

Note : Key data/information in this page is hidden, while in the report is not.

1.1 Technical review between hydrometallurgy and pyrometallurgy

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In China, both of the hydrometallurgy and pyrometallurgy routes have ever been adopted by ZOC producers in years of ZOC production. However, currently [REDACTED] China's ZOC producers are using [REDACTED] for their ZOC production.

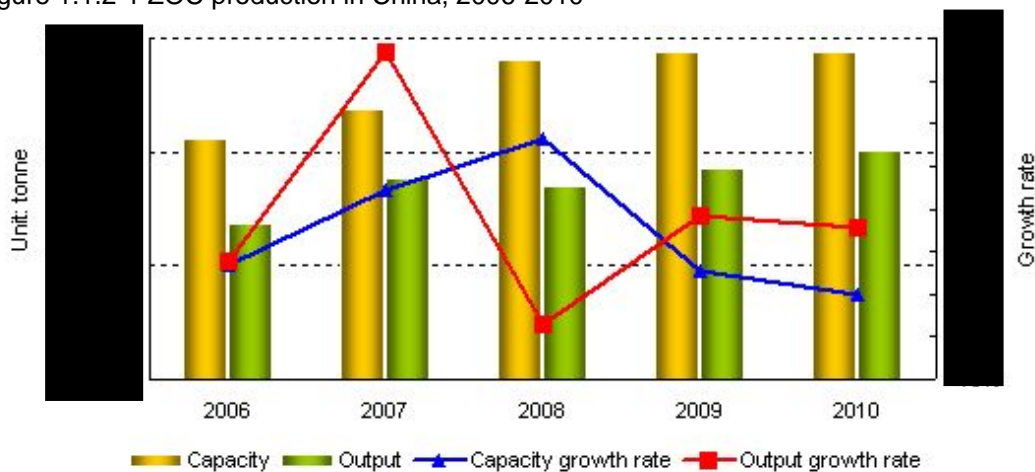
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1.1.2 Development of ZOC production in China

In the past few years, China's ZOC production had kept a fast development with the capacity CAGR of about [REDACTED]% in 2006-2011 and output CAGR of about [REDACTED]% in 2005-2010. However, several factors such as [REDACTED], fierce competition, [REDACTED], rising cost in electricity, [REDACTED], etc. have been tormenting ZOC producers, and most of China's ZOC producers run their ZOC business with gross profit rates of under [REDACTED]%. What's worse, the financial crisis which broke out in 2008 had greatly impacted on the ZOC industry and resulted in production reduction. Recently in late 2010 and 2011, the situation seems to have [REDACTED] attributed to ZOC [REDACTED] resulted from [REDACTED] and [REDACTED].

Currently in 2011, China owns the total ZOC capacity of about [REDACTED] t/a, up by about [REDACTED]% over that in 2006, and the total ZOC output in 2010 is about [REDACTED] tonnes, which is about [REDACTED] times of that in 2005.

Figure 1.1.2-1 ZOC production in China, 2006-2010



Source: CCM International

Table 1.1.4-1 Latest enlargement projects for ZrO2 production in China

No.	Company	Location	Planned capacity	Planned project time	Total investment	Related product in the project	Process of project	Remark
1						ZrO2: XXXXt/a		
2			20,000t/a					
3								
4								
5								

