

The Global Fine Chemicals Industry Is Shifting towards China

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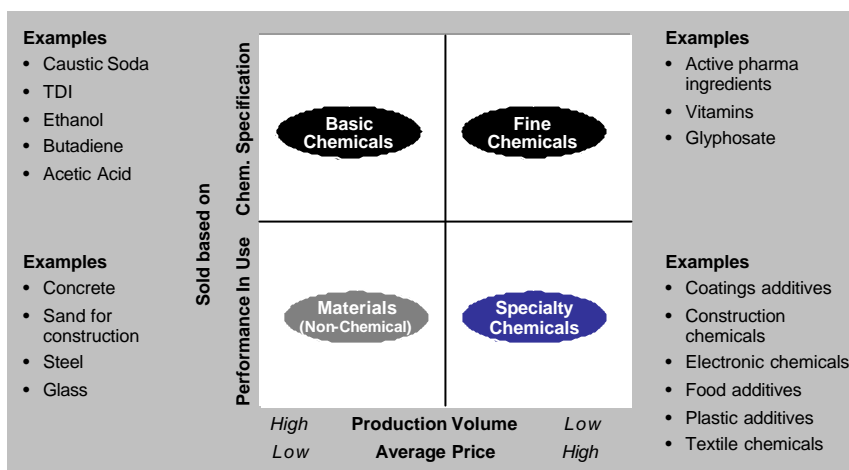
◆ *Fine chemicals are single, pure chemical substances that can be fully characterized and specified. They are produced in small quantities (typically less than 1 000 metric tons per year, though there are some exceptions) and have a relatively high average price (similar to specialty chemicals) above about US\$10/ kg, but they are sold based solely on a chemical specification, something they share with basic chemicals.*

In addition, and partly as a consequence of this, fine chemicals have other characteristics:

- ◆ They are generally produced in multi-purpose plants employing multistep batch processes.
- ◆ There is a huge variety of fine chemicals, though of the ten thousands of different molecules, each individual chemical company tends to produce only a small share.
- ◆ The number of applications for each fine chemical tends to be quite limited compared to that of more basic chemicals.
- ◆ For each individual fine chemical, there is only a limited number of suppliers and customers.

Given the huge range of fine chemicals, further sub segmentation is helpful. This may be done, e.g., by added value (from building block to advanced intermediates to the active ingredients with the highest added value), by the customer base (standard fine chemicals versus exclusive ingredients that are only produced for one customer) or by regulatory status (depending on whether the production has to be done according to cGMP rules, which applies primarily to pharma applications). In addition, it should be kept in mind that more than half of the total global amount of fine chemicals is produced captively.

Fig. 1: Definition of Fine Chemicals



The pharma industry is by far the largest customer of fine chemicals, globally accounting for about two thirds of demand. Related life science areas (agrochemicals and animal health) account for more than half of the remainder, while there is also a broad range of other applications, e.g., in catalysts, dyestuffs, electronic chemicals, flavors, food additives etc.

What impact does all this have on where best to produce fine chemicals? Is it preferable to select production sites in countries such as India and China or in countries with more mature economies? There are a number of contradictory factors influencing the overall balance.

Factors favoring production in Europe or the US include

- ◆ raw materials costs (these are often higher in Asia due to added logistics costs)
- ◆ stable energy supply (compared to the unstable supply particularly in India)
- ◆ economic stability (as the sustainability of Asian economic growth is still questioned by some companies)

- ◆ shorter supply chain and easier communication (as long as the majority of fine chemicals is still produced for Western markets)
- ◆ easier monitoring of suppliers (for Western pharmaceutical companies).

On the other hand, the benefits of producing in Asia are getting more prominent:

- ◆ salaries (though increasing faster than in the developed world) are still up to 90% lower, which leads to substantially lower overall labor costs even if adjusted for worker productivity). Salaries are quite relevant in fine chemicals production as the small amounts produced, and the complex batch production process make it labor-intensive compared to basic chemicals
- ◆ lower investment costs per installed cubic meter of reactor capacity, with the difference ranging from a conservative estimate of 40% up to 60%
- ◆ lower costs to comply with local environmental regulation (this does not apply to all parameters, but in sum is still quite relevant)
- ◆ fast-growing local market (for example, in China, recent growth of the pharmaceu-

tical industry is about 15% per year, and the low amount of medicine spent per head compared to the Western world makes further strong growth very likely)

From just examining these advantages and disadvantages of producing in Asia, it is difficult to come to a conclusion regarding the overall situation. However, it is telling that in the past few years, a number of fine chemicals units were sold and/or shifted to Asia. For example, in 2006 the pharma custom synthesis unit of Rhodia was bought by Shasun, an Indian API and intermediate producer. In the same year, the Chinese company Bluestar bought Adisseo, a producer of fine chemicals for animal nutrition. In 2008, two of the leading global chemical companies, Dow and BASF, sold some of their pharma production to the Indian pharma company Dr. Reddy's (the UK units of Dowpharma small molecules and US pharma contract manufacturing, respectively). And at the end of 2010, DSM effectively sold half of their Anti-Infectives business to Sinochem by bringing the business into a joint venture.

What can be expected for the near future of fine chemicals in China? There are a number of important trends. Among API producers, there is considerable consolidation.

Primarily, this takes place by the domestic market leaders acquiring secondary players

- examples are the Sinopharma acquisition of China National Medicines or the Shanghai Pharma acquisition of Shanghai Zhongxi.

At the same time, companies start focusing more on marketing and sales rather than just on the production of active ingredients. This is particularly pronounced among generics producers such as Harbin Pharmaceutical, which has started experimenting with direct sales. Other companies such as Lukang Pharmaceuticals have expanded their sales area within China and are also looking at export markets.

As in most segments of the Chinese chemical industry, improvement of ecological compliance is also a trend in fine chemicals, as seen in the implementation of a specific design code as well as the relocation of several major API producers.

Finally, fine chemicals producers in China are actively upgrading their technology and investing in creating and protecting their intellectual property. For example, Hengrui Medicine claims to have 300 researchers, half of which holding a Ph.D. degree.

In the light of these trends, how attractive are fine chemicals as an investment area in China? There are several aspects that indicate a promising development for the segment:

As mentioned above, the domestic pharma industry is growing rapidly, generating similarly high demand increases for active

pharmaceutical ingredients, a key sub segment of fine chemicals.

Apart from the domestic pharmaceutical companies, there is also a strong and increasing presence of global pharma players similarly generating demand for APIs. By now, all top 20 global pharmaceutical companies have production in China, and foreign direct investment increased by 34% from 2008 to 2009.

Costs are attractive as chemists in China still have comparatively low salaries. And the IP environment is indeed improving as Chinese companies more and more own their own intellectual property.

Finally, the competitive landscape of fine chemicals producers is improving. The industry is simultaneously consolidating, and the market share of SOEs is decreasing (from 29% in 2007 to 20% in 2009), leading to a more level playing field.

A final boost for fine chemicals in China comes from government support that is expected to be detailed in the forthcoming 12th Five-Year Program period (2010-2015). According to current discussions, the plan foresees China's fine chemical production value to reach RMB1.6 trillion in 2015, up 100% from 2008 level, and a self-sufficiency level of 80% in 2015 (from 70% in 2009). So while the whole fine chemicals segment has bright prospects, it is the domestic companies that are likely to benefit most. ■