The market analysis of laundry powder detergent and additives -3-

China Cleaning Industry Association (CCIA)

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(a) Sodium perborate

Sodium perborate is a kind of oxygen bleach, having effects of sterilization and keeping textile colorful. However, its bleaching performance fail to do enough under 60°C, so it is seldom to be used in Chinese oxygen type powder detergent. In addition, boron resources in China are not good and sodium perborate is proved having harmful effects to health and danger to the environment, so in late years its production in China is in a decreasing tendency. Now is about 7,000 tons each year. As shown in Fig.14, in late years either amount of production and growth rate of sodium perborate decreased in China.

According to the statistics of China Customs, the export quantity of perborate is in a decreasing tendency in late years. It is only 7 thousand tons in 2010. Because the most of "perborate" in statistics is sodium perborate, it can be said that the production in China is almost used to export (Tab.5).

Fig. 14 The production and the growth rate of sodium perborate of China in 2006-2010

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<td>8966.53</td>
<td>7970.58</td>
<td>7054.99</td>
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<td>同比增长(%)</td>
<td>/</td>
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<td>2.90%</td>
<td>-11.11%</td>
<td>-11.49%</td>
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Tab. 5 The export volume of sodium perborate of China in 2006-2010

(2) World functional additive market status

(a) 4A zeolite

As an alternative to phosphorus, 4A zeolite has
become the most widely used additive in the world. The United States government first applied 4A zeolite to detergent in 1978, and its production and sales volume increase year by year with phosphorus restriction.

According to a report, now the production of 4A zeolite has reached 500 thousand tons each year, even so with only 50% demand can be satisfied, but its usage is not limited in detergent maybe. In Europe, the countries such as Switzerland, Norway, Germany and Italy have carried out phosphorus restriction thoroughly. Italy has the highest per-capita annual 4A zeolite consumption that is 2.36 kilograms, and the next one is Germany, 1.7 kilograms. According to estimation, the annual consumption of 4A zeolite for detergents in Europe is 650 thousand tons per year. In Asia, Japan and Korea has shifted to non-phosphate powder detergent completely. In some other countries such as Thailand, Malaysia and Indonesia, the percentage of non-phosphate powder detergent completely is also very high. Now in Asia-Pacific region, the total demand of 4A zeolite is about 500 thousand tons (except Mainland China) and annual productive capacity is about 400 thousand tons (except Mainland China).

(b) Enzyme

With the improvement of people’s environmental awareness, enzyme is widely used into detergent all over the world as an additive. In late years, the enzyme market has been expanding. According to a report, in 2009 the world enzyme market was 3.018 billion dollars and in 2010 reached 3.456 billion dollars. Among those, the percentage of enzyme used into detergent is about 40%, and its market reached about 1.4 billion dollars in 2010, increased 57% compared with 2006. Now the production of enzyme is occupied by several major global companies, such as Novozymes (Denmark), Jinengke (a subsidiary of Danisco in China) and DSM. The market share of Novozymes reaches 47% alone. With improvement of the enzyme manufacturing technique and improvement of consumer’s awareness to enzyme product, it is expected that the world market size of enzyme industry will reach 4.4 billion dollars in 2015. By that time, enzyme used for detergent will approaches 2.0 billion dollars (a calculation based on 45% being used for detergent).

(c) Sodium percarbonate / Tetraacetylene diamine (TAED)

(i) Sodium percarbonate

Sodium percarbonate is widely used into powder detergent in some developed countries in Europe and America, its average added ratio is about 12%. About 80% of annual worldwide production is applied to household detergent. According to estimation, in 2006 the worldwide production of sodium percarbonate was about 490 thousand tons and in 2010 it reached about 860 thousand tons, increased 75.5% and annual growth rate is about 15%. It is expected in 2015 the worldwide production of oxygen type powder detergent will reach 12.0 million tons, so the demand of sodium percarbonate will be 2.15 million tons.

Now the major manufacturers of sodium percarbonate in the word are Solvay Interox Ltd., OCI Chemical, Jinke Chemicals Co. Ltd., Kemira KemiAB and Evonik Degussa etc. Among them, the productive capacity of Solvay (Belgium) and OCI (Korea) are 220 thousand tons and 150 thousand tons each year respectively.