Source: CCM International

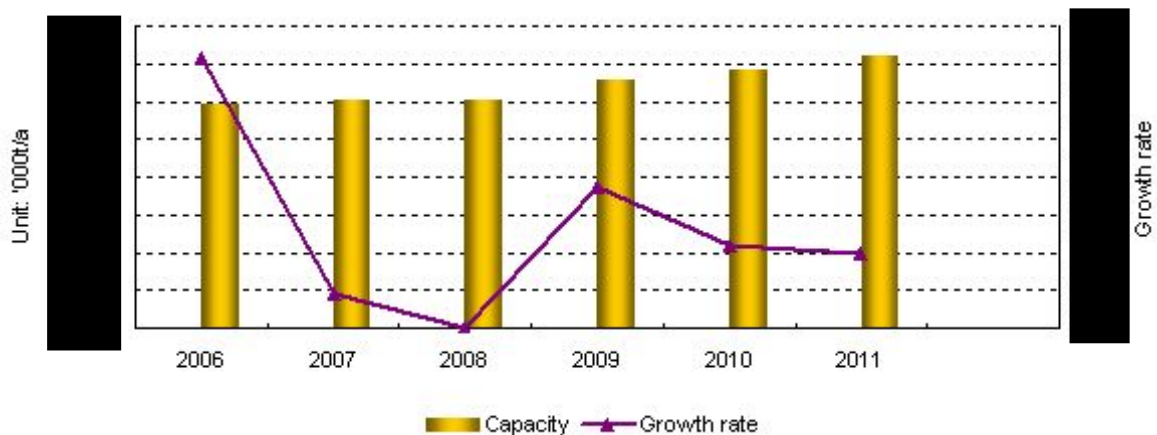
2 Titanium slag

➤ Key players

There are [redacted] key players of titanium slag in the world, namely [redacted] in [redacted], [redacted] in [redacted]. More than [redacted]% of the titanium slag in the world is supplied by the [redacted] producers.

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Figure 2.2-3 Capacity of titanium slag in the world, 2006-H1 2011



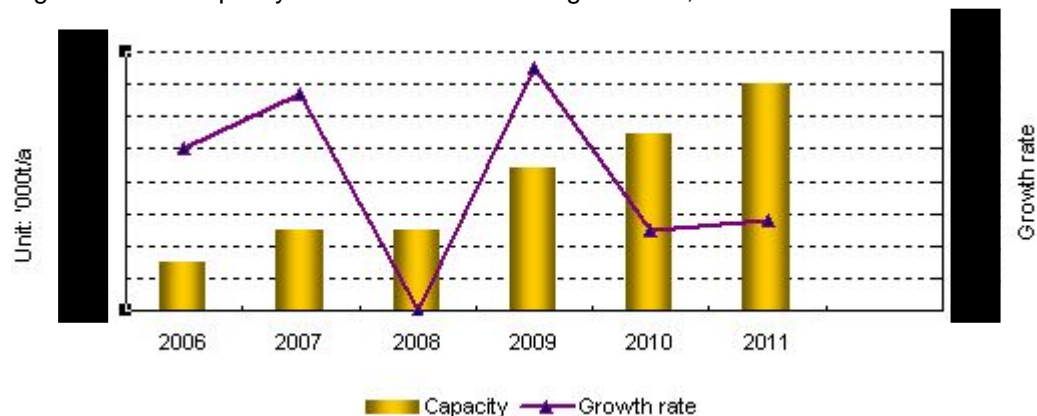
Source: CCM International

2.3 China's titanium slag industry

2.3.1 Production

➤ Production of titanium slag in China

Figure 2.3.1-2 Capacity situation of titanium slag in China, 2006- H1 2011



Source: CCM International

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2.3.2 Key players

As of June 2011, there are about [redacted] producers (with total capacity [redacted]t/a) in China. Major producers are mainly distributed in [redacted], [redacted], and [redacted]. While other producers spread in [redacted], Henan, [redacted], [redacted], etc.

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The top [redacted] players of titanium slag hold [redacted]t/a of capacity in H1 2011, accounting for more than [redacted]% capacity of titanium slag in China; but the output from them only takes up about [redacted]% of the nation's total in 2010, while most of the output is from the producers with [redacted].

3 TiCl4

3.2 China's TiCl4 industry

3.2.1 Production

- Production situation of TiCl4 in China

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From 2008 to 2009, the capacity of TiCl4 hardly increased, due to the poor downstream market and the global financial crisis.

From 2009 to now, the capacity of TiCl4 keeps stable with a slight increase. And the output of TiCl4 in 2010 is over [redacted] tonnes in China, while that in H1 2011 is above [redacted] tonnes. Currently, the downstream market is [redacted] and the supply of TiCl4 [redacted] of the demand.

So lots of producers will [redacted] their output and some idle producers plan to [redacted] their equipment. For instance, in Sept. 2011, [redacted] Co., Ltd. will [redacted] the TiCl4 production line which was [redacted] in 2007 after its launch in the same year.

