



Stricter Regulation as An Opportunity for Chemical Companies in China

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Possibly the most important current trend in China's chemical industry is the stricter regulation of the industry with regard to safety and emissions. Not only are existing regulations tightened, but also the implementation of such laws has become much stricter. Recent examples of this trend include the following:

- In coatings, the 13th Five-Year Plan promotes environmentally friendly coatings, e.g., water-borne materials. A tax has been imposed on certain solvent-based coatings.

- In dyes, major Chinese producer Hubei Chuyuan had to close production in 2016 due to government pressure on environmental concerns. Subsequently, in January 2017 court in China fined dye producer DyStar US\$3 million for environmental crimes and imposed jail terms of 3-5 years on some of the company's managers, highlighting the risk of noncompliance with environmental regulation.

- Governments have started applying strong pressure on chemical companies to move their production into chemical parks. Some provincial governments have set ambitious targets for their area, e.g., Hubei wants to have 95% of its chemical production in chemical parks by 2020.

- For agrochemicals, the target of the 13th Five-Year Plan is to have zero growth for the application amount of chemical fertilizers and pesticides to be achieved in 2020.

- For PVC, the 13th Five-Year plan promotes closing down of backward capacity and general upgrading of technology.

This tighter supervision of the chemical industry already has substantial consequences for chemical companies, particularly for domestic ones. Recent discussions with representatives of such companies

highlighted the following effects:

- Need for additional investment in existing and planned production plants in order to comply with tightened and more strictly implemented environmental regulation.

As a consequence, the capital spending of domestic chemical companies on HSE (Health Safety and Environment) items will increase significantly from the current less than 5% of total capital spending closer to the 9% a major international chemical company such as Dow Chemical currently spends on this item.

- Much longer approval times for new plants as applications are scrutinized much more than before. It is expected that in the future, approvals for bigger plants will take at least 18 months, which may decrease the speed at which chemical companies can react to market changes such as an increased demand for specific products.

- Stricter implementation of emission standards in normal operations, and subsequent higher operating costs approaching the 3% that Western companies typically pay for these items.

- Higher costs for transportation and storage of hazardous goods (e.g., hazardous goods storage is more than twice as expensive as for normal chemicals, and for providers of such storage space is now the most lucrative part of the business).

While one would expect that the tightened regulation of the chemical industry primarily affects domestic companies, European chemical companies also seem to see these as an obstacle to their business. In a paper of the Petrochemicals, Chemicals and Refining Working Group of the European Chamber of Commerce published in September 2016, four of the six recommendations given refer to regulatory aspects:

- European companies would like to see standardization of penalties imposed on pollutants in the chemical industry as they are concerned that the current situation, in which local governments are allowed to set local pollutant standards that are tighter than national ones, will lead to additional complexity as a consequence of multiple standards

- European companies ask for reduced data requirements for new chemical notification for intermediates as they feel that the stringent data requirements may put Chinese intermediate manufacturers at a disadvantage

- European companies are concerned that the scope and definition of Hazardous Chemicals has been extended

- They ask for a relaxation of regulatory controls on transportation and warehousing of Hazardous chemicals, warning of increasing operational costs.

Given this situation, the headline of this paper may sound too optimistic. So, let us examine whether there are also positive aspects related to stricter regulation, and what chemical companies – particularly Western ones - have to observe to benefit from these aspects.

First of all, the increased regulation of the chemical industry is an indication of the Chinese government's ambition to direct the industry towards those methods and areas that are seen as having a long-term benefit to the country. Another expression of this ambition is the strong support given for research and development as China aims to become an innovative country. For example, the State Council has substantially expanded the tax deductibility of research. Chemical companies – whether domestic or foreign-owned – are therefore well advised to check



whether their R&D activities in China are tax deductible, and to what extent. This may require stricter tracking of R&D expenses in order to justify them to external parties such as government agencies. In particular, government support is given to companies cooperating with third parties such as universities – so chemical companies should see whether suitable cooperation partners exist.

Second, stricter environmental regulation pushes chemical producers to review and possibly change their existing production processes. This may open up opportunities for other companies that provide such processes and materials, be it highly specific catalysts (e.g., replacement of high-mercury catalysts in acetylene method) or raw materials previously not utilized (e.g., when changing titanium dioxide production from the sulfuric acid to the chloride route).

