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Abstract: Briefly, this paper introduces the development of titanium industry in China in 2006, and put stress on the development situation of the largest titanium enterprise of Baoti Group Ltd. in 2006, and gives some suggestion on development of Chinese titanium society in the near future.

Key Words: Chinese titanium industry, 2006, Baoti

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The President of Baoti Group Ltd.
The Chairman of the Board of Baoji Titanium Industry Co., Ltd.

1. The developments of Chinese titanium industry in 2006

In 2006, the total output of titanium sponge of the 10 major sponge producer in China reaches to 18,037 tons, which increase 8,500 tons and has nearly 90% increase compared with year 2005. Among which Zunyi produced 12,200 tons, Fushun shares of 10,200 tons, Chaoyang baisheng shares of 2,300 tons, 2,500 tons of sponge was produced by the the other producers.

The titanium ingot production capacity is about 40,600t in China by the end of 2006 while in 2005 this figure is 30,000 tons. The capacity of Baoji Titanium Industry Co. Ltd. is 12,000t, Baosteel Co. Ltd. Special Steel Branch is 5,000t, Western Titanium Industry Co. Ltd. (Northwest institute of Nonferrous Metals) is 4,000t, Beijing Institute of Aeronautical Materials is 2,000t, Luoyang Institute of Ship Materials is 2,000t/a, and other companies owned 15,600t melting capacity.

Among them, Baoji Titanium Industry Co. Ltd., Baosteel Co. Ltd. Special Steel
Branch and Western Titanium Industry Co. Ltd. are the leading titanium manufacturers in China, they all have the integrated ingot melting production line such as the raw material distribution & mixture system, large Vacuum Arc Remelting furnace (VAR) over 8 tons.

The titanium powder production output is 1,400 tons, which increased 235 tons and 20% compared with 2005.

The output of titanium mill products especially titanium plates and sheet has a tangible increase in 2006. Last year Baoti produced nearly 5,000 tons of mill products, the output of Baosteel and Western Titanium Industry Co. Ltd. have also increased a lot.

According the statistics data from Chinese Society of Titanium, the actual amount of titanium mill product in China in 2006 is 12,800 tons, which increased 2,850 tons and with 28.5% increase compared to 2005.

1.1 The Scale of Chinese Titanium Industry

It is well know that Chinese enterprises had put heavy and fast investments on the titanium sponge producing. Actually the investment on titanium mill products has also been substantially increased. For example, Baoji Titanium Industry Co. Ltd. has invested two set of 10t VAR furnace and one set of EB furnace and its capacity for titanium ingot has reach to 12,000t/a comparing with year 2005 of 6,500t/a.

1.2 Product Structure

Along with the rapid economic development in China during recent years, the Chinese titanium industry has also great improvements in the general technical level. For example, the production of 8~10t large titanium alloy ingot, Ti-6/4 sheet and heavy plate, large titanium alloy isothermal forging has strongly supported for the development of the national economy and defense industry.

1.3 Foreign Trade Situation
The largest volume of imported titanium products are titanium tubes (2,171 tons), plate and sheet (total of 1,290 tons) in China in 2006. The amount of imported titanium sponge and titanium mill product dropped, on the other hand, the amount of exported significantly increased because of the world shortage of titanium supply in 2006. China has already become a net titanium sponge exporter.

1.4 Application of Titanium Mill Product

According to the application distribution of Chinese titanium mill product in in 2006, we can see that the chemical industry still ranks the first largest application area for titanium mill product in China, it accounts for 37% of the total amount. The second largest user is sports and leisure industry and it account for 24%. The third largest user is aerospace industry and it accounts for 10% of the total amount of titanium.

1.5 Technique Progress

The two major titanium sponge manufacturers in China both made great progress in developing new techniques.

In 2006, Zunyi Titanium Industry Co., Ltd. had improved their distillation process, completed the reformation of their electrolysis process and magnesium electrobath, made their 10,000 ton production line perfect.

Fushun Titanium Industry Co., Ltd. completed titanium sponge expansion project in August, 2006, reached 5,000 t/a titanium sponge production capacity, and 10,000 tons of sponge capability will be formed by the end of 2007.

2、Brief introduction of Baoti Group

Baoti Group is the most integrated titanium mill products manufacturer in China equipped with the state of art facilities. Baoti Group has taken part in almost all the
Chinese new titanium alloy research and industrialization works, it occupies most shares of the domestic market and its aviation and aerospace products occupy 95% of the domestic market. In recent years, Baoti Group had made rapid growth, in 2006 its sales income was 400 million US Dollars while in 2005 was 263 million US Dollars. Baoti Group had launched big investment plans within the next two years, including the 10,000 tons open die forging press, Titanium Strip cold rolling Line and purchase of Titanium sponge company. total investment will reach to 400 million US Dollars. In 2007 Baoji Titanium has purchased additional 4 set of 10 tons VAR furnace thus by the end of 2007 its ingot melting capacity could reach to 20,000 tons.

