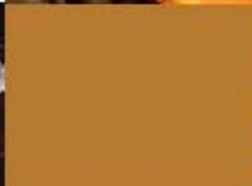




Titanium Dioxide China Monthly Report

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Headline

In Nov. 2016, the volume of ilmenite imported into China largely increased, with that originating from Senegal and Mozambique rising dramatically. Additionally, the domestic ilmenite prices kept increasing, with all quoted prices from the main producing areas slightly going up.

In Nov. 2016, China's import volume of TiO₂ largely increased MoM, and its export volume slightly rose. The gap between import volume and export volume enlarged from 45,723 tonnes in Oct. to 50,041 tonnes in Nov., and the difference between import price and export price narrowed from USD972/t in Oct. to USD785/t in Nov.

In Jan. 2017, China's ilmenite price kept rising, to some extent, pushing up the price of domestic TiO₂. What's more, the businesses of high titanium slag and acid dissolved titanium slag also showed upward trends.

The year 2016 had witnessed a strong rebound in China's TiO₂ business, with the products having experienced 10+ rounds of price rises. CCM has made an analysis on the domestic TiO₂ market in 2016.

On 16 Jan., 2017, Zechang Titanium signed a technology cooperation agreement with Inter-China Chemical, a step to develop a new type of high value-added and world-class rutile TiO₂ specifically designed for plastic. Meanwhile, Zechang Titanium stated that it has fully resumed production and is creating new profit sources.

On 30 Dec., 2016, Pangang Vanadium Titanium announced that it would inject USD43.17 million (RMB300 million) in capital into its fully-owned subsidiary Pangang Vanadium, a move to further develop its vanadium business. However, the company is still facing the risk of listing suspension due to the consecutive losses it has witnessed since 2014, despite its recent positive strategic transformation.

On 27 Dec., 2016, Jilin GPRO announced that it would invest USD201.44 million (RMB1.4 billion) in Xuzhou Titanium and Nanjing Jinling.

On 26 Dec., 2016, Henan Billions announced that it would apply to National Association of Financial Market Institutional Investors for it to issue bonds of no more than USD575.56 million. Meanwhile, it has also applied to 19 banks for a credit limit of USD3.76 billion.

On 1 Jan., 2017, the Adjustment on Tariff Rates in 2017 came into effect, benefitting the TiO₂ import and export businesses.

In 2016, coating enterprises faced both pressures and opportunities, and merge and acquisition (M&A) among companies had become normal in the industry.





Editor's Note

In Jan. 2017, led by Henan Billions, China's leading TiO₂ enterprises raised their quoted prices, marking the first round of price rises in the domestic TiO₂ market in 2017, which can attribute to the lower overall operating rates and the driving of export business. However, few transactions were made because its upstream and downstream industries are in the slack season. CCM is of the opinion that the TiO₂ price is likely to continue increasing in 2017, given the price hikes made by several international TiO₂ giants, domestic rising raw materials prices and stricter environmental policies.

Market dynamics of titanium products in Jan. 2017

Ilmenite

The business remained stable and overall operating rate slightly declined.

High titanium slag

The producers raised their quotations of new orders, caused by rising raw materials costs.

Acid dissolved titanium slag

The price kept increasing. The operating rates rose, influenced by booming TiO₂ market in 2016.

Import and export sectors of TiO₂

In Nov. 2016, China's import volume of TiO₂ largely increased by 44.86% MoM, and its export volume also slightly rose. The main reasons for better performance in the export business are the continuous depreciation of RMB and domestic enterprises' increasing their export scales. In fact, many TiO₂ producers exported their products with low prices while seek more high profit margins in the domestic market.

Important market dynamic

On 16 Jan., 2017, Zechang Titanium signed a technology cooperation agreement with Inter-China Chemical, a step to develop a new type of high value-added and world-class rutile TiO₂ specifically designed for plastic. Meanwhile, Zechang Titanium stated that it has fully resumed production and is creating new profit sources.

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The USD/RMB exchange rate in this newsletter is USD1.00=RMB6.9498 on 3 Jan., 2017, sourced from the People's Bank of China. All the prices mentioned in this newsletter will include the VAT, unless otherwise specified.

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Market Dynamics

China's import volume of ilmenite largely increases MoM in Nov. 2016

Summary: In Nov. 2016, the volume of ilmenite imported into China largely increased, with that originating from Senegal and Mozambique rising dramatically. Additionally, the domestic ilmenite prices kept increasing, with all quoted prices from the main producing areas slightly going up.

Import of ilmenite

In Nov. 2016, China imported 326,098 tonnes of ilmenite, up by 149.82% MoM. In particular, the figures from Senegal, Sierra Leone and Mozambique increased dramatically. The average price of imported ilmenite was down by 5% MoM to USD122.77/t.

The international ilmenite price rose by USD5–10/t in Nov., stimulated by the continued prosperity of the TiO₂ business. Domestic import volume dramatically went up MoM in that:

1. The inventories of domestic importers were intense due to their declined import volumes in Sept. and Oct. 2016.
2. The demand for ilmenite was strong, because in Nov. China's TiO₂ producers began preparing for oversea orders before Christmas.

Main import origins:

Senegal: 25,762 tonnes, up by 12911.11% MoM

Sierra Leone: 7,054 tonnes, up by 29291.67% MoM

Mozambique: 76,809 tonnes, up by 560.27% MoM

Australia: 18,706 tonnes, up by 127.07% MoM

According to CCM's research, domestic purchasers were inclined to increase the import volume from Africa in Nov., due to a large price decline in this area. Also, the volume imported from Australia rose MoM thanks to the great demand, though the prices in Nov. were similar to that in Oct.

Production of China's ilmenite

In Nov. 2016, China's ilmenite output reached 354 thousand tonnes, up by 2.60% MoM (vs. 345 thousand tonnes in Oct.), with production mainly concentrated in Sichuan, Yunnan and Shandong provinces.

The ilmenite price in the Panxi area (Panzhihua and Xichang cities, Sichuan Province) rose largely, supported by:

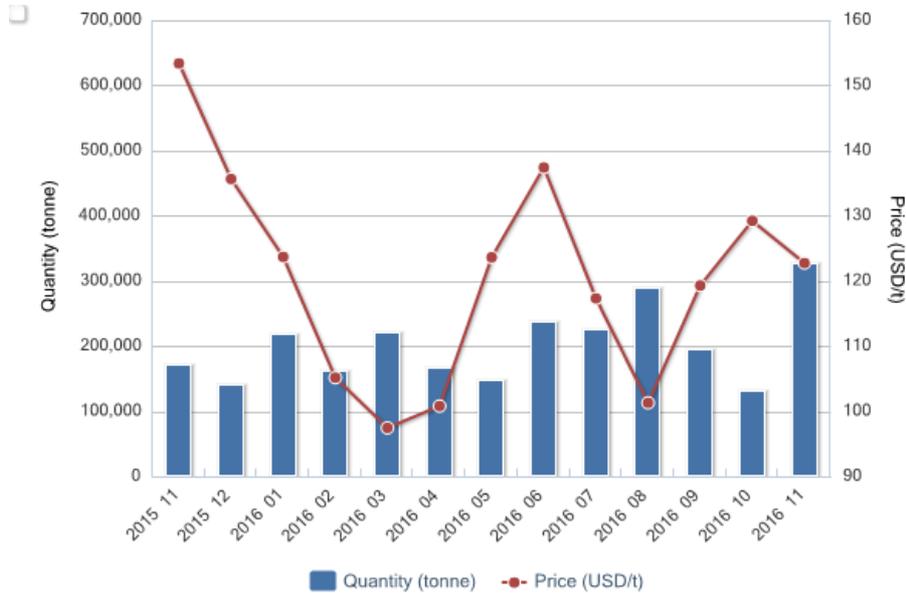
1. The producing costs constantly went up, given the price rises of titanium ore and 39%-40% titanium concentrate.
2. Though the domestic TiO₂ business kept booming, the operating rates in the Panxi area remained low, caused by stricter environmental policies.



In addition, main prices for 46% titanium concentration ore were about USD146.77–152.52/t (RMB1,020–1,060/t).

In Nov., the ilmenite prices of new orders in Yunnan and Shandong provinces increased slightly, influenced by the rising prices in the Panxi area. What's more, the operating rates in Hainan and Shandong provinces declined due to bad weather.