Third, new markets may be opened up via the pressure on chemical companies to reduce emissions. On the one hand, this may favor those companies with modern, clean processes as the emission tax that will be introduced for chemical pollutants in 2018 will disproportionately affect companies with more polluting processes. It will also create new or expanded markets for chemicals and chemical materials dealing with emissions, such as catalysts, water treatment chemicals, filter and membrane materials, etc.

Fourth, and probably most important, is the shift in demand for end products of the chemical industry. Obviously, it will only become clear with time which chemical products will be affected the most, and it is impossible to give a comprehensive list. Instead, here are a few examples:

- In pesticides, to meet the goal of zero volume growth while still increasing yields and phasing out some older products, there will be a need to introduce more environmentally friendly and more effective molecules and formulations
- In plastics, regulation in individual provinces such as Jilin pushes demand towards bio based varieties – certainly a market with good long-term prospects
- In coatings, regulation may accelerate

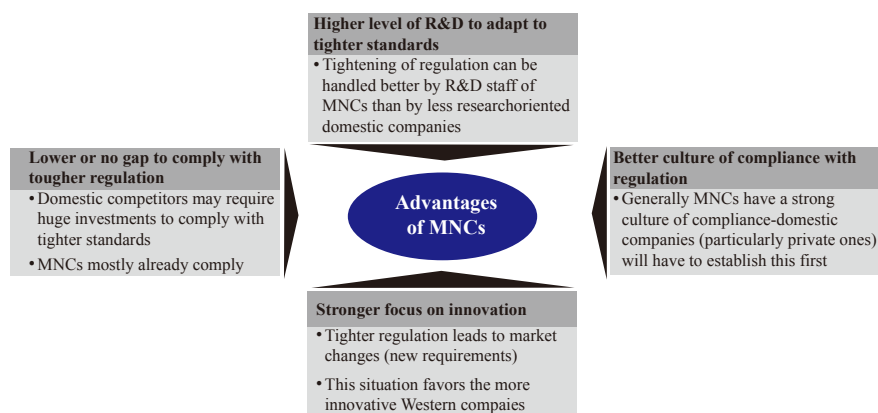


Fig. 1: Advantages of chemical MNCs in adapting to stricter regulation in China

the ongoing shift from solvent-based to water-borne coatings

- The trend towards hybrid and electric cars – supported by regulation - will increase demand for specific plastics as well as suitable battery materials

• Stricter emission regulations in production may lead to shifts in the materials utilized. For example, using polyester as part of glass fiber resin in bathtubs, styrene is released. Regulation now requires producers to install air filtration systems or alternatively to replace the polyester with polyurethane

- Many currently used additives used in plastics production, such as blowing agents, plasticizers and flame retardants, may eventually be replaced by more environmentally alternatives

It is likely that among the main three different ownership types of chemical companies in China (foreign-owned/multinationals, state-owned entities and private domestic companies), the multinationals (MNCs) will profit most from the developments shown above. These companies

on average have a stronger capability of innovation, are used to strict compliance with regulation from their Western operations, often have production processes that are superior with regard to emissions, and tend to have a higher level of R&D spending which can be directed to adapt to tighter standards. Figure 1 illustrates these advantages.

This is good news for MNCs, which in the past few years have lagged behind the private domestic companies with regard to sales and profit growth. However, it is important to note that the advantages outlined will not automatically result in a superior performance. Rather, certain key requirements need to be fulfilled. These include a good understanding of local regulation and local market requirements, the localization of at least part of the R&D efforts and decision making power, as well as a detailed analysis of each businesses' products in order to adapt the portfolio in a way that is aligned with the changes described above (Fig. 2). ■

Actions to consider

1	Assure good understanding of local regulation (including anticipation of developments, possibly via dedicated unit(s))	<input type="checkbox"/>
2	Establish/expand local R&D to provide innovation necessary to benefit from changes in local regulation	<input type="checkbox"/>
3	Localize decision making power (at least partly) to increase reaction speed and enhance local power to adapt to local regulation	<input type="checkbox"/>
4	Proactively adopt portfolio of each BU to benefit from changes in environmental regulation	<input type="checkbox"/>
5	Consider localization of any functions that will bring benefits regarding cost or reaction speed (e.g., production, sourcing, marketing, etc.)	<input type="checkbox"/>

Fig. 2: Action list to benefit from increased environmental regulation