

## **IV Future Forecast**

### **IV-1 Key Factors and Driven Forces for the Development of HIS Industry in China**

The key factors and driven forces for the development of HIS industry fall into four levels:

- (1) Intrinsic level: HIS features low-calorie, high intensity sweetness, different health effects and other characters, which basically determines the application of HIS. Consumer's consciousness on the features of HIS will affect the food producers' choice of HIS.
- (2) Competitive level: HIS as a kind of food additives used to sweeten foods faces the competition of other sweeteners, for example sugar alcohols, and other sweet food ingredients, such as sugar and starch sugar.
- (3) End use level: The development of end use segment of HIS directly affects the consumption of HIS and its competitors.
- (4) Micro economy development and policy: The situation of micro economy will influence the consumption of sweet foods, the development of end use industries, and the policies affecting the food producers to choose between HIS and its competitors in sweet foods.

#### **IV-1.1 Intrinsic factors**

##### **- Food safety**

The safety is elemental for a certain HIS to be used in food. Generally, a certain HIS should be approved by the international institutes including FAO, WHO, and JECFA, then permitted in some countries, before it is introduced into the market of these countries. 5-10 years are necessary for a new HIS to be approved in the world and then to be introduced in the market. So the safety assessment is the first barrier and a hard step for a new HIS to get into the market of sweeteners.

More or less, a certain HIS have some negative health effects or are disputed about for their safety, which will affect the consumers' choice on the sweet foods, particularly for saccharin and cyclamate, which are both the cheapest and often reported in the newspapers about the violations in the use of them. For example, in 2004, cyclamate was seriously affected by the negative news. Some reporters didn't know much about the characters of it, and described it as a carcinogenic or teratogenic substance, which directly caused the sharp shrinking cyclamate consumption, with consumers concern on the foods containing cyclamate.

##### **- High sweet intensity**

The high sweet intensity for HIS enables food producers to reduce the production cost by replacing sugar or other sweet ingredients with HIS. Many food manufacturers claim that production cost reduction is not the major factors for them to choose a suitable HIS. This is usually true when they choose a specific HIS from all the HIS, but it is not true when they are choose a certain HIS from all the available sweet ingredients including sugar and starch sugar. If a producer replaces HIS with sugar in a certain product without changing the grade and price of the original product, it will lose the ability to gain profit.

- **Low-calorie**

The low-calorie or calorie-free character gives HIS the opportunity in the sugar-free foods for diabetics and obesity sufferer. Besides, it is a good reason for the people to choose the foods with HIS to avoid obesity, and a virtue for the food producers to promote the foods with HIS.

There were 6 million diabetics in China early in 1990. The figure reached 14 million in 2000, and in 2007, it has exceeded 20 million. And at the same time, there are about 20 million IGT (impaired glucose tolerance) sufferers in China by 2007.

Though the bad health effects have a negative effects on the consumption of HIS, their low-calorie character is good for the demand for HIS. From the eyes of consumers, the two aspects are the major factors that determine their attitude towards HIS containing foods.

**IV-1.2 Competitors**

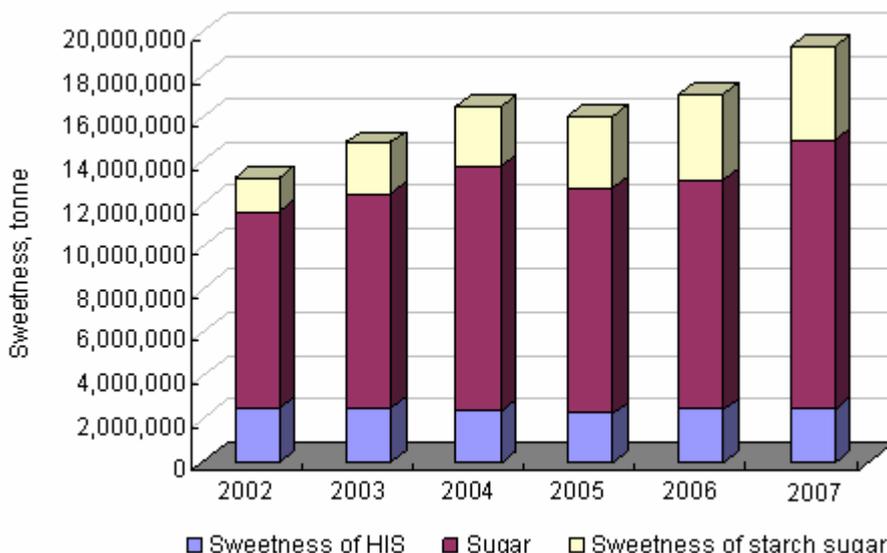
The main sweet food ingredients include HIS, sugar and starch sugar. The market share of starch sugar is expanding in recent years while the shares of sugar and HIS are shrinking. The market share of HIS have decreased from 18.9% in 2002 to 14.3% in 2006 and it is estimated to be 12.8% in 2007.

Table IV-1.2 -1 Market shares of HIS, sugar and starch sugar in China,

Year	Sweetness of HIS, %	Sugar, %	Sweetness of starch sugar, % (*)	Total, %	Total sweetness, tonnes
2002	18.9%	69.0%	12.1%	100.0%	13,252,719
2003	16.6%	67.2%	16.1%	100.0%	14,872,313
2004	14.4%	68.8%	16.8%	100.0%	16,570,327
2005	14.0%	65.1%	20.8%	100.0%	16,124,379
2006	14.3%	62.5%	23.2%	100.0%	17,116,452
2007	12.8%	64.6%	22.6%	100.0%	19,344,880

\* Starch sugar is 0.8 times sweet as sugar

Figure IV-1.2 -1 Sweetness consumption in China, 2002~2007, tonne



From 2002 to 2006, the total sweetness consumption in China grows by 6.6% annually. For sugar and starch sugar, they grows by CAGR 4.9% and 25.6% from 2002~2006 respectively. However, for HIS, it declines by 0.6% annually from 2002~2006. Obviously, HIS is not the strong competitor against sugar and starch sugar, although the unit sweetness price is just 1/10 around of that of sugar and starch sugar.

### IV-1.3 End use segments

Food & beverage industry is the major consumption area for HIS in 2007, about 75% of HIS by volume are consumed thereto, and the percentage is 81% by value. For aspartame, ace-K and sucralose, the figure is much higher. Except saccharin, over 80% of the rest HIS is consumed in food & beverage industry.

Table IV-1.3-1 HIS consumption in food & beverage industry

HIS	Consumption, tonne	Consumption, %
Aspartame	1,408	96.8%
Ace-K	1,647	96.1%
Saccharin	1,602	39.2%
Cyclamate	12,820	80.0%
Sucralose	59	98.2%
Stevioside	369	93.5%
<b>Total</b>	<b>17,913</b>	<b>75.0%</b>

#### - Situation of food & beverage industry in China

Food & beverage industry in China is constituted by beverage production industry, food production industry and food processing industry. The statistics of the National Bureau of Statistics shows that there are 4,042 beverage manufacturers, 6,227 food manufacturers and 16,983 food processors in 2007 in China. The economic performances of these 3 industries are shown in the following tables.

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