3、Further improvements

Chinese titanium industry has entered into a period of rapid development. Both titanium sponge and titanium mill product even the downstream products have become hot spot for investment in China, this tendency will be good to global titanium industry. But we shall pay more attention to the hidden trouble resulting from the over-heated investment.

1）Lack of research on titanium sponge processing method

In general, the smelting technique for titanium sponge in China is in consistent with the world processing, but we should put more effort and do research work on developing new processing method to reduce the cost.

2）Strengthen the Environment protection

The sponge processing method needs to use large quantity of chlorine and may cause environment pollution. To make the Chinese titanium industry have a long-term and healthy developments, the sponge manufacturers should pay more attention on environment pollution controls.
3 ) Be aware of the low level and over-heated repeat investment in titanium industry

Due to the strong demands on titanium sponge in recent years, especially in 2006, many investors rush to invest in the titanium sponge production. Many investments are under lower-level and repeated, this is a waste to the resources and at the same time increase the environment pollution. On the other hand, the unreasonable investment on titanium mill product may also be a big capital waste.

4 ) Strengthen the alliance between upstream and downstream companies

The cooperation between raw material suppliers and titanium producers is not close enough, the loose economic contact will have some effect on the developing of Chinese titanium market. We need to further strengthen the alliance between upstream and downstream companies to make the Chinese titanium industry have long term developments.

5) Countinously improve the quality

Improve the product’s quality is essential to the healthy development of Chinese titanium industry. We should countinously improve the quality, keep in path with the international specifications, provide better service to the customers all over the world.
THE DEVELOPMENT REPORT OF CHINESE TITANIUM INDUSTRY IN 2006

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CHINESE SOCIETY OF TITANIUM, ZIRCONIUM AND HAFNIUM

Chinese Society of Titanium, Zirconium and Hafnium

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1. The developments of Chinese titanium industry in 2006

2. Chinese largest titanium producer: Baoti Group

3. Further improvements needs to be done
The developments of Chinese titanium industry in 2006

1. Titanium sponge production

TOTAL OUTPUT: 18,037 TONS BY 10 MAJOR PRODUCERS
The developments of Chinese titanium industry in 2006

2. Chinese titanium ingot melting capacity is about 40,600t by the end of 2006

<table>
<thead>
<tr>
<th>Company</th>
<th>Capacity (t/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAOTI</td>
<td>12,000</td>
</tr>
<tr>
<td>BAO STEEL</td>
<td>5,000</td>
</tr>
<tr>
<td>WESTERN TITANIUM</td>
<td>4,000</td>
</tr>
<tr>
<td>BIAM</td>
<td>2,000</td>
</tr>
<tr>
<td>LUOYANG</td>
<td>2,000</td>
</tr>
<tr>
<td>OTHERS</td>
<td>15,600</td>
</tr>
</tbody>
</table>
The capacity and output of titanium ingot in China

<table>
<thead>
<tr>
<th></th>
<th>Capacity</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baoti</td>
<td>16000</td>
<td>12000</td>
</tr>
<tr>
<td>Bao Steel</td>
<td>14000</td>
<td>16000</td>
</tr>
<tr>
<td>WTT</td>
<td>8000</td>
<td>10000</td>
</tr>
<tr>
<td>BAIM</td>
<td>4000</td>
<td>6000</td>
</tr>
<tr>
<td>Luoyang</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>16000</td>
<td>14000</td>
</tr>
</tbody>
</table>

Legend:
- Blue: Capacity
- Purple: Output
The developments of Chinese titanium industry in 2006

3. Titanium mill products output is 12,800t, 28.5% increased compare to 2005.
Titanium mill products output in 2006

- castings: 1,462
- forgings: 461
- wires: 248
- plate & sheet: 5,670
- tube: 2,334
- bar: 3,098
- others: 607
MAIN ACHIEVEMENTS

1. The scale of Chinese titanium industry have been rapidly enlarged
2. The technical level of Chinese titanium industry is upgrading a lot
3. China is active in the world titanium market
4. Chemical industry is still the largest user in China
5. Titanium sponge processing technique and mill products manufacturing will have further improvements
Brief introduction of Baoti Group

- The leading titanium mill products manufacturer in China equipped with the most integrated production line
- Occupied most of the domestic market
The products distribution of BAOTI

- Tube: 15%
- Bar: 26%
- Forming: 2%
- Casting: 1%
- Others: 5%
- Plate & Sheet: 51%
Conclusion

Along with the rapid developments of Chinese titanium industry, we need to make further improvements on the following aspect:

1. Pay more attention on the research of titanium sponge processing method
2. Strengthen the environment protection on producing titanium sponge
3. Control the low level and over-heated repeat investment
4. Enhance the alliance between upstream and downstream companies
5. Continuously improve the product’s quality