Chemical Parks in China

Push Towards Relocation of Chemical Production May Open up Opportunities for Acquisitions

At the end of the year 2018, China had a total of 676 chemical parks. Of these, 57 are classified as national-level parks, 351 as provincial-level parks and 268 as municipal-level parks, the lowest level. While these parks are spread all over China, there is a higher concentration of parks in specific regions and provinces of China.

To be more specific, 32% of the chemical parks are in China's Eastern region followed by 25% in the Western region, 22% in the Northern region and 21% in the Central region. As the map (Fig. 1) shows, Shandong province and Jiangsu province are the two provinces — both in the Eastern region — with the largest number of chemical parks.

The chemical parks also vary greatly by annual sales. 14 chemical parks can be classified as having extremely high sales of more than 100 billion RMB (about €12.7 billion), 33 have sales between 50 and 100 billion RMB, 224 are of medium size with sales between 10 and 50 billion RMB while the remaining parks have annual sales below 10 billion RMB.

Importance of Chemical Parks in China Increased

The importance of chemical parks in China greatly increased within the framework of the 13th Five-Year Plan, which covers the period from 2016 to 2020. The plan aims at concentrating chemical production in chemical parks in an effort to allow better supervision of the industry and facilitate the implementation of tightened environmental protection. It mandates the massive relocation of chemical plants into such parks.

> *"It is likely that the number of chemical parks in China will shrink."*
>
> Kai Pflug

Somewhat ironically, some of the most serious recent accidents in China's chemical industry have occurred in chemical parks. On Mar. 21, 2019, an explosion at the Xiangshui Eco-chemical Industrial Zone in Yancheng of Jiangsu Province killed 78 people and injured an additional 617. Government reports later uncovered showed that an earlier inspection by the State Administration of Work Safety found 13 safety problems, including extensive leaks, a lack of safety training, poor site management and a shortage of operating procedures and technical specifications. On the other hand, a gas factory which was the site of an explosion in July 2019 in which at least 15 people died was on Henan's provincial list of top safety-compliant workplaces and had received a China Chemical Safety Association award for extraordinary contribution to chemical industry safety standards.

Kai Pflug, Management Consulting — Chemicals

While these events point to chemical parks alone not being the sole solution to solving the environmental and safety issues of China's chemical industry, government policy will clearly continue to shift chemical production into chemical parks. In addition, the government aims to put pressure on existing chemical parks to upgrade their standards and to reduce the number of parks. This may

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4chiral: The Chemistry Cluster in Central Germany

Already in 2006, the cluster 4chiral was founded in Bitterfeld-Wolfen — a town in Central Germany's chemistry triangle. Starting with only seven locally established SMEs, today, this horizontal network comprises 30 companies and about 10 research partners of public institutes and universities. The common subject is "(bio)chemical synthesis" — or in other words: "To create value by transforming matter". The companies of 4chiral not only share the same activity fields, but — as independent, mainly staff-owned SMEs — also a comparable culture, flexibility and customer focused approach.

Together, nearly every request regarding the development of new syntheses or the manufacturing of fine chemicals can be addressed. These activities comprise everything from consulting, research, computational modelling to enzymes and GMP or ton scale production as the following compilation shows.

Abbreviations: GMP=GMP syntheses; cR&D=contract research & development; BIO=bio- and enzyme technology; PD=process development; C=consulting; PR=non-exclusive products

- Arevipharma: GMP, PR, API, g to tons
- c-LEcta: enzymes, BIO, PR, <50 kg
- Chiracon: GMP, PR, <50 kg
- ChiroBlock: cR&D, PD, C, mg-50 kg
- CreativeQuantum: quantum mechanics, computer simulations, C
- Emp Biotech: BIO, PR, bio-chromatography
- Enzymicals: BIO, PD, PR, enzymes
- Hapila: GMP, mg to <50 kg
- IBZ-Salzchemie: cR&D, C, PR, nano particles
- Laborchemie Apolda: GMP, PR, >50 kg to tons
- Leibnitz Institut für Katalyse: C, cR&D
- Merseburger Spezialchemikalien: organometalics, PD, PR, mg to >50 kg
- Miltitz-Aromatics: fragrances, PR, >50 kg to tons
- Organica: PD, PR, >50 kg to tons
- Orgentis: PD, PR, mg to 100 kg
- Synthon Chemicals: PD, PR, g to <50 kg
- TGZ Bitterfeld-Wolfen: C, support, labs