Dividing from the consuming market of sodium percarbonate, Europe is the biggest one occupying about 45%. Asia-Pacific region (including Africa and Oceania, not including China) is the second one occupying over 25% (Fig. 15).
(ii) Tetra acetyl ethylenediamine (TAED)

For some reasons, such as prices, tetra acetyl ethylenediamine (TAED) is not added into all powder detergent containing sodium percarbonate. By estimation, TAED is added into about 60% oxygen type powder detergent in the global market. As a bleaching activator, about 85% TAED in the world is used for powder detergent for families, and average addition ratio is about 2.5%. According to an estimation, the world TAED production was about 100 thousand tons in 2010, increased 75% comparing with 2006. It is predicted that the world demand of TAED will reach to about 250 thousand tons in 2015.

Now the major manufacturers of TAED in the world are Warwick Chemicals, Clariant, Jinke Chemicals Co. Ltd., DUBAG etc. Among them, the productive capacity of Warwick (United Kingdom) is 50 thousand tons per year and market share is 45%. Clariant is 30 thousand tons per year and is the second largest company.

Seeing from region, Europe is the largest consuming market of TAED occupying about 65%. America is the second largest one occupying about 10% as shown in Fig.16.

(d) Sodium perborate

Turkey and the U.S. are main producers of sodium perborate in the world. In 2007, the production of Turkey occupied about 35% of the total demand of the world. The U.S. occupied about 29%. In 2008, about 3% of the boron products of the world (mainly is borate) are applied to detergent. Among them, more than half are sodium perborate whose production is about 33.5 thousand tons. Because of the lack of boron resources and sodium perborate is proved having harmful effects to health and potential danger to the environment, sodium perborate is limited and replaced by sodium percarbonate gradually.

4 Development trend of powder detergent of China

In China’s 12th Five-Year Plan, it is filled out that the average annual growth rate of GDP is planned to be 7%, and average annual growth rate of annual percentage growth rate of rural and urban per capita disposable income is planned to be over 7% in the 12th Five-Year period (2011-2015). It is clarified that the growth rate of income should exceed the one of GDP. This will be a significant impact on the transformation of China’s economic structure.

In “12th Five-Year Plan in China cleaning industry” published by China Cleaning Industry Association (CCIA), cleaning industry will follow national development strategy and policy, and insist on innovation-leading, technology-driven, environment friendly, green-driven, market-driven, and consumption-driven. Making it to the main line of industry development that energy-saving, water-saving, easy to wash, high efficiency, versatility, environmental protection and safety. Accelerating the adjustment of product structure and upgrade of the industrial technologies. Improving the quality of people’s lives constantly and promoting sustainable development of cleaning industry. The plan also includes the following contents. In the 12th Five-Year period, adjustment and optimization in product structure will be accelerated: making it to the guideline of new product development that energy-saving, water-saving, easy to wash, high efficiency, versatility, environmental protection and safety; the development of versatile, large variety of
According to prediction, the gross production of Chinese cleaning industry will exceed 200 billion yuan in 2015, so average annual growth rate is about 12%, and average annual growth rate of new product is about 10%. By 2015, the product structure of detergent will be further optimized: the ratio of concentrated powder detergent in total powder detergent will reach about 20%, non-phosphate powder detergent will over 80%, the powder detergent with enzyme will reach nearly 80% also, and the functional powder detergent such as oxygen type powder detergent which grows rapidly recent years will exceed 20%.

5 World development trend of powder detergent

In World Economic Situation and Prospects 2011 issued in Geneva, United Nations Economic and Social Council predicted that in 2011 and 2012 the global economic growth was 3.1% and 3.5% respectively. In powder detergent field, according to the related data of powder detergent via global economic growth, it is predicted that global production of powder detergent will remain about 2% in the future five years, and the global production of powder detergent will exceed 30 million tons by 2015. Especially, the emerging economies will become relatively faster growth areas by their continuously strong growth and great market potential.

With the improvement of people's environmental and sustainable developing awareness, the product structure of global detergent will be constantly optimized, and the market share of multi-function, concentrated products will go up. By 2015, it is predicted that the ratio of concentrated powder detergent in global powder detergent will reach about 50% from 35% now; non-phosphate powder detergent will remain about 90%; the powder detergent with enzyme will reach over 80%; oxygen type powder detergent is expected to reach about 40%.