

Production of Sugar Alcohols in China

The Sixth Edition

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Executive summary

The sugar alcohol industry is a branch of the corn deep processing industry. With the advantages of high safety, low calories and low GI (glycemic index) value, sugar alcohols have become more and more popular.

Generally speaking, the sugar alcohol industry in China has been performing well in the past five years, with higher recognition and wider applications.

Production

In 2019–2023, different changes were recorded in the production capacity for the five products:

- Erythritol capacity enjoyed a rapid growth, with a CAGR of 59.1% in 2019–2023.
- Sorbitol capacity witnessed a continuous rise with a CAGR of 19.2% in 2019–2022, but a slight decline in 2023.
- Xylitol capacity experienced an increase from 93,000 t/a in 2019 to 135,000 t/a in 2023.
- Maltitol capacity grew from 238,000 t/a in 2019 to 288,000 t/a in 2023, an increase of 21.0%.
- Mannitol capacity climbed steadily from 70,500 t/a in 2019 to 96,500 t/a in 2023.

The total output of these major sugar alcohols increased from 1,303,800 tonnes in 2019 to 1,846,500 tonnes in 2023, with a CAGR of 9.1%

Price

In 2019, prices of most sugar alcohols (except for erythritol and mannitol) witnessed a downward trend, owing to the abundant supply and shrinking demand.

Affected by sluggish demand amid the COVID-19 pandemic, prices of most sugar alcohols declined in H1 2020. Since H2 2020, they rebounded and continued to go up, driven by higher corn prices and increasing downstream demand.

In 2021–2022, the prices of erythritol and xylitol first increased and then decreased; while prices of the other three sugar alcohols fluctuated from 2021 to H1 2022, then kept declining in H2 2022.

In 2023, the prices of sorbitol and maltitol fluctuated; while the prices of xylitol, erythritol and mannitol showed a downward trend.

From Jan. 2024 to April 2024, the prices of sorbitol and erythritol rose slightly, while the price of maltitol saw a continuous decline. The prices of xylitol and mannitol remained relatively stable.

Introduction and methodology

Introduction

This report presents the development of sugar alcohols in China from 2019 to 2023, together with the production situations of sorbitol, maltitol, xylitol, mannitol and erythritol. It attaches importance to the following parts.

- Annual review of hot spots in China's sugar alcohols industry in 2021–2023
- Capacity and output in China, 2019–2023
- Major producers and distribution in China, 2019–2023
- Monthly ex-works price, Jan. 2019–April 2024

Methodology and source

The report is based on data sourced by diverse methods, which are listed as follows:

- Desk research

Desk research includes access to published magazines, journals, government statistics, industry statistics, customs statistics, association seminars as well as information on the Internet. Much work has gone into the compilation and analysis of the information obtained. When necessary, information has been checked and discussed internally related to market structure and performance characteristics, such as key producers, key end users, production levels and demand from end users.

- Telephone interview

CCM has conducted extensive telephone interviews with major participants in the industry in order to research the sugar alcohol market in China.

The interviewees include the following groups:

- Key producers
- Key traders
- Associations involved
- Industry experts

- Network search

CCM employs networks to contact industry participants by using B2B websites and software.

- Data processing and presentation

The data collected and compiled was variously sourced from:

- CCM's database
- Published articles from periodicals, magazines, journals and third-party databases
- Statistics from governments and international institutes
- Telephone interviews with domestic producers, joint ventures, service suppliers and government agencies
- Third-party data providers
- Customs statistics

The data has been combined and cross-checked to ensure that this report is as accurate and methodologically sound as possible. Throughout the process, a series of discussions were held within CCM to systematically analyze the data and draw appropriate conclusions.

- Unit and abbreviation

RMB: currency unit in China, also called Yuan

USD: currency unit in the US, also called US dollar

Tonne: equals to metric ton in this report

t/a: tonne/annum or tonne/year

/t: per tonne

CAGR: compound annual growth rate

Table 1 USD/CNY exchange rate, Jan. 2019–April 2024

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
2019	6.8482	6.7081	6.6957	6.7193	6.7344	6.8896	6.8716	6.8938	7.0883	7.0726	7.0437	7.0262	6.8826
2020	6.9614	6.9249	6.9811	7.0771	7.0690	7.1315	7.0710	6.9980	6.8498	6.7796	6.7050	6.5921	6.9284
2021	6.5408	6.4623	6.4754	6.5584	6.4895	6.3572	6.4709	6.4660	6.4680	6.4604	6.4192	6.3693	6.4615
2022	6.3794	6.3580	6.3014	6.3509	6.5672	6.6651	6.6863	6.7467	6.8821	7.0992	7.2081	7.1225	6.6972
2023	6.9475	6.7492	6.9400	6.8805	6.9054	7.0965	7.2157	7.1283	7.1788	7.1789	7.1778	7.1104	7.0424
2024	7.0770	7.1049	7.1059	7.0938	-	-	-	-	-	-	-	-	-

