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 multipurpose 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 subsegmentation 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.

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

◆ 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 pharma-
tical industry is about 15% per year, and
the low amount of medicine spent per head
compared to the Western world makes fur-
ther strong growth very likely.

From just examining these advantages and
disadvantages of producing in Asia, it is dif-
ficult 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 cus-
tom 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 pro-
ducer 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 busi-
ness into a joint venture.

What can be expected for the near fu-
ture 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 Shang-
hai 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 ge-
erics producers such as Harbin
Pharmaceutical, which has started experi-
menting with direct sales. Other companies
such as Lukang Pharmaceuticals have ex-
panded their sales area within China and
are also looking at export markets.

As in most segments of the Chinese
chemical industry, improvement of eco-
logical compliance is also a trend in fine
chemicals, as seen in the implementation
of a specific design code as well as the re-
location 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 attrac-
tive are fine chemicals as an in-
vestment 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 seg-
ment of fine chemicals.

Apart from the domestic pharmaceutical
companies, there is also a strong and in-
creasing presence of global pharma play-
ers 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 in-
dustry is simultaneously consolidating, and
the market share of SOEs is decreasing
(from 29% in 2007 to 20% in 2009), lead-
ing 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.