Top-ranked chemical parks in China in 2019

Rank	Name of Chemical Park	Province
1	Huizhou Daya Bay Economic and Technological Development Zone	Guangdong
2	Ningbo Petrochemical Economic and Technological Development Zone	Zhejiang
3	Nanjing Jiangbei New Material Science and Technology Park	Jiangsu
4	Ningbo Daxie Development Zone	Zhejiang
5	Zibo Qilu Chemical Industry Zone	Shandong
6	Ningxia Hui Autonomous Region Ningdong Energy and Chemical Industry Base	Ningxia
7	Yangzhou Chemical Industry Park	Jiangsu
8	Dongying Port Economic Development Zone	Shandong
9	China Chemical New Materials (Jiaxing) Park	Zhejiang
10	Jiangsu Taixing Economic Development Zone	Zhejiang
11	Cangzhou Lingang Economic and Technological Development Zone	Hebei
12	Maoming High-tech Industrial Development Zone	Guangdong
13	Jiangsu Changzhou Binjiang Economic Development Zone	Jiangsu
14	Quangang Petrochemical Industrial Park	Fujian
15	Hangzhou Bay Shangyu Economic and Technological Development Zone	Zhejiang
16	Zhejiang Yinzhou High-tech Industrial Park	Zhejiang
17	Jiangsu Changshu New Material Industrial Park	Jiangsu
18	Wuhan Chemical Industry Park	Hubei
19	Changshou Economic and Technological Development Zone	Jiangsu
20	Jining New Material Industrial Park	Shandong
21	Zhenjiang New District New Material Industrial Park	Jiangsu
22	Zhuhai Economic and Technological Development Zone	Guangdong
23	China Petrochemical (Qinzhou) Industrial Park	Guangxi
24	Panjin Liaodong Bay New District	Liaoning
25	China Chemical New Materials (Liaocheng) Industrial Park	Shandong
26	Daqing High-tech Industrial Development Zone	Heilongjiang
27	Yantai Chemical Industry Park	Shandong
28	Quanhui Petrochemical Industrial Park	Fujian
29	Taizhou Binjiang Industrial Park	Zhejiang
30	Rudong Yangkou Chemical Industrial Park	Jiangsu

Note: Shanghai Chemical Industry Park chose voluntarily not to participate in the ranking after ranking first in the previous years

be necessary given that in June 2019, China's proclaimed Safety Production Month, the Ministry of Emergency Management claims to have made unannounced visits to 34 chemical parks — only 5% of the total number. It seems that the current number of parks is too high for effective supervision.

"Chemical parks alone may not be the sole solution to solving the environmental and safety issues."

Kai Pflug

Stricter Regulation

Provincial governments are also getting stricter in regulating chemical parks. For example, Jiangsu province not only closed down the Xiangshui chemical park mentioned above but plans to close a total of nine chemical parks. Other provinces including Shandong have also announced to reduce the number of chemical parks, and several have issued provincial guidelines tightening regulation of chemical parks and chemical production. Guangdong province in June 2019 issued a draft "Regional Safety Risk Assessment Guidelines for Chemical Industrial Parks", which mandates a regional safety risk assessment for chemical industry parks at least once every 3 years, from the previous 5 years. In contrast to the past, it thus seems that the careers of provincial government officials now may benefit from tightening supervision. Indeed, industry representatives see this crackdown on the chemical industry as a substantial threat to the industry. For example, in August 2019, Fu Xiangsheng, the vice-chairman of the China Petroleum and Chemical Industry Federation (CPCIF), stated that "Blanket cuts at petrochemical industrial parks have much bigger impacts than the Sino-US trade war."

One way of promoting competition among chemical parks is the annual publication of a list of the top 30 chemical parks (Tab.1). The list is based on a number of criteria such as economic strength of the park, safety standards, innovation, sustainability and infrastructural support. This list gives a good indication of parks that have high standards and are unlikely to be threatened by closures. However, parks on this list will also have relatively high entry requirements for chemical companies, for example regarding investment level.

"A world-class chemical park is an organic ecosystem, not a simple gathering of companies."

CPCIF Chemical Park Working Committee

These top-ranked parks are not evenly distributed (Fig. 2): Almost all of them are on China's coast, and almost half (14 out of 30) are in the two provinces neighboring Shanghai, namely Zhejiang and Jiangsu.

Compared with the overall distribution of chemical parks as illustrated in Figure 1, this shows that the general quality of chemical parks in the more developed provinces particularly in Eastern China is far higher than those in inland provinces, of which only very few make the list.

Concept of Highly Integrated Chemical Parks

On a more holistic note, China also promotes the concept of highly integrated chemical parks. The Chemical Park Working Committee of the CPCIF states that "A world-class chemical park is a soul, an organic ecosystem, not a simple gathering of companies." In typical Chinese fashion, this is to be achieved by the "6 Integrations" (the Chinese like these numbered lists of priorities). Specifically, this includes the integration of raw materials, logistics, safety, environmental protection, data and management services. While the practical effect of such somewhat nebulous, high-level concepts is sometimes hard to judge, it is worth mentioning that China has announced to promote emission treatment by third parties in chemical parks by, e.g., giving qualified businesses a reduced tax rate — potentially a consequence of the promotion of integrated environmental protection and management services.

Looking forward, it is likely that the number of chemical parks in China will shrink. The government has already announced that it intends to stabilize or even reduce the number of chemical parks to around 500.