Figure 1: China's imports of ilmenite by month, Nov. 2015-Nov. 2016



Source: CCM & China Customs

Table 1: China's imports of ilmenite by region, Nov. 2016

No.	Region	Volume, tonne		MoM change	Value, '000 USD		MoM change
		Oct-16	Nov-16		Oct-16	Nov-16	
1	Zhenjiang Export Processing Zone	3,080	89,380	+2801.95%	450	11,422	+2438.22%
2	Jiaozuo City, Henan Province	41,905	80,607	+92.36%	3,983	6,356	+59.58%
3	Maanshan City, Anhui Province	/	25,600	/	/	2,944	/
4	Binhai New District(Tanggu), Tianjin City	/	21,837	/	/	2,308	/
5	Ningbo City, Zhejiang Province	13,016	21,000	+61.34%	1,852	3,212	+73.43%
6	Dandong City, Liaoning Province	/	16,135	/	/	1,970	/
7	Qinzhou City, Guangxi Zhuang Autonomous Region	9,734	14,704	+51.06%	1,129	1,864	+65.10%
8	Tongling City, Anhui Province	2,100	12,914	+514.95%	305	1,685	+452.46%
9	Laiwu City, Shandong Province	/	10,978	/	/	664	/
10	Zhanjiang City, Guangdong Province	/	9,000	/	/	1,710	/
11	Haikou City, Hainan Province	/	7,054	/	/	3,008	/
12	Jinzhou City, Liaoning Province	2,860	6,210	+117.13%	329	739	+124.62%
13	Fangchenggang City, Guangxi Zhuang Autonomous Region	700	4,389	+527.00%	66	440	+566.67%
14	Zhangzhou City, Fujian Province	/	2,160	/	/	281	/
15	Other Places, Shandong Province	3,024	1,512	-50.00%	475	242	-49.05%
16	Wanning City, Hainan Province	/	1,499	/	/	633	/
17	Luoyang City, Henan Province	/	600	/	/	378	/
18	Guangzhou City, Guangdong Province	/	334	/	/	44	/
19	Nanhui Area, Shanghai City	105	105	0.00%	82	81	/
20	Kunshan City, Jiangsu Province	53	78	+47.17%	50	51	+2.00%

Source: CCM & China Customs

Table 2: China's imports of ilmenite by port, Nov. 2016

No.	Port	Volume, tonne		MoM change	Value, '000 USD		MoM change
		Oct-16	Nov-16		Oct-16	Nov-16	
1	Nanjing	3,157	89,380	+2731.17%	521	11,422	+2092.32%
2	Zhengzhou	41,905	80,607	+92.36%	3,983	6,356	+59.58%
3	Hefei	10,101	38,514	+281.29%	1,265	4,629	+265.93%
4	Tianjin	10,247	23,949	+133.72%	1,722	2,928	+70.03%
5	Ningbo	13,016	21,078	+61.94%	1,852	3,263	+76.19%
6	Nanning	10,364	19,093	+84.22%	1,185	2,304	+94.43%
7	Dalian	2,860	17,345	+506.47%	329	2,109	+541.03%
8	Jinan	10,833	10,978	+1.34%	1,445	664	-54.05%
9	Zhanjiang	198	9,000	+4445.45%	63	1,710	+2614.29%
10	Haikou	/	8,553	/	/	3,642	/
11	Shenyang	/	5,000	/	/	600	/
12	Xiamen	/	2,160	/	/	281	/
13	Huangpu	70	334	+377.14%	10	44	+340.00%
14	Shanghai	107	105	-1.87%	84	81	-3.57%

Source: CCM & China Customs

China's import volume of TiO₂ largely increases in Nov. 2016

Summary: In Nov. 2016, China's import volume of TiO₂ largely increased MoM, and its export volume slightly rose. The gap between import volume and export volume enlarged from 45,723 tonnes in Oct. to 50,041 tonnes in Nov., and the difference between import price and export price narrowed from USD972/t in Oct. to USD785/t in Nov.

Imports In Nov. 2016, China's import volume of TiO₂ increased by 44.86% to 18,872 tonnes; the import price declined by 6.01% MoM to USD2,611/t. The decrease of imported TiO₂ inventory in the country was the primary factor to the large rise of import volume. On one hand, the consumption volume was large after experiencing the peak season (Sept. and Oct.) in the domestic TiO₂ downstream market. On the other hand, China's average import volume of TiO₂ was relatively low (14,130 tonnes), resulting in the decreased inventories of enterprises.

Exports In Nov. 2016, China exported 68,913 tonnes of TiO₂, a MoM increase of 17.30%, and the price rose by 1.11% MoM to USD1,826/t. Under the background of price rises of international TiO₂ in Nov., China's TiO₂ business was favoured due to its price competitiveness. Domestic exporters were inclined to enlarge export volume to maintain a smooth capital turnover. What's more, the continuous depreciation of RMB was conducive to export business.

Chinese importers In Nov. 2016, the top 20 Chinese TiO₂ importers imported a total of 14,038 tonnes of TiO₂, 74.38% of the national figure. Of these companies, Chemours Chemical (Shanghai) Co., Ltd. ranked the first with an import volume of 6,320 tonnes, up by 77.53% MoM. Chemours Chemical (Shanghai) Co., Ltd., Shanghai Sanchang Import & Export Co., Ltd., Shanghai Gaohang Co., Ltd. and Kingfa Science and Technology Co., Ltd. ranked the second, third, fourth and fifth respectively.

Taiwan ranked the top source of imports, exporting a volume of 4,994 tonnes of TiO₂ to China, up by 56.40% MoM, and with an average price of USD2,522/t, a MoM decrease of 2.40%. The Australia, US, Germany and Japan followed, ranking the second, third, fourth and fifth respectively.

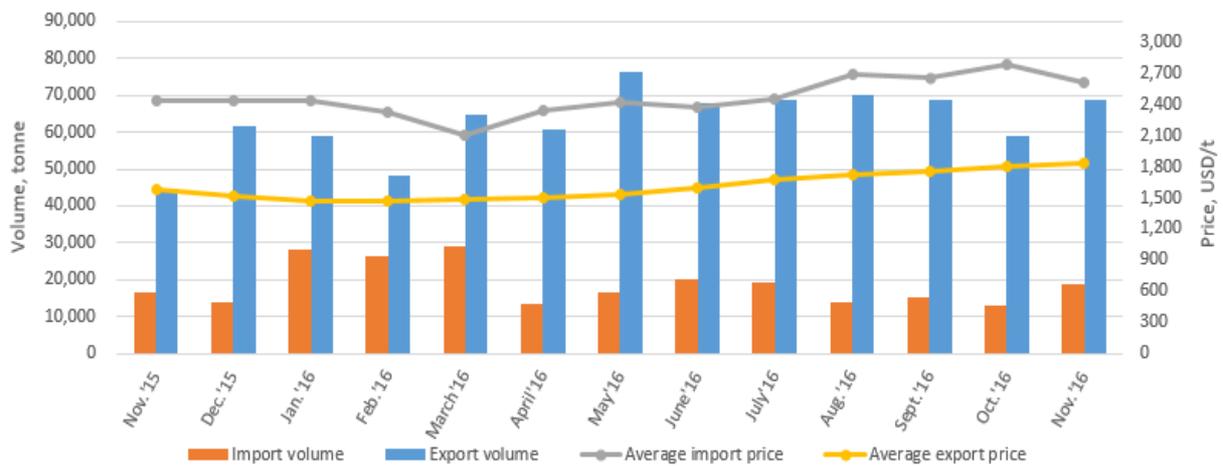
Foreign exporters In Nov. 2016, the volume of TiO₂ imported to China by the top 3 foreign exporters accounted for 73.84% of the total. The Chemours Company (Chemours) maintained its position as the largest single exporter to China, exporting a volume of 9,207 tonnes, up by 59.76% MoM, followed by Cristal Global, Tronox, ISK and Huntsman respectively.

In Nov., TiO₂ export prices from Chemours, ISK, Cristal Global and Tronox all achieved a MoM decrease. Of them, Chemours' export price declined by 1.93% MoM to USD2,484/t. The price of TiO₂ from ISK was down by 27.12% MoM to USD3,099/t.

Chinese exporters In Nov. 2016, the top 5 Chinese TiO₂ exporters exported a total of 37,257 tonnes of TiO₂, 54.06% of the total TiO₂ exported by China. With an export volume of 13,689 tonnes (up by 14.24% MoM), Sichuan Lomon Titanium Co., Ltd. continued to rank the first among all Chinese TiO₂ exporters. Henan Billions Chemicals Co., Ltd. exported 10,391 tonnes, up by 29.05% MoM.

In terms of export destinations, China exported 32,174 tonnes of TiO₂ to the Asia Pacific region, 7,238 tonnes to Europe, 10,397 tonnes to the Middle East, 2,903 tonnes to Africa, 7,355 tonnes to North America and 8,720 tonnes to South America. In particular, exports to South America achieved a 46.58% MoM increase.

Figure 2: China's imports and exports of TiO₂, Nov. 2015-Nov. 2016



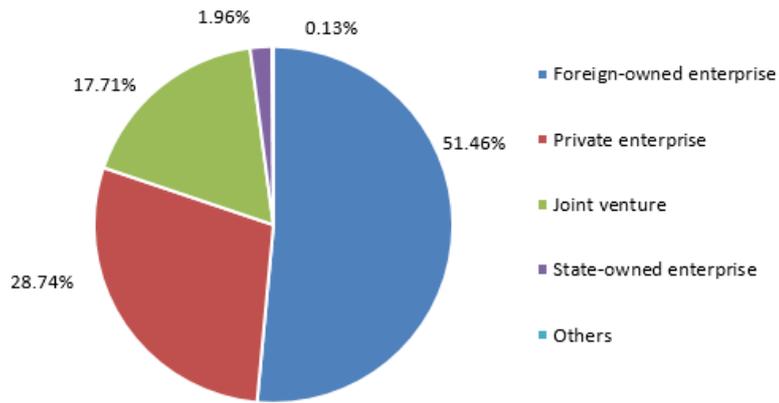
Source: CCM & China Customs

Table 3: Top 5 Chinese TiO₂ importers, Nov. 2016

Importer	Frequency	Volume, tonne	Value, USD
Chemours Chemical (Shanghai) Co., Ltd.	12	6,320	15,899,232
Kingdecor (Zhejiang) Co., Ltd.	3	1,800	3,995,920
Shanghai Sanchang Import & Export Co., Ltd.	4	1,760	3,981,940
Shanghai Xiangjie Import & Export Co., Ltd.	3	240	639,800
Global International Trading(Shanghai) Co.,Ltd	5	160	392,849

