

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

## 1 Technology

In China, production technologies of sugar alcohols have been developed rapidly in recent years; devices and product quality in the production have been constantly improved. Traditionally, glucose was hydrogenated in the presence of nitrogen as a catalyst under high pressure and high temperature, which is easy to realize industrial production of sugar alcohols on a large scale.

However, traditional chemical technology has disadvantages below:

- Limited reaction conditions, including temperature, catalyst, pressure and complicated technology
- Frequently accompanied by side reactions
- Many pollutants like waste water and exhaust emissions

Table 1-1 Comparison of different production methods in sugar alcohol industry

| Method                    | Production cost | Waste discharge | Procedure | Investment in equipment | Product quality |
|---------------------------|-----------------|-----------------|-----------|-------------------------|-----------------|
| Tradition chemical method | ■               | ■               | ■         | ■                       | ■               |
| Bioproduction             | ■               | ■               | ■         | ■                       | ■               |

Source: CCM International

### 1.1 Sorbitol

#### 1.1.2 Technology innovation

Sorbitol is widely used in food additives, medical and chemical engineering. Production technology of sorbitol gradually improves as demand for it has increased. Currently, there are three trends in sorbitol's research: developing catalyst in hydrogen-reduction process of glucose, electro-reduction of sucrose to produce sorbitol and bioproduction of sorbitol.

### 1.1.3 Introduction to key patent

Table 1.1.3-1 Key patents about sorbitol production in China, 2000-2010

| Patent No. | Applicant of patent | Name of patent   |
|------------|---------------------|--|
| ■          | Wen Jianping        | The production technologies for sorbitol using loop reactor                  |
| ■          | Wang Zhonghong      | Hydrogenation tank reactor in sorbitol production                            |
| ■          | Liu Haichao         | A production method of sorbitol and mannitol using cellulose as raw material |
| ■          | Huanghe             | A production method for isosorbitol  |
| ■          | Zhang Meng          | A production method for sorbitol by hydrogenation of glucose                 |

Source: CCM International