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3.2.2 Key players

Table 3.2.2-1 Key players of TiCl4 in China, 2011

No.	Company name	Abbr.	H1 2011 capacity, t/a	2010 output, tonne	Location, Province	Technology	Supply to
1	[redacted]	[redacted]	40,000	[redacted]	[redacted]	[redacted]	[redacted]
2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Fluidizing chlorination	[redacted]
3	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Private use
4	[redacted]	[redacted]	[redacted]	[redacted]	Guizhou	[redacted]	[redacted]
5	[redacted]	[redacted]	[redacted]	32,400	[redacted]	[redacted]	[redacted]

Source: CCM International

4 Titanium sponge

4.2 Landscape of world's titanium sponge industry

The titanium sponge industry is a highly concentrated industry. There are only [redacted] countries in the world that can produce titanium sponge, including [redacted], [redacted], China and [redacted]. And there are [redacted] manufacturers out of China.

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Table 4.2-1 Key players of titanium sponge in the world, 2010-H1 2011

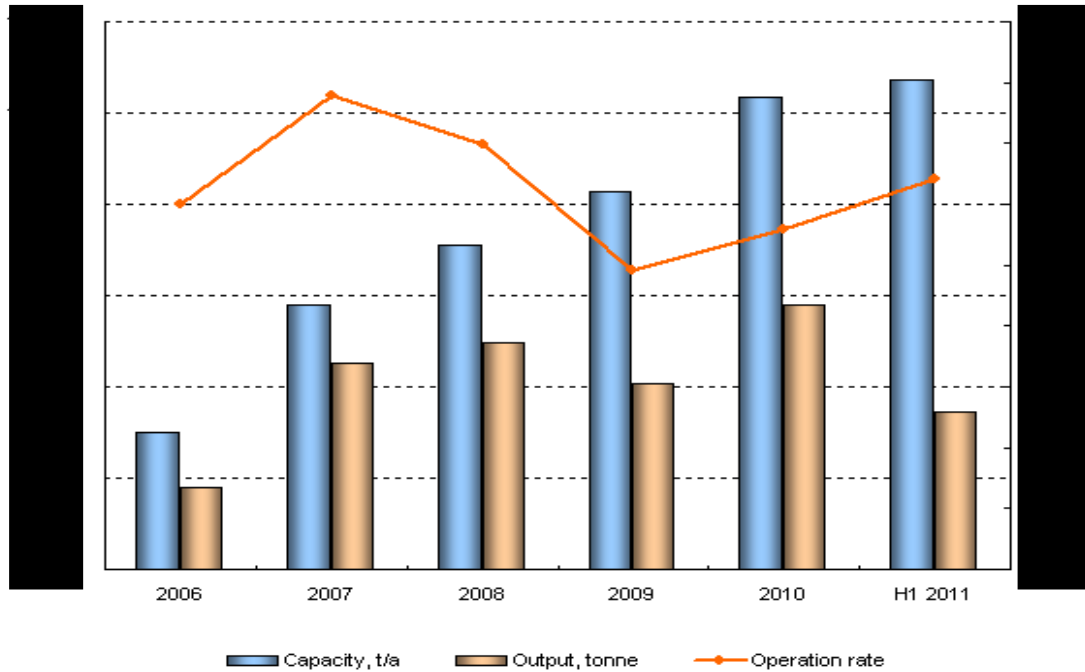
Company	Abbr.	Country	Chlorination	Electrolysis	Capacity in 2010, t/a	Capacity in 2011, t/a
[redacted]	[redacted]	Japan	Fluidizing	[redacted]	32,000	38,000
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	Multipolar	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	Molten salt	[redacted]	[redacted]	[redacted]
Total					[redacted]	[redacted]