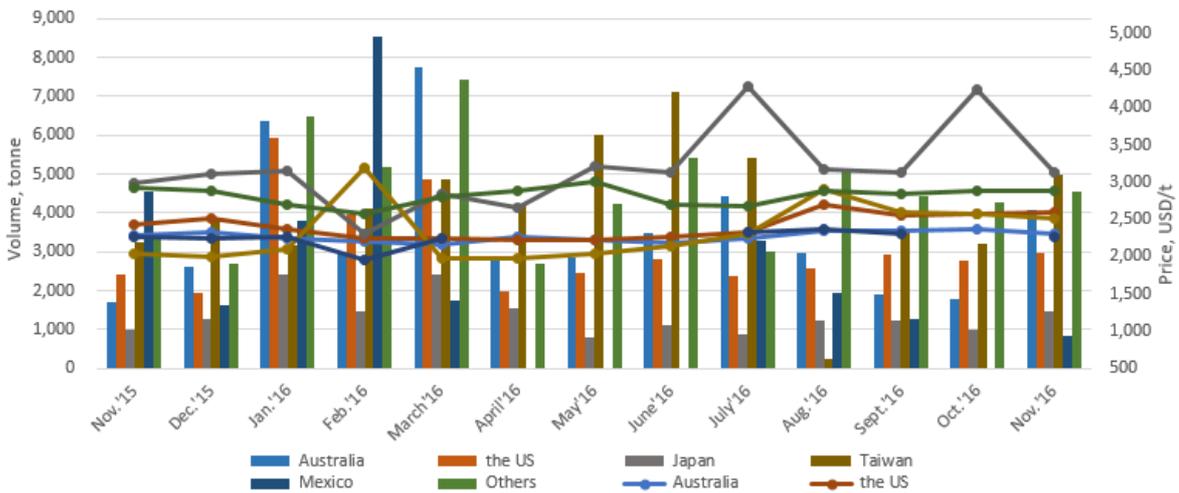
Source: CCM & China Customs

Figure 3: Import volume of TiO2 by company type, Nov. 2016



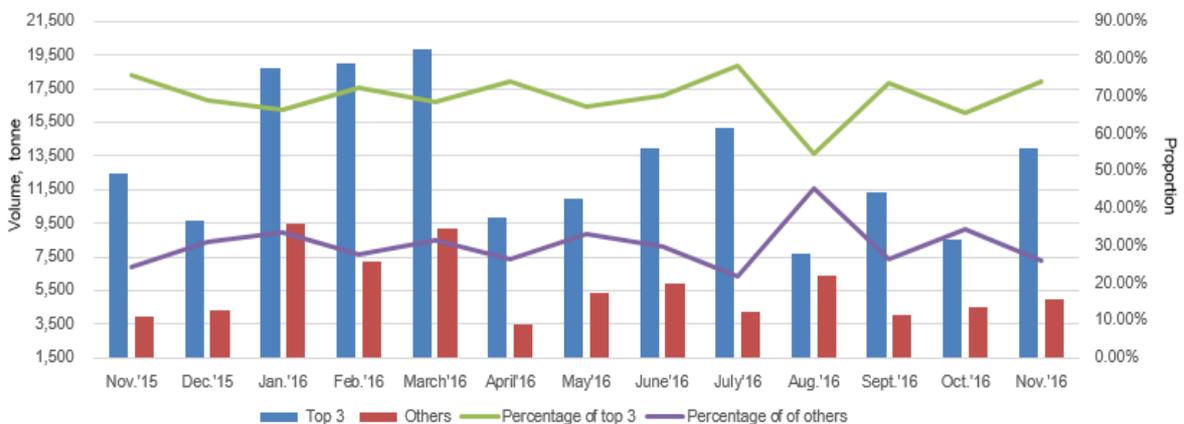
Source: CCM & China Customs

Figure 4: China's imports of TiO2 by origin, Nov. 2015-Nov. 2016



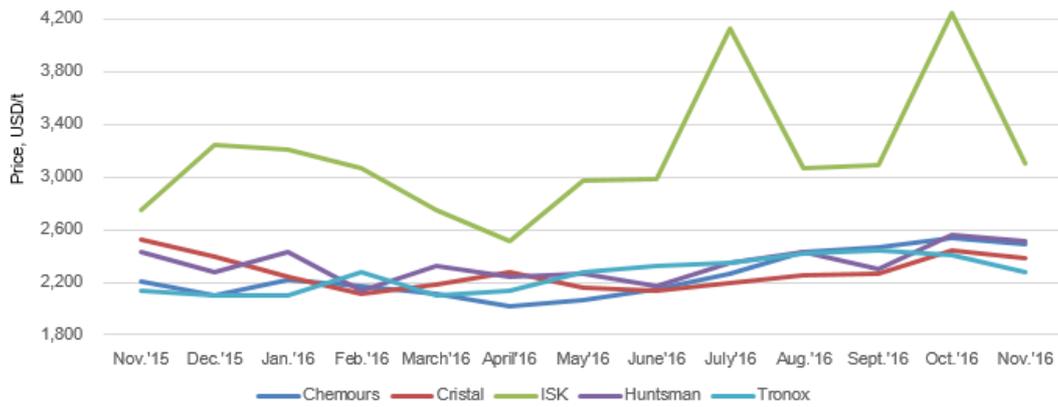
Source: CCM & China Customs

Figure 5: Import volume of world's top 3 TiO2 producers into China, Nov. 2015-Nov. 2016



Source: CCM & China Customs

Figure 6: Import prices of TiO2 from world's top producers into China, Nov. 2015-Nov. 2016



Source: CCM & China Customs

Table 4: Average import price of TiO2 from world's top 5 TiO2 producers into China, Nov. 2016, USD/t

Company	Nov.'16	Oct.'16	MoM change
Chemours	2,484	2,533	-1.93%
Cristal	2,383	2,438	-2.26%
ISK	3,099	4,252	-27.12%
Huntsman	2,518	2,559	-1.60%
Tronox	2,275	2,446	-6.99%
Average	2,552	2,846	-10.32%

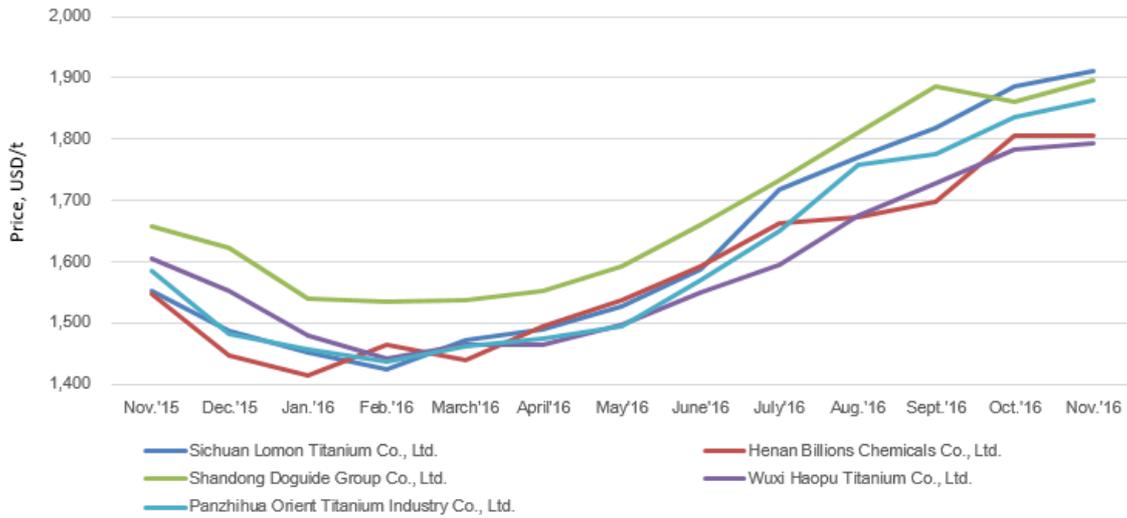
Source: CCM & China Customs

Table 5: TiO2 imports at major ports in China, Nov. 2016

Customs	Volume, tonne	Value, USD	Frequency
Shanghai Port	6,647	16,889,909	102
Huangpu Port	4,259	11,281,567	63
Hangzhou Port	1,906	4,438,918	8
Tianjin Port	2,116	5,368,437	20
Shenzhen Port	903	2,416,342	35
Nanjing Port	635	1,871,537	25

Source: CCM & China Customs

Figure 7: Export prices of TiO2 of major five Chinese TiO2 exporters (by producer), Nov. 2015-Nov. 2016



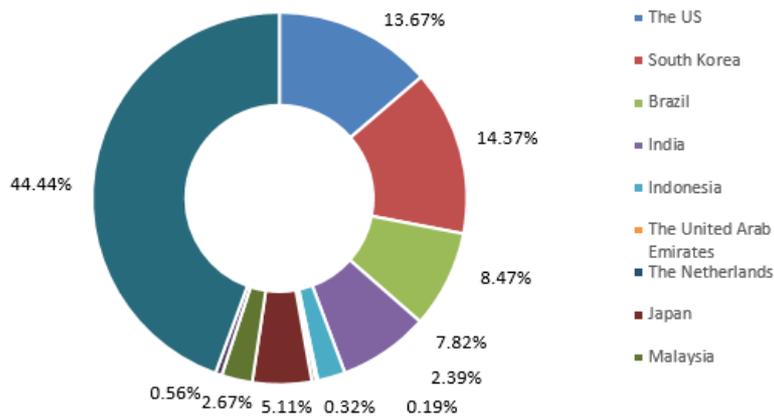
Source: CCM & China Customs

Table 6: Export prices of key Chinese TiO2 exporters, Nov. 2016, USD/t

Company	Nov.'16	Oct.'16	MoM change
Sichuan Lomon Titanium Co., Ltd.	1,910	1,885	1.33%
Henan Billions Chemical Co., Ltd.	1,805	1,805	0.00%
Shandong Doguide Group Co., Ltd.	1,895	1,862	1.77%
Wuxi HaoPu Titanium Co., Ltd.	1,793	1,783	0.56%
Panzhihua Orient Titanium Industry Co., Ltd.	1,864	1,835	1.58%
Average	1,853	1,834	1.06%