Source: The People's Bank of China

1 Overview

As natural and low-calorie sweeteners, sugar alcohols are highly recognized and widely used in the food, pharmaceutical and chemical industries. In recent years, the sugar alcohol industry has maintained a good momentum, with improved production technology and expanded application fields. However, there were still some problems during its development, such as excess capacity and low capacity utilization.

From 2019 to 2023, the concentration of the sugar alcohol industry first increased and then decreased. On one hand, some small producers left the industry due to rising costs, rigorous environmental inspection and sometimes poor operation. On the other hand, in spite of overcapacity, some large-scale producers expanded their capacity and newcomers joined the market seeing a promising future.

In the past five years, the development of sorbitol and maltitol slowed down, while the development of mannitol and xylitol declined first and then increased. The development of erythritol increased rapidly first thanks to the rising demand for sugar-free beverages, but then decreased because of serious overcapacity and intensive competition in the market.

Opportunities and challenges coexist in the future market of sugar alcohols. For one thing, driven by the global trend of sugar reduction, demand from downstream sectors is expected to increase further. For another, the sugar alcohol industry is still facing the challenge of overcapacity. In addition, other natural sweeteners, such as stevia and mogroside, also enjoyed fast growth benefiting from the increasing popularity of a low-sugar diet. In this context, it is necessary for sugar alcohol producers to improve competitiveness through technical innovation and cost reduction.

2 Hot spots of sugar alcohol industry in China, 2021–2023

Governmental direction

On 21 Nov., 2023, the European Commission issued a notice stating that it initiated an anti-dumping investigation against the erythritol originating in China. The product subject to this investigation is erythritol, a four-carbon sugar alcohol (polyol) sweetener made from sugar or glucose, in its pure form or contained in blends containing less than 10 % of other products by weight. The product allegedly being dumped is currently classified under Combined Nomenclature (CN) code ex 2905 49 00 for erythritol in its pure form and CN codes ex 2106 90 92 and ex 2106 90 98 for blended products (TARIC codes 2905 49 00 15, 2106 90 92 65, and 2106 90 98 15). The investigation of dumping and injury will cover the period from 1 Oct., 2022 to 30 Sept., 2023. The examination of trends relevant to the assessment of injury will cover the period from 1 Jan., 2020 to the end of the investigation period. The investigation will be concluded in not more than 14 months from the date of the publication of the notice, and provisional measures may be imposed normally not later than 7 months, but in any event not later than 8 months from the publication of the notice.

On 1 Jan., 2022, the Regional Comprehensive Economic Partnership Agreement (RCEP) officially came into effect. It is a free trade agreement among countries such as China, Brunei, Cambodia, Laos, Singapore, Thailand, Vietnam, Japan, New Zealand and Australia. According to the agreement, China will eventually achieve zero tariffs on some sugar alcohols imported from the following countries.

- The conventional tariff rates for mannitol (HS 29054300) imported from Japan will be reduced by 1.2%–1.3% each year, to 0% in the 11th year; the conventional tariff rates for sorbitol (HS 29054400) and sorbitol (HS 38246000, other than the specific item 29054400) will be reduced by 0.7%–0.8% each year, to 0% in the 11th year.
- The conventional tariff rates for sorbitol (HS 29054400) and sorbitol (HS 38246000, other than the specific item 29054400) imported from Korea will be reduced by 1.4% each year, to 0% in the 10th year.

From 1 Jan., 2021, the conventional tariff rates under China's bilateral trade agreements with New Zealand, Peru, Costa Rica, Switzerland, Iceland, Australia, South Korea, Chile, Georgia and Pakistan and the Asia-Pacific Trade Agreement (APTA) will be further reduced. The conventional tariff rate for mannitol (HS 29054300) imported from Pakistan will be reduced by 1%. The conventional tariff rates for sorbitol (HS 29054400) and sorbitol (HS 38246000, other than the specific item 29054400) imported from South Korea and Sweden will be lowered by 1.40%.

Market dynamics

On 8 April, 2021, Shandong Bailong Chuangyuan Bio-tech Co., Ltd. officially released its IPO prospectus, and it was successfully listed on the Shanghai Stock Exchange on 9 April. The company will raise USD61.94 million (RMB406.22 million) for a 30,000 t/a soluble dietary fiber project, a 10,000 t/a isomaltitol oligosaccharides project, a 6,000 t/a crystalline maltitol project, and repayment of bank loans and supplement of working capital.

