



# The Chemical Industry

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According to CEFIC, in 2016 China accounted for 39.6% of global chemical sales, or EUR 1331 billion. This compares to 15.1% of global sales for the EU area and 15.7% of global sales for the NAFTA area – or in other words, China's share of global chemical sales is far bigger than the NAFTA and EU area combined. From a specifically German perspective, with a global chemical market share of 4.3%, Germany represents the third biggest global chemical market – but its size is not much more than one tenth of the Chinese market.

China's chemical industry has indeed grown very rapidly in the past two decades. For example, in the period from 2006 to 2016, the growth figure was an average annual 12.4% while there was no growth in chemical production during this period in the EU area (0%) and even a slight average annual decline in the US (-0.9%). While growth has certainly slowed down somewhat in the past few years, the sales growth of most multinational chemical companies in China in 2017 will still be substantial. CEFIC forecasts that by 2030, China's chemical market will have a share of 44%, which

implies a relatively modest annual growth rate of 4.6% – yet still a much higher value than the 2.5% annual growth predicted for the EU area during the same period.

Multinational companies nowadays are certainly aware of the importance of China, particularly as a source for future growth. However, most such companies currently achieve only about 10–15% of their global sales in China – not a small amount but far from the 40% of sales that are China's share of the global market (and that thus would be a target value for a truly global chemical player). And even though the sales of multinationals show strong annual growth, this growth is generally below the overall market growth in China. In other words: The market share of multinational chemical companies in China is shrinking.

This may partly be because China's chemicals market displays some characteristics which are quite different from the western markets chemical multinationals typically operate in. What are these key characteristics of the Chinese chemical industry?

## Stronger government influence

While the Chinese government occasionally issues statements assigning an increasing role to markets, the Chinese economy is much more under government control than in the West. For the chemical industry, this has two major consequences. One is the strong presence of state-owned enterprises such as Sinopec and PetroChina, particularly in the petrochemical segment. The other is the much greater amount of government planning, most visible in the detailed Five-Year-Plans for the chemical industry, which describe aspects such as promoted chemical segments as well as the overall industry structure.

## Higher degree of industry fragmentation

China has approximately 30,000 larger chemical companies with annual sales of about EUR 2 million or above. To give one example, there are more than 2000 coatings companies in China, and the top 200 only account for about 60% of total production volume.

## Prevalence of overcapacity

For many basic organic chemicals, China has massive overcapacities. For example, adipic acid capacity rose by an annual 19% in China between 2010 and 2016 while demand only rose by an annual 14%, resulting in current operating rates below 60%. And typically for China, even in this environment there are plans to expand the existing capacity by more than 30%.

## Competition among ownership types

While the question of ownership has only a limited influence on the activities of western chemical companies, this is different in China. Foreign-owned chemical companies tend to be technology leaders specializing in high-end materials and specialties, state-owned entities focus mostly on bulk production of basic chemicals, while private companies are continuously expanding their activities and upgrading their technology. In the past decade, the ownership type has strongly correlated with market success, with private companies showing the highest

growth and state-owned entities the lowest.

While these characteristics have been observable for a few years, there also have been some relatively recent trends strongly affecting the chemical industry:

#### Shift from imports to exports

In the past, China was often the default export destination for a large range of chemicals. However, as chemical companies in China build up capacity and expand their portfolios, China is increasingly becoming an exporter of chemicals. In trade with the EU region, China is already a net exporter for chemicals, but still a net importer for somewhat higher-value materials such as polymers, consumer chemicals and specialty chemicals.

#### Growing importance of higher-end materials

As the overall economy in China matures, the demand for high-end materials such as

specialty chemicals and engineering plastics increases. While foreign companies traditionally have a strong position in these areas, increasingly private Chinese companies also become important players.

#### Increasing salaries

Average worker salaries in China have increased dramatically in the past decade or so and are now easily higher than in many Southeast Asian countries. To some extent, the effect of this trend on the chemical industry is lower than on more labor-intensive industries such as textiles. However, there is an indirect effect, e.g., demand for textile chemicals and textile dyes now growing more strongly in countries with low labor costs (such as Bangladesh and Vietnam) than in China itself. Even a few Chinese textile producers have shut down plants in China and opened new sites in these countries with substantially lower labor cost. In the long run, this could mean that chemical production for selected segments will also move away from China.

#### Localization

With the growing importance of China as a market, multinational chemical companies have realized that this market eventually mostly needs to be served via local production. This localization process is ongoing and includes more and more functions, including those (such as research) initially still mainly kept abroad.

#### Tightening environmental regulation

This is very likely the most important trend in China's chemical industry in the past two years or so. President Xi Jinping has made environmental protection one of his top three priorities, and in contrast to previous such statements, this time there is a strong focus on implementation. This development not likely to be reversed, even though some Chinese experts estimate that the campaign has decreased GDP growth in 2017 by 0.2%. It is therefore worthwhile for companies with chemical production in China – and for those doing business with them – to examine their direct and indirect consequences.

- First of all, the environmental inspections have led and will lead to short-term production stops. In the past, about 40% of all companies inspected were affected by such stops, which typically lasted two to four weeks. Generally, the polluting companies have to choose between upgrading their equipment to meet the environmental requirements and stopping production altogether. Even companies not affected by these stops directly may be affected indirectly through their supply chain.
- Second, much longer production stops may result as a consequence of chemical companies being forced to relocate. Broadly speaking, the government wants to relocate all production of toxic chemicals into dedicated industrial parks. The timeframe depends on plant size. Small and mid-sized chemical plants (with up to about 1,000 employees and up to about EUR 50 million of annual sales) need to start relocation in 2018 and have the relocation completed by 2020.
- Third, it will take much longer to get permissions for new plants. A big and well connected local chemical company told the author that instead of the previous six months, the local authorities would now take about 18 months to give such a permission, primarily as the environmental due diligence will become more important in the approval process. As a consequence, markets for individual chemicals will take more time to adapt to demand increases.
- Fourth, production costs will increase. Some examples of such cost increases include higher costs for water treatment, higher costs for raw materials, the imposition of the newly introduced environmental tax, and higher transportation costs due to tightened regulation.

In the longer term, the aspects listed above will also have an impact on the overall structure of the chemical industry – an effect that is quite appreciated by the government and the bigger players. Many specialty chemicals segments in China are very fragmented and suffer from overcapacity. The tightened environmental regulation will lead to industry consolidation as the weakest and smallest players will not be able to afford the necessary production upgrades. This will also lead to a reduction in overall capacity along with the improvement in technological level.

Generally, the tightened environmental regulation will help bigger and technologically more advanced players. Indeed, these companies may benefit from higher prices as excess capacity is eliminated. This is good news for foreign players in China as they tend to have both a bigger, average size and better technology, particularly regarding emission control. In addition, the stricter implementation of regulation for all types of companies – whether foreign owned or local – corrects the previous trend of tighter control of foreign-owned ventures.

How should western companies react? For companies producing in China, the key question is whether they are already located inside a chemical park or not. In the latter case, there will be intense pressure to relocate quickly. And of course, even inside a chemical park, they will need to strictly adhere to mandated emission control, though for most foreign companies, this is a given already.

A second focus should be on securing the supply chain. In particular, the reliance on small players with limited resources may not be advisable, as these companies are the most likely to be forced into production stops. Instead, western companies sourcing from China should continuously evaluate their domestic suppliers and focus on those which have sound environmental policies in place.

In the last two years it has become evident that the Chinese government is serious about environmental protection. If western chemical companies deal with this new situation proactively, they may benefit because it represents a shift towards a more equal playing field between foreign and domestic chemical producers in China.



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