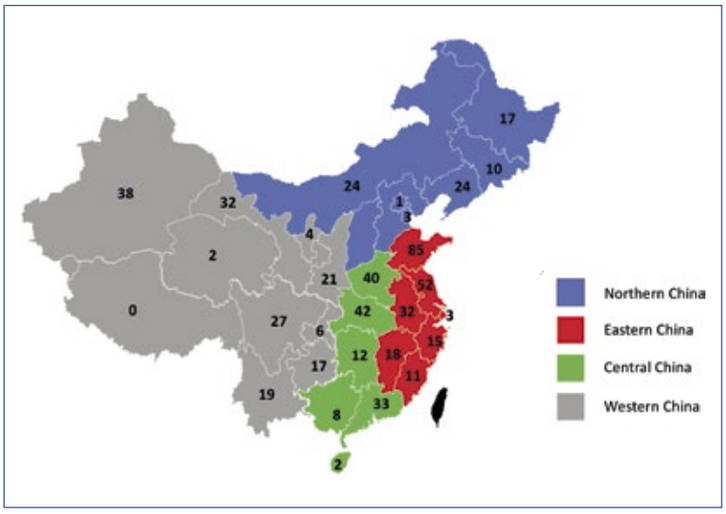

Fig. 1: Number of chemical parks in China by province, 2018

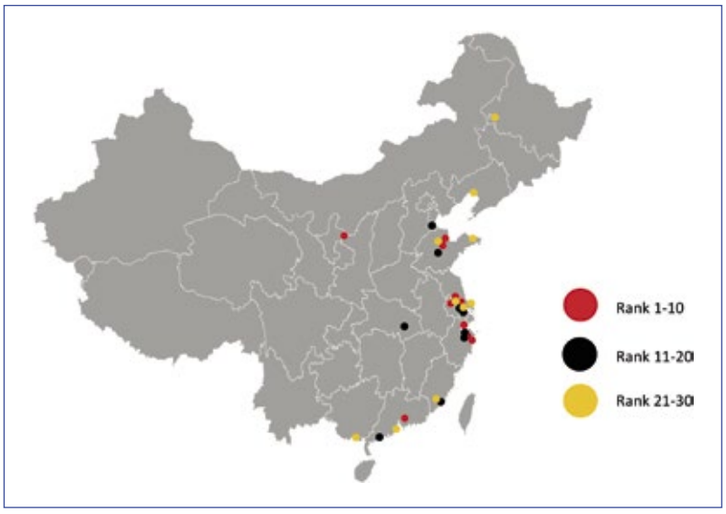

Fig. 2: Location of 30 top-ranked chemical parks in China (approximate location only)

Therefore, unsuccessful and substandard chemical parks face the risk of being closed down within the next few years. An admittedly imperfect back-of-the-envelope calculation comparing Germany with China shows that China would need about 300 chemical parks compared to Germany's 37, so despite the current huge demand for space in chemical parks, the current number may already be somewhat large.

High Standards and Good Reputation Has a Price Tag

Chemical companies searching for production sites in China therefore need to have a clear understanding of the current situation. While it will be mandatory to locate new production in chemical parks, this alone will not be sufficient to guarantee long-term site stability. Chemical companies are well advised to look for chemical parks with high standards and good reputation, even though such parks are likely to have higher investment and environmental protection requirements. The list of top 30 chemical parks issued by the CPCIF may be a starting point. Companies should also keep in mind that the current push towards relocation of chemical production into chemical parks puts substantial pressure on smaller domestic chemical companies, which may lack the funds for such a relocation. Identifying such companies and approaching them may therefore open up promising opportunities for acquisitions in China.

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GCC Chemical Industry's Investment Exceeds $140 billion

Chemical-industry-related investment in the Gulf Cooperation Council (GCC) has exceeded USD 140 billion in the first ten months of 2019 led by consolidation, joint venture agreements and increased number of merger and acquisition (M&A) deals, according to estimates by the Gulf Petrochemicals and Chemicals Association (GPCA).

Multi-billion Dollar Investments

GCC is the political and economic alliance of six Middle Eastern countries — Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman. The multi-billion-dollar investments made both within the region and international markets in the areas of refining, petrochemicals, distribution, storage supported by a wave of strategic partnerships between regional players and multinational heavyweights, indicating a strong year for M&A deals and a renewed drive by regional producers to consolidate their business, build critical mass, diversify their business portfolio and expand access to high-growth markets.

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In announcing their new organizational structure, Oman Oil Company and Orpic Group have pledged to invest USD 28 billion in next 10 years.

Dr. Abdulwahab Al-Sadoun, Secretary General, GPCA, commented, "The recent series of joint ventures, consolidation deals and acquisitions demonstrate the role of partnerships in the industry's future strategic direction and continue to build on the region's reputation as a reliable, long term partner in the global chemical arena.

Increasing Competitiveness and Accelerated Innovation

These developments will result in greater competitiveness in the regional chemical industry by enabling it to leverage economies of scale, accelerate innovation and greater market leadership. We can expect to see more of these large-scale alliances across the entire value chain, built on strong and stable platforms of leading-edge technologies between partners from across the board, combining resource and feedstock supply, product application know-how, and growth-market access. Partnerships that help chemical players stay agile and resilient and quickly adjust to changes in the worldwide economic picture will be increasingly sought after." (mr) ■