Source: CCM International

4.3 Production situation in China

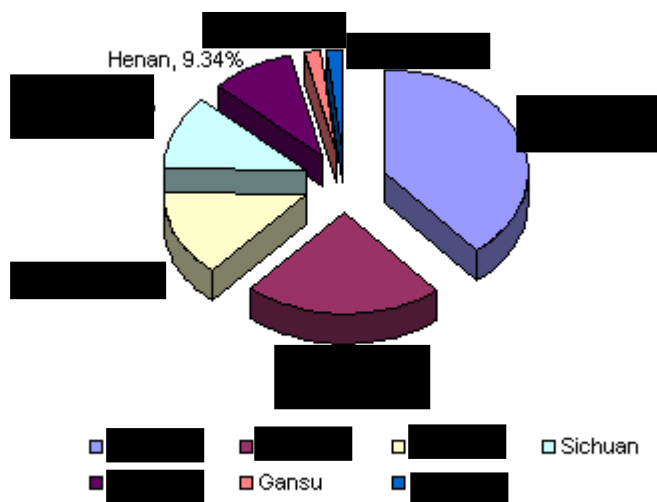
4.3.1 Production information

Figure 4.3.1-1 Capacity and output of titanium sponge in China, 2006-H1 2011



Source: CCM International

Figure 4.3.1-2 Distribution of titanium sponge capacity by province in China, H1 2011



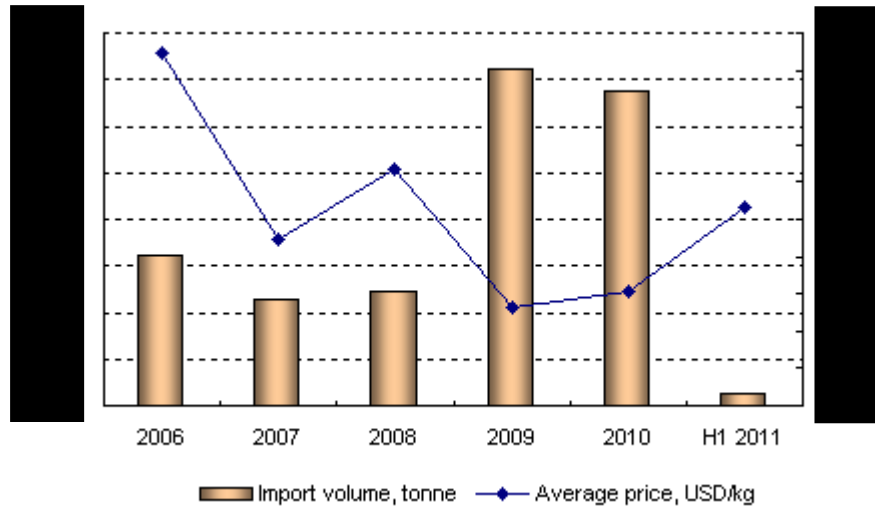
Source: CCM International

4.4 Import & export analysis of 2010 and 2011

4.4.1 Import analysis

The import volume of titanium sponge in China stayed at a relatively low level in 2006, 2007 and 2008. Then it dramatically raised in 2009, and remained in H1 2010. But the import volume drops to only [redacted] tonnes in H2 2010, from [redacted] tonnes in H1 2010. Moreover, the volume falls to only [redacted] tonnes in H1 2011.

Figure 4.4.1-1 Import volume and price of titanium sponge in China, 2006-H1 2011



Source: CCM International, China Customs

4.5 Investment opportunity in China

4.5.1 Investment environment analysis

➤ Risk analysis

Table 4.5.1-1 Michael Porter's five force analysis of titanium sponge investment risk in China, 2011

Item	Description	Conclusion
Raw material supply	According to different processes adopted by enterprises, raw materials vary quite a lot to producers.	Raw material supply is
Bargaining power of buyer	In China,.....	.....
Barriers to new entrants	The barriers to new entrants are mainly embodied in..... .	.....
Threat of substitute products	.....	.....
Rivalry among competing producers	.....	.....

Source: CCM International

5 Titanium metal products

5.2 Production

Table 5.2-1 Production situation of top ten titanium ingot manufacturers in China, 2010-H1 2011

No.	Manufacturer	Abbr.	Location	Capacity'2010 t/a	Output'2010 tonne	Capacity'2011 t/a	Output'H1 2011 tonne
1	Baoji Titanium Group Co., Ltd.	Baoji Titanium					
2			Shanghai	4,000			
3							
4							
5							
6							
7							
8							
9							
10				2,000			
11	Others	/	/				
Total							

Source: CCM International

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Figure 5.2-2 Output of titanium metal products in China, 2006- H1 2011



Source: CCM International

5.5 Import & export analysis

5.5.1 Import

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Up to June 2011, the import titanium tube volume is [REDACTED] tonnes, accounting for about [REDACTED]% of total import volume in China. From 2006 to 2010 in China, the volume share of import titanium tube is more than [REDACTED]%, especially in 2009, even reaching [REDACTED]%. Most of the import tube is titanium welded tube, which is massively needed in China. It is widely used in chemical industry. With the fast development of chemical industry, more and more titanium tube is needed in China.