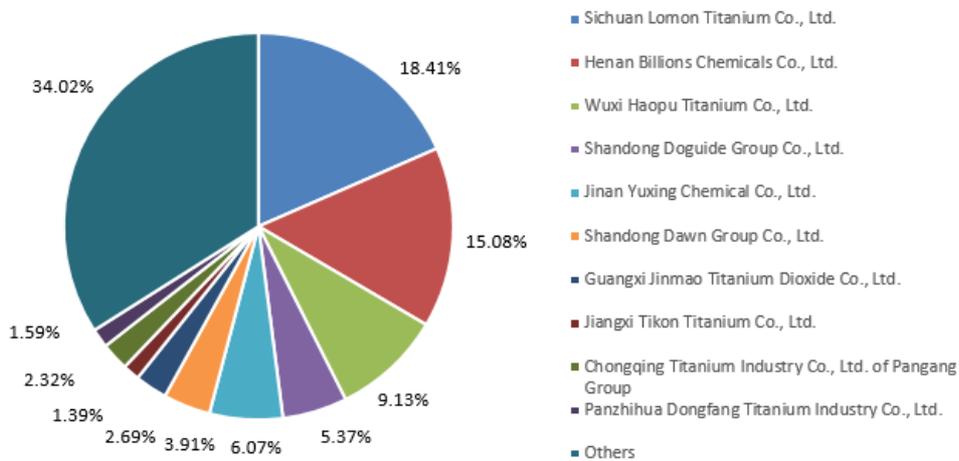
Source: CCM & China Customs

Figure 8: Export destinations of TiO2 from Sichuan Lomon Titanium Co., Ltd., Nov. 2016



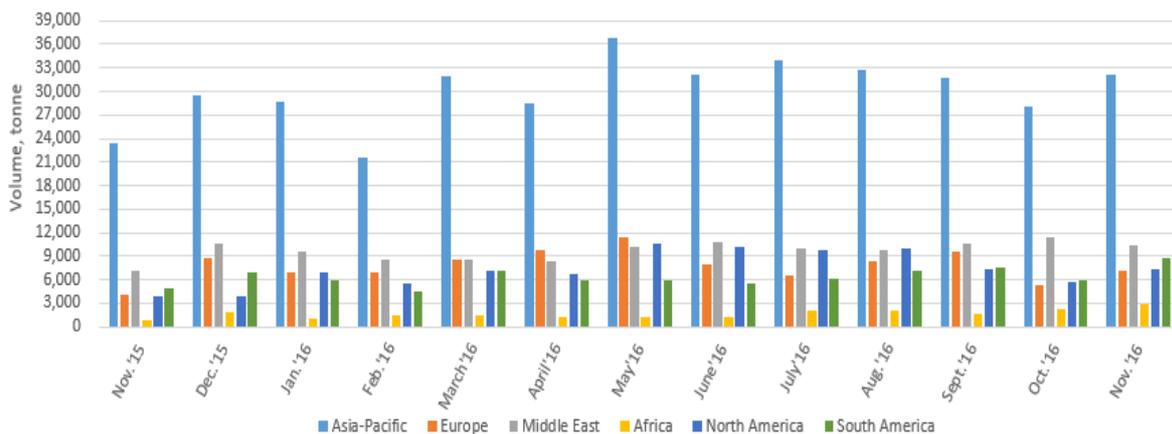
Source: CCM & China Customs

Figure 9: Proportion of TiO₂ export volume by Chinese producers, Nov. 2016



Source: CCM & China Customs

Figure 10: Export volume of China's TiO₂ by destination, Nov. 2015-Nov. 2016



Source: CCM & China Customs

China's TiO₂ price keeps rising in Jan. 2017

Summary: In Jan. 2017, China's ilmenite price kept rising, to some extent, pushing up the price of domestic TiO₂. What's more, the businesses of high titanium slag and acid dissolved titanium slag also showed upward trends.

TiO₂

In Jan. 2017, the price of rutile TiO₂ averaged USD2,373/t in China, up by 5.51% MoM and 36.07% YoY, and that of anatase TiO₂ was USD2,091/t on average, up by 6.90% MoM and 40.34% YoY.

In Jan. 2017, the actual transaction volume in the China's TiO₂ market decreased, but the quotations constantly remained strong. The operating rates of ilmenite producers kept decreasing due to the approach of Chinese Spring Festival (late Jan. 2017) and environmental inspections, despite the increase of ilmenite price in Jan. To some degree, the TiO₂ price was stimulated by it. On 6 Jan., 2017, led by Henan Billions Chemicals Co., Ltd., domestic leading TiO₂ companies raised their prices, a move to convey a



positive signal to China's TiO₂ market which is in the industry slack season now.

CCM is of the opinion that the intense supply of ilmenite in the country will last till early Feb. 2017, and domestic TiO₂ price is likely to stay high for a long period, stimulated by the export business and a shortage of supply in the domestic market.

High titanium slag

In Jan. 2017, the overall shipment in the market kept steady, and the quoted prices rose driven by rising raw materials prices.

Acid dissolved titanium slag

The manufacturers raised their quoted prices by various degree, caused by the price rises of domestic ilmenite and electricity in some regions. In fact, the year 2016 had witnessed a much higher operating rate in the acid dissolved titanium slag market, thanks to the booming TiO₂ business. Currently, the shipment performed well, and prices of new deal may continue going up in the future.

In Jan., quoted prices of 90% high titanium slag and 74-76% acid dissolved titanium slag reached to about USD669/t and USD583/t, respectively.

Ilmenite

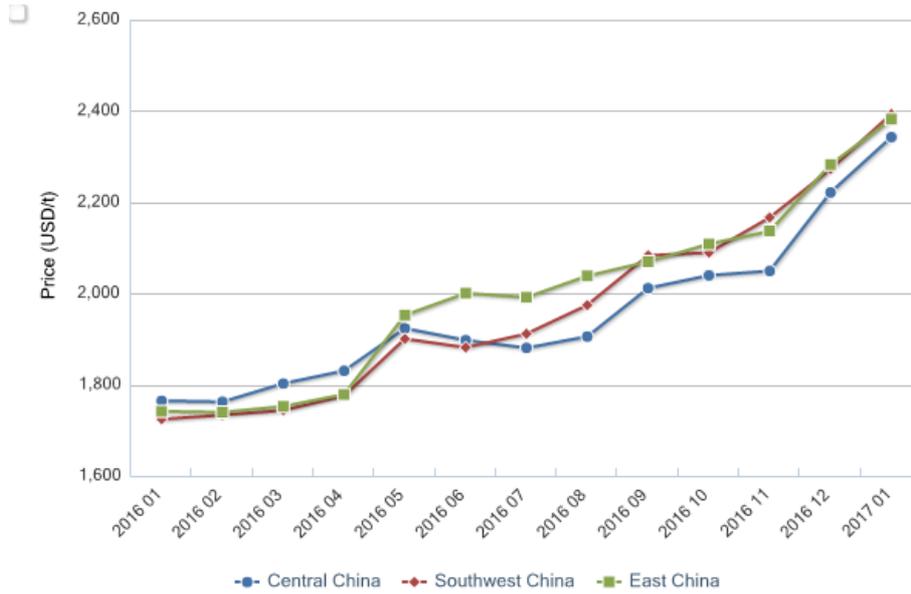
Overall, the market remained stable in China in Jan., and average operating rate slightly declined.

In the Panxi area (Panzhihua and Xichang cities, Sichuan Province), the business gradually weakened, caused by the declining operating rates in the upstream and downstream industries and less purchasing motivation of downstream clients due to high ilmenite quotations. The prices of 46% titanium were stable at USD201.44–215.83/t (RMB1,400–1,500/t). Though some producers are still raising their quotations, the actual transaction won't be changed a lot in the short term.

In Yunnan Province, the ilmenite business performed better, thanks to the intense supply in the Panxi region. The quoted prices of 45% titanium in Yunnan were increased to USD151.08–158.28/t (RMB1,050–1,100/t)

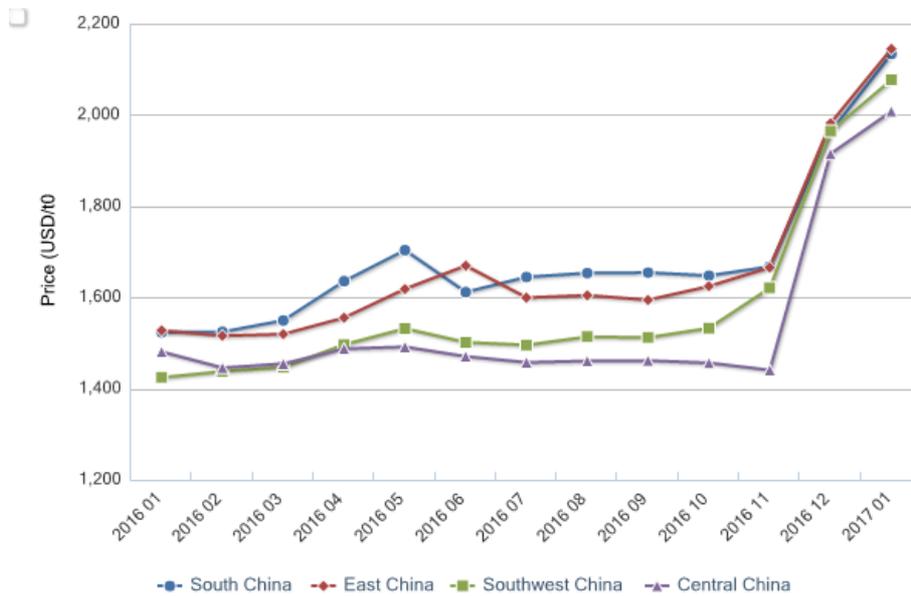


Figure 11: Ex-works price of rutile TiO₂ in China by region, mid-Jan. 2016 to mid-Jan. 2017



