Development of Cemented Carbide Industry of China

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Abstract

Through the review of developing course of China cemented carbide industry, the writer of this paper at the first time generalizes it into five stages.The writer analyses China cemented carbide industry present status in aspects of produce technology, product structure, operation and management etc. Mean while by analysis of existed shortages in cemented carbide industry, the write considers that it also has three advantages in resource and scale, industry foundation and categories, market and price, and brought out some suggestion and imagination for the future develpment of China cemented carbide industry.

Keywords: cemented carbide, technology, equipment, strategy

1. Review and Research of Development History of Cemented Carbide Industry of China

We can divide Development History of Cemented Carbide Industry of China into 5 stages: rudiment stages (before 1958), growing stage (1958~1980), technical innovation stage (1980~1990), prosperity stage (1990~2000) and strategical recombination & competition stage (2000~present).

1). Rudiment stage (before 1958): At this stage, China started cemented carbide industry history. No scale production at all.

2). Growing stage (1958~1980): At this stage, Zhuzhou Cemented Carbide Plant and Zigong Cemented Carbide Plant put into production in 1958 and 1970 respectively (Both Plants are the two largest plants in China now).

3). Technical innovation stage (1980~1990): At this stage, after series of introduction and innovation, cemented carbide production capacity and specification had great growth, especially the high scale production of deep processing products. Meanwhile, product began to export.

4). Prosperity stage (1990~2000): At this stage, the cemented carbide industry came into a brand new stage. It was represented by three aspects of highlighting of the leading position of state enterprises, disembarking of foreign big companies into China market and emerging of privately managed enterprises. The market competition pricked up gradually.

5). Strategical recombination & competition stage (2000~present): At this stage, the industry recombination process marched faster corresponded. It is obvious that the key concept of this recombination is to extend the “industry chain” of all enterprises from upstream resource to downstream high-tech product.

But, tungsten resource is running low. Since second half of 2004, there comes a skyrocketed price of tungsten ore. And now the global tungsten market is experiencing a test of “China Price”.

2. The Superiority of China Cemented Carbide Industry

1) Source and scale superiority of China cemented carbide industry

According to official published data, by the end of 2003, tungsten reserve (WO_3) of China was 1.4047 million ton and reserve base was 2.8663 million ton. However the tungsten reserve (W content) of China in percentage of world total reserve was 35.5% (1.1 million ton) in 2001. So the writer think that existed tungsten reserve of China is about 32% of world total reserve.

2) Superiority in industry base and production scale

The cemented carbide industry of China possesses superiorities in technology, equipment, talent and product variety. Some equipment (e.g. 1,000t press, dual direction auto press, vacuum furnace, low pressure furnace and spray dryer etc.) has already been self-developed and manufactured. Gap between China and oversea firms reduces.

Nowadays, there are over 300 grades and 40,000 specifications cemented carbide products, which has been well applied in engineering, mechanism, auto, geographic prospecting, petroleum, coal, road construction, electric power and textile industry, covered almost every field of national economy.

3) Superiority in market and price

China will keep on infrastructure constructing before 2050. Therefore, China itself is still a huge market for tungsten and cemented carbide product. Furthermore, because of low cost material, low cost labor force and labor exchange, the cemented carbide production cost in China is very low, consequently made tungsten and cemented carbide products from China have great competitive in domestic and oversea markets.

3. Disadvantage and shortness of cemented carbide industry of China

1) Unreasonable industry structure, low level of process technology and equipment, low automation.

2) Unreasonable product structure, low technique know-how and added value in products and large market share in medium and low class products.

3) Weakness in Science and technology, low R&D capacity and innovation force, just few of independent intellectual property in knockout technique and product.

4）Low administration level, low capital operation ability and strategy decision-making ability, low industrial integrative strength

4. Conclusion

By the development of over 50 years, China cemented carbide industry has come from zero to 41% share of global production. Products are over 300 grades and 40,000 specifications. Processes cover tungsten smelting at the beginning to the down stream process of tool manufacturing, coating and profiled product processing with relatively advanced and integrated equipment system and analysis apparatus. Now there are over 300 enterprises, 25 thousand practitioners producing cemented carbide. Good industry base, large scale production and full specification of product are the key advantages obvious to all. In aspect of export, tungsten and cemented carbide made in China has sold to scores of oversea countries. Some products, such as tungsten smelting products have great performance and competitiveness.

5. Reference

(Omitted)