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6 TiO2

6.2 Landscape of world's TiO2 industry

Table 6.2-1 Key players of TiO2 in the world, 2010

No.	Company	Abbr.	Location of the plant	Capacity, t/a	Technology
1	DuPont Titanium Technologies	DuPont	[REDACTED]	[REDACTED]	Chloride process
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	92,000	[REDACTED]

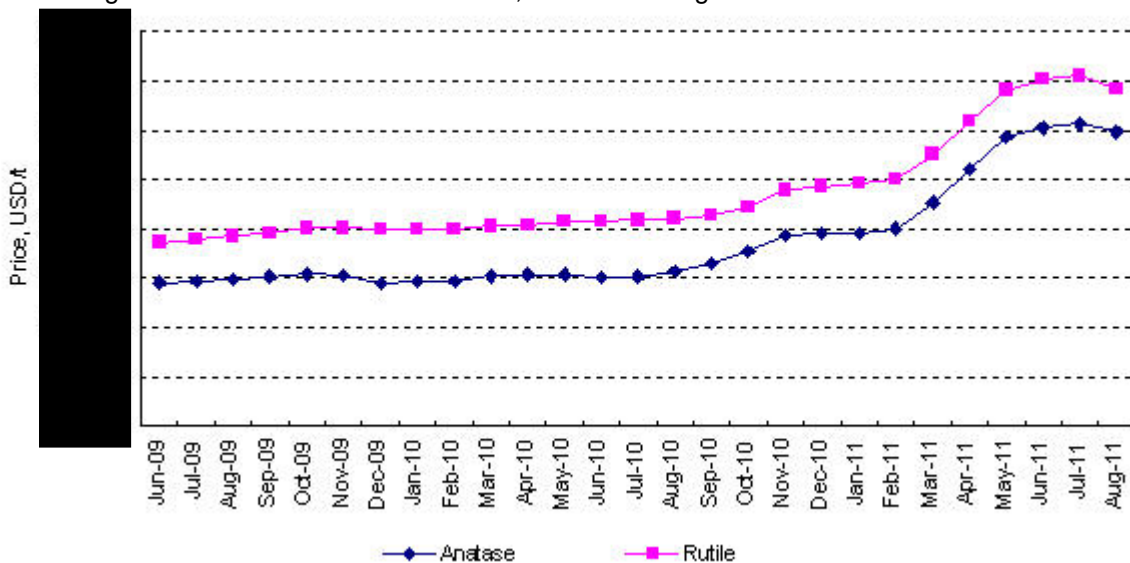
Source: CCM International

6.3 Production situation in China

6.3.1 Production information

In the past five years, the production of TiO2 in China witnessed a rapidly increasing trend. From 2006 to 2011, TiO2 capacity increased from [REDACTED] t/a to [REDACTED] t/a, with the CAGR (compound annual growth rate) of [REDACTED]%; from 2006 to 2010, the output increased from [REDACTED] tonnes to [REDACTED] tonnes, with the CAGR of [REDACTED]%.
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Figure 6.3.1-5 Price of TiO2 in China, Jun. 2009- Aug. 2011