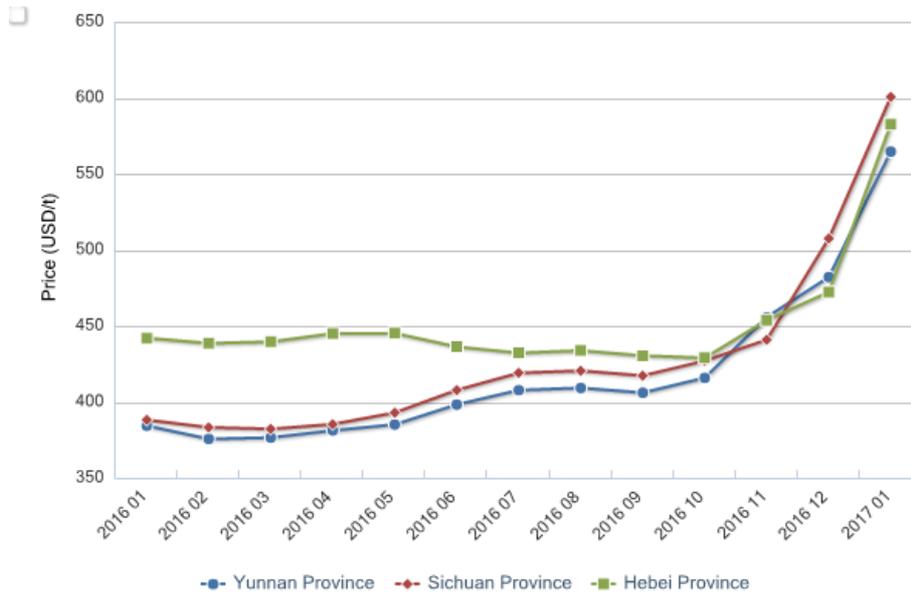
Source: CCM

Figure 12: Ex-works price of anatase TiO₂ in China by region, mid-Jan. 2016 to mid-Jan. 2017



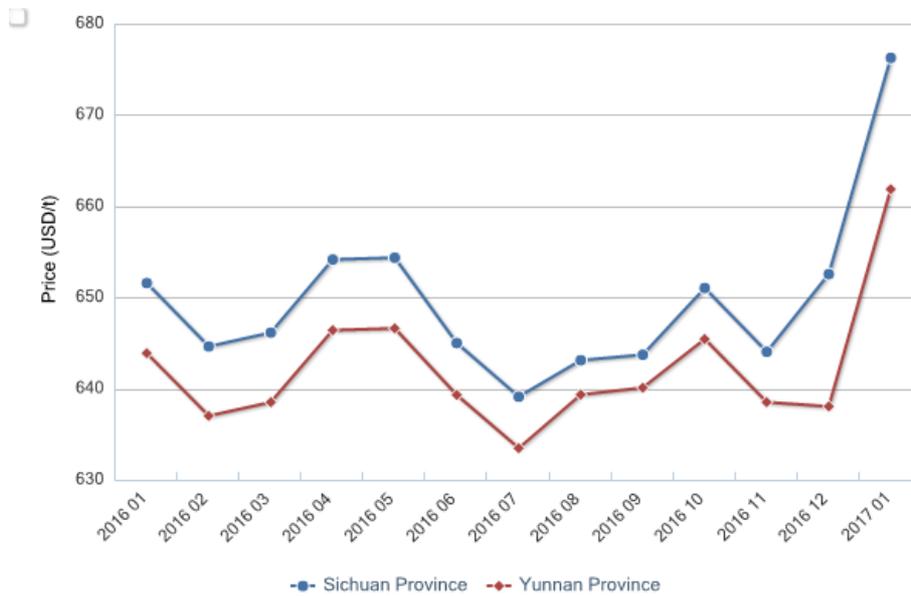
Source: CCM

Figure 13: Ex-works price of titanium slag (74-76%) in China by region, mid-Jan. 2016 to mid-Jan. 2017



Source: CCM

Figure 14: Ex-works price of titanium slag (90%) in China by region, mid-Jan. 2016 to mid-Jan. 2017



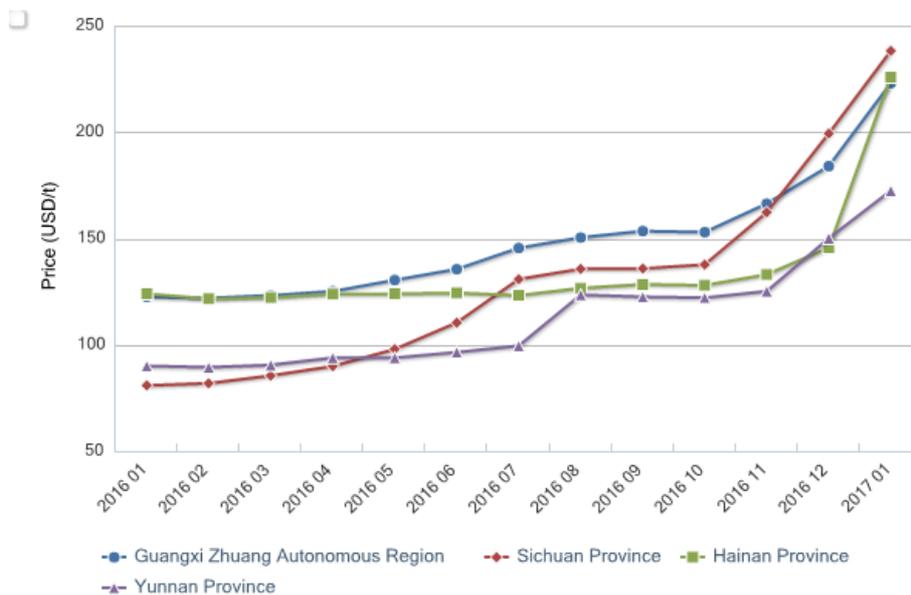
Source: CCM

Figure 15: Ex-works price of titanium slag (92%) in China by region, mid-Jan. 2016 to mid-Jan. 2017



Source: CCM

Figure 16: Ex-works price of ilmenite in China by region, mid-Jan. 2016 to mid-Jan. 2017



Note: Ilmenite grading: 45-47% in Yunnan, 40-46% in Sichuan, 45-54% in Hainan and 50-52% in Guangxi Zhuang Autonomous Region

Source: CCM

Analysis on domestic TiO2 industry in 2016

Summary: The year 2016 had witnessed a strong rebound in China's TiO₂ business, with the products having experienced 10+ rounds of price rises. CCM has made an analysis on the domestic TiO₂ market in 2016.

The year 2016 had witnessed a strong rebound in China's TiO₂ business, including the large rises of product prices, enterprises' financial performance and operating rates, which was totally different from the depressed TiO₂ market in 2015.



In the last round of price rise in 2016 (6 Dec.), Henan Billions Chemicals Co., Ltd. (Henan Billions) raised the prices of all their products. In particular, price of rutile TiO₂ was increased by USD413.89/t (RMB1,000/t) for domestic users and by USD150/t for foreign customers. As of Dec. 2016, domestic rutile TiO₂ price hit USD2,086–2,230/t (RMB14,500–15,500/t), an increase of 51.77% over that in Jan. 2016. With price hikes along the whole year, the TiO₂ business gradually recovered, and both profits and operating rates of enterprises greatly went up.

Thanks to the large price rises of TiO₂, the companies gained considerable profits, though costs for raw materials also rose. According to financials reports of some list companies, Henan Billions obtained a net profit of USD10.22 million (RMB71 million) in H1 2016, up by 52.4% YoY. Besides, Anhui Annada Titanium Industry Co., Ltd. reversed from a heavy loss to a net profit of USD0.58 million (RMB4 million).

In regards to operating rates in the TiO₂ market, the figure had recovered to 80% from 50% during 2016.

Overall, what factors stimulated the booming TiO₂ industry in 2016?

1. Export business constantly drove. The year 2016 had seen an explosive growth in China's TiO₂ export business. According to the latest export data, China exported 68,913 tonnes of TiO₂ in Nov. 2016, up by 17.30% YoY. At present, domestic monthly output is about 200,000 tonnes. It is not a surprise that domestic inventory will easily be eased by export volume accounting for nearly one third of production, and then the prices can be pushed up continuously.
2. Downstream industries performed well. As the largest downstream industry of TiO₂, coating industry is closely related to the real estate sector, so the change of TiO₂ demand could be told by some real estate terminal data. The period of Jan.–Aug. 2016 had seen a YoY 25.5% increase in the sale areas of China's real estate. Driven by the property industry, a YoY 6.92% growth of coating production was witnessed in Jan.–July 2016, with the output reaching 10.07 million tonnes in China.
3. Suppliers manipulated the market. Actually, suppliers' manipulation also played a role in the 10+ rounds of TiO₂ price hikes in China in 2016, including limiting their production. Behind the price rises, it could be reflected that domestic industry regulation still needs to be improved. For example, despite the continuous price hikes, there was some bargain space for agent and large customers.

Company Dynamics

Zechang Titanium resumes production

Summary: On 16 Jan., 2017, Zechang Titanium signed a technology cooperation agreement with Inter-China Chemical, a step to develop a new type of high value-added and world-class rutile TiO₂ specifically designed for plastic. Meanwhile, Zechang Titanium stated that it has fully resumed production and is creating new profit sources.

