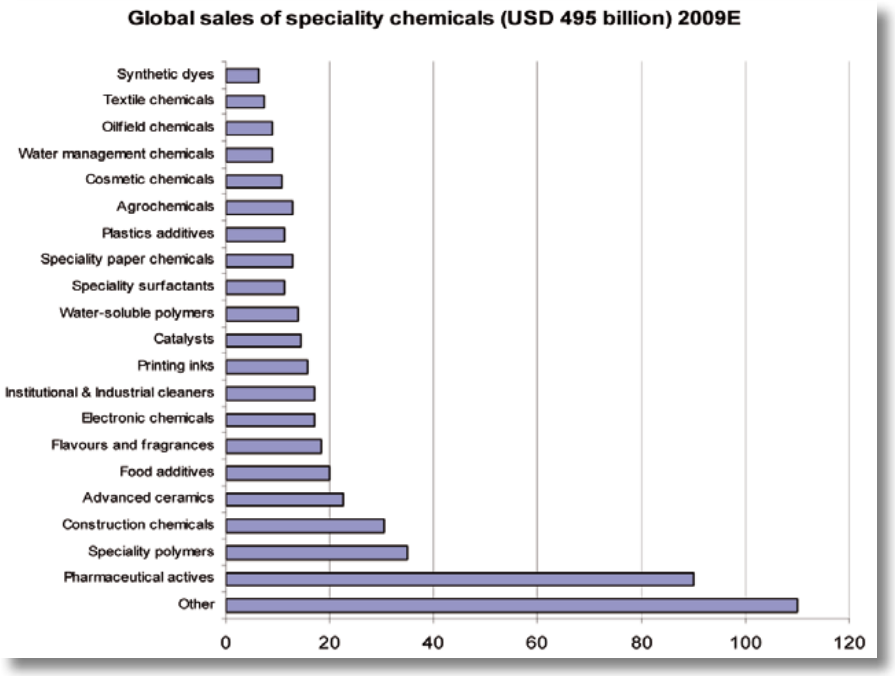


Figure 4. Industries that consume chemicals to make speciality products. *Source: SRI and Brychem estimates.*

OUTLOOK

In overcoming these dilemmas, the European fine chemical industry has essentially two options.

Non life-science applications

As the sales breakdown in Figure 4 demonstrates, 80 percent of all speciality chemical sales are in sectors outside the life-science industry.

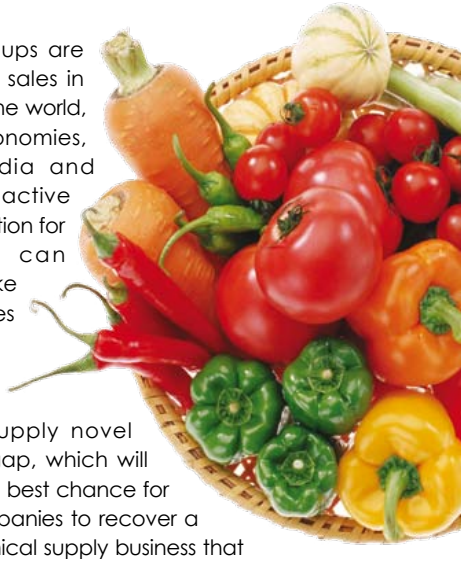
Many offer opportunities for fine chemical companies to secure profitable sales. In fact, by concentrating on developing new business in the non life-science industry sector, better processes can often be developed with fewer constraints and greater rewards.

The hard-pressed Japanese fine chemical industry has moved in this direction over the past 2-3 years. Its companies are increasingly focused on supplying the electronics industry, which is generating demand for novel value-added fine chemicals.

Specific life-science sectors

By concentrating its efforts on smart process development at the two ends of a new life-science product's life: infancy and maturity, European companies can play to the technological strengths by improving processes and thereby offer real cost benefits. Recent signs that, at last, the innovative drug companies are more open to this approach include:

- Recent cost-reduction programmes implemented by major life-science companies include a determined effort to reduce the embarrassing fact that, on average, 100 kg of waste is produced for every 1 kg of API manufactured.
- Disillusionment with the preferred supplier model, which has tended to favour uncreative, low tech suppliers, unable to help innovators to reduce target costs for novel APIs, which is an increasingly important factor, as drug purchasing agencies across the world demand access to cheaper drugs.



The major multinational groups are also looking to expand their sales in the fastest growing areas of the world, the so-called emerging economies, such as Brazil, China, India and elsewhere. As demand for active ingredients grows, the justification for building new capacity can generate opportunities to take a fresh look at the technologies being used.

Currently, Asian companies have limited management and technology skills to supply novel processes. This technology gap, which will not last forever, represents the best chance for European fine chemical companies to recover a bigger share of the fine chemical supply business that would have otherwise been its right.

REFERENCES AND NOTES

1. www.cefic.org.
2. *Economic Outlook Task Force*, November (2009).
3. P Pollak, *Chemistry Today / Chimica Oggi*, **26(6)**, (2008).