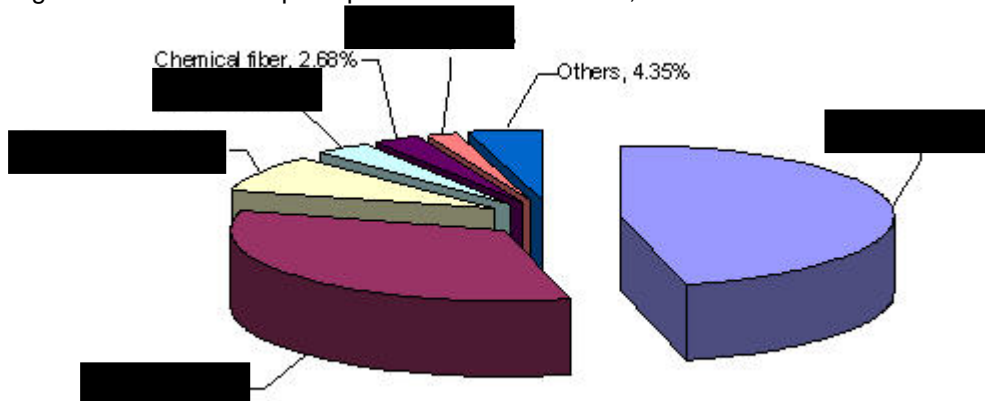
Source: CCM International

Table 6.3.3-2 New projects of TiO2 production with chloride process in China, 2011-2015

Project	Company	Newly added capacity, t/a	Status
300,000t/a TiO2 with chloride process	[REDACTED]	300,000	The first stage
New TiO2 production line	[REDACTED]	[REDACTED]	.....
Expanding capacity of TiO2 production line from	[REDACTED]	[REDACTED]	.....
New TiO2 production line.....	[REDACTED]	[REDACTED]	.....
60,000t/a TiO2	[REDACTED]	60,000	.....
[REDACTED] t/a TiO2	[REDACTED]	[REDACTED]	.....
[REDACTED] t/a TiO2	[REDACTED]	[REDACTED]	.....
Total		[REDACTED]	/

Source: CCM International

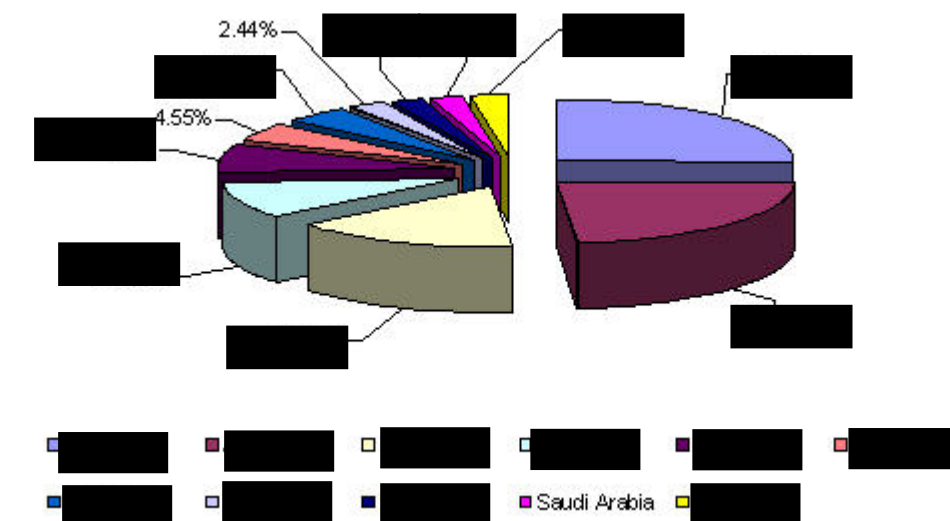
Figure 6.4.2-1 Consumption pattern of TiO2 in China, 2010



Source: CCM International

6.5 Import & export analysis of 2010 and 2011

Figure 6.5.1-4 Share of import volume of TiO2 in China by origin, H1 2011



6.6 Investment opportunity in China

➤ Policy

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Table 6.6.1-1 Relevant policies & legislations on Chinese TiO2 industry, 2010-2011

No.	Issue time	Document	Issue department	Content
1	April 2010	Draft of	CNCIA	Specify that TiO2 factory should keep a minimum capacity of
2	Feb. 2011	China's Twelfth Five-Year Plan	██████	.....
3	April 2011	Draft on .....	██████	.....
4	May 2011	Catalog for .....	██████	.....
5	June 2011	Draft of Catalog .....	██████	.....

6.6.2 Opportunity

According to comprehensive analysis from questionnaires, telephone investigations and site visits, experts summarize five aspects about development of China's TiO2 industry.

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