On 16 Jan., 2017, Yunnan Zechang Titanium Co., Ltd. (Zechang Titanium) signed a technology cooperation agreement with Inter-China Chemical Co., Ltd. (Inter-China Chemical). According to the agreement, Inter-China Chemical with its proprietary technology, will cooperate with Zechang Titanium to develop a new kind of high value-added and world-class rutile TiO₂ specifically designed





for plastic. In addition, Zechang Titanium revealed that it has changed its name to "Kunming Donghao Titanium Co., Ltd." and fully resumed production. It also stated that its main product R-251 is being manufactured and the product performance has recovered to its previous high standard.

Reportedly, founded and beginning production in 2010, Zechang Titanium was the only one enterprise that produced high-quality TiO_2 in Yunnan Province, with a capacity of 50,000 t/a rutile TiO_2 and a reserve of 400,000 tonnes of titanium ore. In Jan. 2015, however, it was ordered to fully suspend production due to its debt issues and construction of waste residue field without permission.

In Oct. 2016, Zechang Titanium began to plan on resuming production and cooperating with Inter-China Chemicals. The new cooperated TiO_2 is featured with blue base and high dispersity, targeting at high-end application markets, such as the mill base sector. About Inter-China Chemicals who was founded in Dec. 2014, it is mainly engaged in the technology research, development, transfer & application test for TiO_2 and other chemicals. Currently, it has established a CMA TiO_2 application laboratory, and collaborates with some domestic leading TiO_2 companies, including Henan Billions Chemicals Co., Ltd. and Shandong Doguide Group Co., Ltd. In regards to the cooperation with Zechang Titanium, Inter-China Chemicals expresses that it plans to continue providing Zechang Titanium with technologies in other high-quality products and special products

CCM believes that this cooperation is a sign that Zechang Titanium is focusing on improving its product mix and creating new profit sources following its fully resuming production at the beginning of 2017. Under the present prosperous TiO_2 business, the company shifts its target to high-end application markets, a move to speed up its strategical transformation. Such practice may also offer a good model for some other TiO_2 companies at present.

The year 2016 had witnessed 10+ rounds of TiO_2 price rises in China, which brought considerable profits to most domestic TiO_2 companies. However, under the background of supply-side reform and stricter environmental policies, the development methods in the traditional industries, represented by "small margins and quick returns", are gradually malfunctioning. The financial performances are not positive for those enterprises that lack their own brands, high added-value products, advanced technologies and standard environmental protection equipment. In this context, China's main TiO_2 producers invested more, by various degrees, in the product research and development or the construction of chloride process TiO_2 production line in 2016. What's more, some small- and mid-sized enterprises, represented by Zechang Titanium, want to enhance their competitiveness by inputting more into technology development and brand promotion.

Pangang Vanadium Titanium faces risk of listing suspension in 2017

Summary: On 30 Dec., 2016, Pangang Vanadium Titanium announced that it would inject USD43.17 million (RMB300 million) in capital into its fully-owned subsidiary Pangang Vanadium, a move to further develop its vanadium business. However, the company is still facing the risk of listing suspension due to the consecutive losses it has witnessed since 2014, despite its recent positive strategic transformation.

On 30 Dec., 2016, Pangang Group Vanadium & Titanium Resources Co., Ltd. (Pangang Vanadium Titanium) announced that it would inject USD43.17 million (RMB300 million) in capital into its fully-owned subsidiary Pangang Group Vanadium Co., Ltd.





(Pangang Vanadium). Following this, Pangang Vanadium will purchase a 100% stake in Pangang Group Beihai Special Ferroalloy Co., Ltd. and a 100% share of Pangang Group (Shanghai) Vanadium Co., Ltd.

Pangang Vanadium Titanium's increase of Pangang Vanadium's capital and its adjustment of its subsidiaries' equity structure primarily defines the company's future development plan in the vanadium business. The company made another business adjustment in early Dec. 2016 when it disposed of its heavy-loss businesses and further developed and expanded its TiO₂ supply chain business. Such steps are aimed at speeding up the strategic transformation of its businesses, turning losses into profits in 2016, and, more importantly, avoiding the risk of listing suspension. At present, the company's assets in the TiO₂ business are as follows:

On 25 Nov., 2016, Pangang Vanadium Titanium's Research and Application Centre for Titanium Dioxide, responsible for research and development of applications and performance for TiO₂ new products, was established in the Chongqing (Maliu) Yanjiang Development Zone.

On 26 Nov., 2016, Pangang Vanadium Titanium announced that its key investment project—Pangang Chongqing Titanium Co., Ltd. (Pangang Chongqing Titanium)'s 75,000 t/a sulfate process TiO₂ technology upgrade—had made great progress and might be able to enter production soon. On 1 Dec., 2016, the company reported that Pangang Chongqing Titanium's 100,000 t/a chloride process TiO₂ project had been put into production. So far, a few crude products have already been produced by the project.

In conclusion, Pangang Vanadium Titanium has made some progress in ridding itself of its heavy-loss businesses and concentrating on the vanadium and titanium businesses, given the booming TiO₂ market in 2016.

However, the listed company suffered consecutive losses in 2014, 2015 and Q1–Q3 2016. Therefore, CCM believes that listing suspension is likely for the company following the disclosure of its 2016 annual report, the reasons of which are as follows:

1. Losses suffered from the sale of assets have surpassed USD719.45 million (RMB5 billion). In Aug. 2016, Pangang Vanadium Titanium issued an overall plan for the sale of assets, intending to sell all its iron ore and titanium sponge assets to Pangang Group Co., Ltd. and Ansteel Mining Group Co., Ltd. at an estimated value of nearly USD1.30 billion (RMB9 billion), and trading follow-up procedures were completed. Total losses incurred from the direct sale of assets and the halt of production have reached USD736.86 million (RMB5.12 billion).

In fact, the company suffered a loss of USD174.68 million (RMB1.21 billion) in net profit over the first three quarters of 2016, and claimed in an announcement that its net profit in 2016 is still likely to be negative.

2. Revenue from some vanadium and titanium products has declined. For Pangang Vanadium Titanium, the vanadium and titanium businesses, which it focused on in 2016, have been key to its profits. However, according to its H1 2016 report, the company's operating revenue decreased by 4.09% YoY, despite a YoY increase in profit margin for its titanium raw materials and chemicals. In the context, sales are crucial to its financial performance. In addition, a YoY 53.58% decrease in revenue and a negative profit margin of -5.28% in its vanadium business were witnessed in H1 2016, which was once much more profitable than its titanium business.





Jilin GPRO invests USD201.44 million in Xuzhou Titanium and Nanjing Jinling

Summary: On 27 Dec., 2016, Jilin GPRO announced that it would invest USD201.44 million (RMB1.4 billion) in Xuzhou Titanium and Nanjing Jinling.

On 27 Dec., 2016, Jilin GPRO Titanium Industry Co., Ltd. (Jilin GPRO) announced that it plans to invest its USD100.24 million (RMB696.62 million) intercourse fund with Xuzhou Titanium Industry Co., Ltd. (Xuzhou Titanium) in this company, with USD1.80 million (RMB12.50 million) increased to registered capital and the rest as capital reserve.

Reportedly, Jilin GPRO's investment of USD100.24 million for Xuzhou Titanium this time comes from a part of its private placement funds in Nov. 2013, and the money mainly goes to Xuzhou Titanium's 80,000 t/a rutile TiO₂ and 300,000 t/a sulfuric acid project. This project has been put into production in 30 Nov., 2015. Following the completion of capital increase, Nanjing Titanium Dioxide Chemical Co., Ltd. (Nanjing Titanium) and Jilin GPRO hold an 80% and 20% stake in Xuzhou Titanium, respectively (Before the investment, Nanjing Titanium had a 100% share of Xuzhou Titanium).

At the same day, Jilin GPRO stated that it has signed a *Capital Increase Agreement for Nanjing Jinling Plastic & Petrochemical Co., Ltd. (Nanjing Jinling)*, with its subsidiary Nanjing Titanium being the investor subject. According to the agreement, Jilin GPRO will acquire a 26.92% stake in Nanjing Jinling by injecting USD100.72 million (RMB700 million) into Nanjing Jinling.

Founded in Aug. 2004, Nanjing Jinling is mainly engaged in the dangerous chemical packing, plastic products and cooling water. Actually, it is also a subsidiary of Jiangsu GPRO Group Co., Ltd., just as Jilin GPRO.

As a listed TiO₂ company in China, Jilin GPRO invested about USD200 million in Xuzhou Titanium and Nanjing Jinling. CCM believes that such moves mainly indicate that:

1. It will further develop and expand its TiO₂ business. According to its Q3 2016 financial report, it achieved an 885.17% YoY increase in net profit during the reporting period (excluding that from financial investment). It's obvious that TiO₂ business plays an important part in the company's revenue. Now, the company inputs capitals into Xuzhou Titanium's 80,000 t/a rutile TiO₂ project, under the background that the booming TiO₂ market in China is likely to continue in 2017. By doing so, it is able to further strengthen supervision to Xuzhou Titanium's operation and management, and to enhance Xuzhou Titanium's investment and financing abilities.
2. It is inclined to launch oversea merger and acquisition (M&A). An official from Jilin GPRO revealed that the company wants to achieve oversea M&A via investing Nanjing Jinling, a move to push forward strategical transformation and create new profit contributors for the company. However, Jilin GPRO has yet disclosed its specific targets overseas.

Henan Billions applies for issuance of USD575.56 million in bonds

Summary: On 26 Dec., 2016, Henan Billions announced that it would apply to National Association of Financial Market Institutional Investors for it to issue bonds of no more than USD575.56 million. Meanwhile, it has also applied to 19 banks for a credit limit of USD3.76 billion.

On 26 Dec., 2016, Henan Billions Chemicals Co., Ltd. (Henan Billions) announced that it would apply to the National Association of





Financial Market Institutional Investors for it to issue less than USD287.78 million (RMB2 billion) in super short-term commercial paper and no more than USD287.78 million (RMB2 billion) in medium-term notes, a move to meet the company's demand for liquid capital by further expanding its financing channels.

Usually, the recipients of super short-term commercial paper and medium-term notes are mainly those non-financial enterprises with high credit ratings. The financial cost of issuing these two bonds is lower than that of bank loans, and the procedure is simpler. If its application is successful, Henan Billions will be supplemented by nearly USD575.56 million (RMB4 billion) in liquid capital in 2017.

On the same day, Henan Billions released the *Notice on Applying to Banks for General Credit Limit*, announcing their intention to apply for a total general credit limit of USD3.76 billion (RMB26.1 billion) from 19 banks, including the Export-Import Bank of China, in order to satisfy their financial requirements for production, operation, and project construction in 2017.

If the company's application for credit is approved, the company will be able to borrow a maximum of USD37.56 billion (RMB26.1 billion) in liquid capital in 2017 for production, operation, and project construction.

CCM believes that Henan Billions' applications for bond issuance and for a bank credit limit will likely be approved, considering its great increase in financial performance in 2016 and as a result of some supporting governmental policies.

- According to its Q3 2016 financial report, released on 28 Oct., 2016, from Jan. to Sept., Henan Billions achieved a revenue of USD292.39 million (RMB2.03 billion), up by 6.96% YoY. In addition, a company official stated on an investor platform that the company's product gross margin would increase following the latest price rises announced on 6 Jan., 2017. The company's high level of performance has aided in the acquisition of financing.

- Supporting governmental policies have also played an important role in strengthening Henan Billions' financing ability. For example,

On 10 Jan., 2017, the company revealed that it had received a special state grant of USD0.22 million (RMB1.50 million) for environmental protection.

On 26 Dec., 2016, Sichuan Lomon Titanium Co., Ltd. and its subsidiary obtained a government grant of USD1.35 million (RMB9.40 million) for the construction of Panzhuhua Vanadium&Titanium&Magnetite Comprehensive Utilisation Demonstration Base.

It is comparatively easier for leading enterprises in the industry to get benefits from national industrial transformation and upgrade.

Henan Billions adjusts 2016 predicted financial performance

On 17 Jan., 2017, Henan Billions Chemicals Co., Ltd. (Henan Billions) adjusted its predicted financial performance of 2016, the newly estimated net profit USD67.34 million–75.36 million (RMB468 million–524 million), up by 320%–370% YoY.

According to its previous estimation released on 28 Oct., 2016, the predicted net profit in 2016 was USD56.12 million–64.14 million (RMB390 million–446 million). As to the reasons for adjustments, Henan Billions stated that the large YoY price rise of TiO₂ was the main factor, and the exceeded expectation of performance of its subsidiary Sichuan Lomon Titanium Industry Co., Ltd. in 2016 also played a role.





Baoji Titanium turns losses into gains in 2016

On 5 Jan., 2017, Baoji Titanium Industry Co., Ltd. (Baoji Titanium) released its predicted financial performance of 2016, the estimated net profit USD3.60 million–7.91 million (RMB25 million–55 million), which means that the company has managed to turn losses into gains compared with 2015. In regards to the reasons, Baoji Titanium mainly attributed the change to its dealing with three real estate businesses which were not related to its main business. Besides, both the largely increased proportion of its new products and the improved product mix in the Q4 sales played roles in the company's better performance in major business.

Founded in July 1999, Baoji Titanium is mainly occupied in the production and selling of rare metals materials, including titanium and titanium alloy. In 2016, Baoti Group Co., Ltd. (Baoji Titanium's parent company) provided titanium alloy materials for China's Long March 5 Series Launch Vehicle, and made breakthroughs in several key technologies of titanium alloy.

Sichuan Lomon receives USD1.35 million governmental subsidy

On 26 Dec., 2016, Henan Billions Chemicals Co., Ltd. (Henan Billions) announced that its subsidiary Sichuan Lomon Titanium Industry Co., Ltd. (Sichuan Lomon), and Sichuan Lomon's fully-owned subsidiaries Sichuan Lomon Mining Industry Co., Ltd. (Sichuan Lomon Mining) and Xiangyang Lomon Titanium Industry Co., Ltd., have received a governmental subsidy of USD1.35 million (RMB9.40 million) recently. As of the announcement day, these funds have already arrived at the companies, which is expected to benefit their profits in 2016 to some extents.

Specifically, 14% of the fund, or USD0.19 million (RMB1.33 million), is for a commercialisation of scientific research findings project and the subsidy for stabilising employment; and the rest USD1.16 million (RMB8.08 million) will be invested in the advance and upgrades of processing equipment and the R&D of technology in the Panzhihua Vanadium&Titanium&Magnetite Comprehensive Utilisation Demonstration Base, construction of which Sichuan Lomon Mining involves in.

Reportedly, this base is one of the 40 mineral resources comprehensive utilisation demonstration bases firstly approved by the Ministry of Land and Resources of the People's Republic of China in 2011, and its construction is jointly undertaken by Panzhihua Iron & Steel (Group)Co., Ltd., Sichuan Lomon and Sichuan Anning Iron & Titanium Industry Co., Ltd.



Several TiO₂ enterprises raise prices in Jan. 2017

On 6 Jan., 2017, Henan Billions Chemicals Co., Ltd. (Henan Billions) announced that it would raise prices of its products. From the day, the prices of sulfate process TiO₂ and chloride process TiO₂ would be increased by USD100.71/t (RMB700/t) for domestic users and by USD100/t for foreign customers.

Following the price rises of Henan Billions, other major TiO₂ enterprises also raised prices. The first round of price hike in 2017 has passed a positive signal to the market. Specifically,

- On 6 Jan., 2017, Shandong Doguide Group Co., Ltd. stated that it would increase rutile TiO₂ prices by USD143.89/t (RMB1,000/t) in the Chinese market and by USD150/t in the international market, and raised the price of anatase TiO₂ by USD71.94/t (RMB500/t).

- On 6 Jan., 2017, Panzihua Dongfang Titanium Industry Co., Ltd. announced that the company would raise prices of rutile TiO₂ by USD143.89/t (RMB1,000/t) for Chinese users and by USD150/t for oversea clients.

- On 7 Jan., 2017, Anhui Annada Titanium Industry Co., Ltd. revealed that it would increase prices of rutile TiO₂ by USD100.71/t (RMB700/t) in the domestic market and by USD100/t in the export market, and raise prices of anatase TiO₂ by USD143.89/t (RMB1,000/t) for domestic users and by USD100/t for foreign customers.

Upstream Industrial Information

Adjustment on Tariff Rates in 2017 introduced

Summary: On 1 Jan., 2017, the *Adjustment on Tariff Rates in 2017* came into effect, benefitting the TiO₂ import and export businesses.

On 23 Dec., 2016, the Tariff Policy Research Centre of the Ministry of Finance of the People's Republic of China announced that the *Adjustment on Tariff Rates in 2017* (the Adjustment) would come into force on 1 Jan., 2017, after approval from the State Council. The Adjustment largely benefits the chemical industry. For example, imports of energy and raw materials will be constantly encouraged, and the import/export tariffs of some chemicals have significantly decreased.

Under the new scheme, the import-export tariff rates for some titanium products are as follows.

Export sector: the temporary tariff rate for ilmenite in 2017 is 10%, the same as that in 2016; the temporary tariff rate for ferrotitanium in 2017 is 20%, down by 5% compared with 2016.

Import sector: the most favoured nation tariff rate and temporary tariff rate for high titanium slag (TiO₂ content > 70% by mass) in 2017 are 6.5% and 0% respectively, the same as those in 2016. The most favoured nation tariff rate and temporary tariff rate for titanium plates, titanium tapes and titanium foils in 2017 are 8% and 4% respectively, the same as those in 2016.

To sum up, China's import/export tariffs for titanium products in 2017 remain similar to those in 2016. Tariffs for TiO₂ exports are unlikely to cause big fluctuations in prices, which is good news for domestic TiO₂ exporters.



In the meantime, some other adjustments have been made in the new scheme besides the tariff rates for some titanium products. On the whole, these changes are conducive to the development of the domestic TiO₂ industry. Specifically,

1. In 2017, the country will continue encouraging the import of advanced equipment, machinery parts, energy, and raw materials. For instance, by setting temporary tariff rates, the import tariff rates for some products can be lowered, such as integrated circuit test separation equipment and thermal cracking furnaces.
2. Conventional tariff rates of some products have been further reduced, including those contained in China's free trade agreements with other countries—including Australia, Korea, Pakistan and New Zealand—and some products contained under the *Closer Economic Partnership Arrangement* signed by mainland China, Hong Kong and Macao.
3. In 2017, temporary import tariff rates for products under the APEC *Environmental Product Agreement* will remain in place. What's more, zero tariff treatment for the least developed countries will continue.

Pangang Group Mining: titanium concentration plant achieves operating profit of USD20.72 million in 2016

In late Dec. 2016, Pangang Group Mining Co., Ltd. (Pangang Group Mining) revealed that its titanium concentration plant produced 481.5 thousand tonnes of ilmenite in 2016, with unit cost down by USD4.85/t (RMB33.68/t) compared with that in 2015. What's more, the plant achieved an operating profit of USD20.72 million (RMB144 million) in 2016, the figure in 2015 was USD16.55 million (RMB115 million).

An official of the plant states that vanadium and titanium resources are the core for the future development of Pangang Group Co., Ltd. (Pangang Group), so the plant focused on producing ilmenite in 2016. What's more, it paid attention to increase the recovery rate of ilmenite and optimise production process and reduce costs last year.

Founded in 1994, Pangang Group Mining is mainly engaged in ore selection and technology development, and it was previously a fully-owned subsidiary of Pangang Group Vanadium & Titanium Resources Co., Ltd. (Pangang Vanadium Titanium). As Pangang Vanadium Titanium had continuously suffered heavy losses since 2014, it sold Pangang Group Mining to Pangang Group in Dec. 2016.

New technology expected to reduce usage amount of TiO₂

On 27 Dec., 2016, Ding Hao, a director of the College of Material Engineering of China University of Geosciences, stated in a seminar regarding to nano-composite materials and industrial application that by combining mineral and TiO₂ micro-nano particles, the usage amount of TiO₂ can be decreased.

According to Ding, some new functional materials can be produced, including mineral-TiO₂ hybrid pigments, composite opaque agents and compound photo-catalyst.

Notably, the usage amount of TiO₂ in mineral-TiO₂ composite white coating can be largely reduced. Such technology is expected to play a role in decreasing the consumption of resource, environment and cost generated from producing and consuming TiO₂. What's more, the physical properties of TiO₂ can be applied in some sectors, such as coating, oil paint and plastic.





Downstream Industrial Information

Top 10 M&A events in coating industry in 2016

Summary: In 2016, coating enterprises faced both pressures and opportunities, and merge and acquisition (M&A) among companies had become normal in the industry.

In 2016, coating enterprises faced both pressures and opportunities, and merge and acquisition (M&A) among companies had become normal, influenced by multi-factors, including rising raw material prices, introduction of new environmental policies and downward economy. Here, CCM summarises top 10 M&A events in the coating industry in 2016, which will affect the coating industry pattern in 2017.

1. On 29 June, 2016, Valspar agreed that Sherwin-Williams could purchase it with about USD9.3 billion. Reportedly, the transaction will be completed in Q1 2017. At that time, Sherwin-Williams will become the largest coating producer in the globe, surpassing two leading enterprises PPG and AkzoNobel.

2. On 18 Aug., 2016, Zhejiang Communication Co., Ltd. (Zhejiang Communication) announced that it would acquire a 100% stake in TPC Holding B.V with USD116.31 million (EUR110.00 million). This is Zhejiang Communication's first try for oversea acquisition, which is expected to promote the company's global sales distribution.

3. On 15 Dec., 2016, AkzoNobel and BASF jointly reported that AkzoNobel would take over BASF's businesses in coil steel, wind turbines coatings and general industrial coatings in the globe and its commercial transport businesses in Europe, Middle East and Africa, following AkzoNobel's acquisition of BASF's coating businesses with USD502.27 million (EUR475.00 million).

4. On 2 Dec., 2016, Beijing Oriental Yuhong Waterproof Technology Co., Ltd. (Oriental Yuhong) announced that it would invest USD25.90 million (RMB180 million) in purchasing a 90% stake in DAW ASIA, a subsidiary of the Germany architectural coating company DAW SE. Following it, Oriental Yuhong can focus on the production and sale of solvent-based and water-based architectural coatings, with the support of DAW SE's advantages in technology, product and brand.

5. On 6 Dec., 2016, Kansai Paint declared that it would invest USD603.60 million (JPY70 billion) in buying all shares of Annagab (Helios's subsidiary) from Ring and other shareholders, a way to realise capital M&A of Slovenian Helios Group. The transaction is expected to complete in March 2017, and Helios will become a key base for Kansai Paint to expand the European market in the future, especially the Russian market.

6. On 26 Sept., 2016, BASF announced that it had completed the acquisition of Guangdong Yinfan Chemistry Co., Ltd. (Guangdong Yinfan). Besides, it founded BASF Coating (Guangdong) Co., Ltd. in Jiangmen City, Guangdong Province, which is responsible for taking over and expanding the automobile refinishing coating business of Guangdong Yinfan.

7. On 1 Nov., 2016, PPG stated that it had reached an agreement with Emerging Europe Accession Fund (EEAF) for PPG's purchase of stake in DEUTEK, a Romanian coating producer held by EEAF. The acquisition, which is planned to be finished in Q1 2017, can fix PPG's weakness in architectural coating.

8. On 27 June, 2016, Axalta Coating Systems announced that it had made a final purchasing deal with Dura Coat Products Inc.





According to the agreement, Axalta Coating Systems would finish the purchase of major stake in Dura Coat Products Inc. in Q3 2016.

9. On 21 Dec., 2016, Chongqing Sanxia Paints Co., Ltd. (Chongqing Sanxia) announced that it would issue stocks to buy a 100% share of Ningxia Ziguang Chemistry Co., Ltd. from Chongqing Ziguang New Material Co., Ltd. The transaction value reached around USD440.37 million (RMB3.10 billion). Following it, Chongqing Sanxia stated that its main businesses will be changed to the production and sale of paint coatings and the trade of chemicals.

10. On 23 Dec., 2016, Dunn-Edwards declared that it had signed a merger agreement with Nippon Paint Holdings Co. (Nippon), the fourth largest coating company in the world. Reportedly, Nippon invested about USD595 million in the merging of Edwards, which is able to provide a new platform for Nippon to expand the American market.

AkzoNobel: new powder coating production base in Chengdu enters into production

On 17 Jan., 2017, a new powder coating production base (Chengdu), invested by AkzoNobel with USD9.72 million (EUR11 million), entered into production. The base will provide users in West China with various kinds of coatings, including those applied in the automobile, construction and furniture sectors.

Reportedly, the base will focus on the production of VOCs-free Interpon powder coating (a brand of AkzoNobel). Meanwhile, it is equipped with vacuum waste water recycling system to promote sustainable production and operation, signifying that it was AkzoNobel's first powder coating plant realising a complete recycle for industrial waste water in China.

As to the construction of the new base in Chengdu City, Sichuan Province, AkzoNobel stated that the rapid development in West China has brought large demand for coatings, and the base is able to provide its quality products and better service for local clients, especially those in the automobile sector.

Currently, there are 6 powder coating production bases for AkzoNobel in China. The seventh one is being constructed in Changzhou City, Jiangsu Province, and is expected to complete in Oct. 2017.





Nippon Paint China and Changrunfa Paint to cooperate in new water-based coating project

On 16 Jan., 2017, Nippon Paint Holdings Co., Ltd. announced that its subsidiary Nippon Investment Co., Ltd. (Nippon Investment) had finished the purchase of a 60% stake in Changrunfa (Huizhou) Paint Co., Ltd. (Huizhou Changrunfa). Following this event, Huizhou Changrunfa became a subsidiary of Nippon Investment.

On the same day, a water-based coating project, cooperated by Changrunfa Paint Co., Ltd. (Changrunfa Paint) and Nippon Paint China, was officially launched in Dayawan of Huizhou City, Guangdong Province. Changrunfa Paint will expand a 20,000 t/a water-based coating production plant in the Dayawan production base. Hoping to get benefits from Nippon's brand recognition and advantages in research and development for water-based coating, Changrunfa Paint is pursuing a further development in the back-end custom furniture market.

Founded in 1999, Changrunfa Paint is engaged in the research, development, production and selling of chemical coatings, now owning several subsidiaries and production bases in Beijing, Shanghai, Chengdu (Sichuan Province) and Huizhou. Actually, Changrunfa Dayawan production base had entered into production in 2012, with a total capacity of its main products—resin and furniture coatings—reaching 90,000 t/a.

Huntsman to establish global water-based research and development centre in China

In early Jan. 2017, Huntsman announced that it will set up a global water-based coating technology research and development (R&D) centre in China. It's another important move for the company in China's coating market, following the completion of its R&D park in Shanghai in 2013, which is located in the Shanghai Minhang Economic & Technological Development Zone.

For Huntsman, it pays much attention to the Chinese market and tries to attach to the water-based coatings users more closely by establishing the global R&D centre in China.

CCM believes that the development of water-based coating is attracting more and more eyes around the world, but its application in China is mainly confined in the interior and exterior wall paint. The development of water-based industrial coating is still at an initial stage, but the demand is largely increasing. It's expected that domestic water-based coating will achieve a rapid growth after making key technology breakthroughs, with a prediction that the water-based coating to occupy 50%+ of domestic market share in the coating industry in 5–8 years.





MIIT introduces new policy to encourage water-base coating's substitute for oil-based coating

On 26 Dec., 2016, the *List of Toxic and Hazardous Materials (Products) Substitutes Encouraged by the State (2016 Edition)* (the *List*) was jointly issued by the Ministry of Industry and Information Technology of the People's Republic of China (MIIT), the Ministry of Science and Technology of the People's Republic of China and the Ministry of Environmental Protection of the People's Republic of China, a policy to decrease and avoid the generation of pollutants from the source by guiding enterprises to continuously develop and use green raw materials and decrease the content of toxic and hazardous material in their products.

Reportedly, the *List* includes three main categories—R&D, Application and Promotion, covering the substitutes for heavy metals and organic pollutants. In particular, the water-based coating's substitute for solvent-based coating is mentioned repeatedly. Specifically, in the Application Category, water-borne wood coating is encouraged to replace solvent-borne wood coating; in the Promotion Category, water-based high elastic waterproof coating is advocated to take the place of solvent-based polyurethane waterproof coating, and water-borne epoxy resin coating is encouraged to substitute for solvent-based epoxy resin coating.

An official from the MIIT stated that the MIIT at all levels will provide policy supports to the application of the above substitutes in the *List* and set up typical demonstration projects, via some fund channels, such as technological upgrading capital, special construction money and green credit.



Journalist: Ping Li
Editor: James Zhang
Chief Editor: Stanley Wang
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17th Floor, Huihua Commercial & Trade Building, No.80 XianlieZhong Road Guangzhou, 510070, P.R.China

Tel: +86-20-37616606

Fax: +86-20-37616768

E-mail: econtact@cnchemicals.com

Website: www.cnchemicals.com