On 14 July, 2021, Baolingbao Biology Co., Ltd. released its non-public offering plan placing no more than 90 million private shares of up to USD110.02 million (RMB711.90 million), and all funds raised go to 30,000 t/a crystalline erythritol project, 30,000 t/a allulose (dry state) project, application solution research center project and supplement of working capital. The 30,000 t/a crystalline erythritol project started trial production in Oct. 2022.

On 21 June, 2021, Shandong Jianyihong Biotechnology Co., Ltd. announced that its 5,000 t/a crystalline lactitol project and 20,000 t/a crystalline xylitol project have completed construction.

On 6 Aug., 2021, the report of environmental protection (EP) acceptance inspection on Shandong Sanyuan Biotechnology Co., Ltd.'s 20,000 t/a erythritol technological upgrading project was publicized, which indicated the project passed the inspection. The construction of this project was completed in May 2021.

On 2 Sept., 2021, the local government accepted the environmental impact (EI) report of Zhaoqing Huanfa Bio-technology Co., Ltd. (Zhaoqing Huanfa)'s expansion project, and publicized the report on its website. The project will expand the company's liquid sorbitol capacity by 60,000 t/a.

On 20 Oct., 2021 and 27 Oct., 2021, the draft EI reports of Zhucheng Dongxiao Biotechnology Co., Ltd.'s 30,000 t/a premium erythritol intelligence reconstruction project and 30,000 t/a premium erythritol production

project were made public. The former project was completed and put into production in H2 2022, and the latter project was put into operation in Jan. 2023. (Zhucheng Dongxiao Biotechnology Co., Ltd. was renamed Dongxiao Biotechnology Co., Ltd. in Oct. 2023.)

On 25 Nov., 2021, the second round of information announcement on the EI report of Shandong Starlight So True Biological Technology Co., Ltd.'s project of 50,000 t/a functional sugars (alcohol) was made. On 9 Aug., the EI report was first publicized. Products include 10,000 t/a galacto-oligosaccharide (GOS), 10,000 t/a isomalto-oligosaccharide (IMO) and 30,000 t/a erythritol. The 30,000 t/a erythritol production line started trial production in July 2022.

On 29 Nov., 2021, the EI report of Hebei Yuxing Bio-Engineering Co., Ltd.'s 160,000 t/a erythritol project was publicized. The project is divided into three phases (40,000 t/a, 40,000 t/a and 80,000 t/a respectively). The first phase of this project was built and put into operation in Aug. 2021.

On 12 March, 2022, the report of EP acceptance inspection on Ningxia Eppen Biotech Co., Ltd. (Ningxia Eppen)'s 20,000 t/a food-grade erythritol project was publicized. Certain idle production devices, which were originally purposed for the production of 80,000 t/a lysine, have been renovated by Ningxia Eppen in this project, so as to produce 20,000 t/a of food-grade erythritol. The project started construction in Oct. 2021 and was put into the trial run in Jan. 2022.

On 6 April, 2022, the EI report of Dezhou Heyang Biotechnology Co., Ltd.'s 50,000 t/a erythritol project was publicized for the second time, indicating that a total of USD49.08 million (RMB328.70 million) is to be invested in this project. As of April 2024, the company has not yet updated the status of this project, which is likely to still be under construction.

On 23 May, 2022, Jinan Shengquan Healtang Biotech Co., Ltd.'s 15,000 t/a xylitol project was put into production. This project is designed to produce 15,000 t/a of xylitol using 16,500 t/a of purchased xylose; the original 8,000 t/a xylose project was discontinued.

On 27 June, 2022, the EI report of Yusweet Co., Ltd. (Yusweet)'s 140,000 t/a functional sugar alcohol project was approved. Yusweet invested 194.11 million (RMB1.3 billion) in this project. After the completion of the project, it will have new capacities of 40,000 t/a of VC-grade sorbitol syrup (dry basis: 70%), 35,000 t/a of daily chemical-grade sorbitol syrup (dry basis: 70%), 10,000 t/a of FCCIV-grade xylitol, 40,000 t/a of liquid glucose (dry basis), 10,000 t/a of maltitol and 5,000 t/a of allulose.

On 4 Nov., 2022, the EI report of Mengzhou Jinyumi Co., Ltd.'s 200,000 t/a starch-based sugar (including functional starch-based sugar) production line expansion project was approved. The total investment of the project is USD158.28 million (RMB1.06 billion), and the construction contents are as follows:

- One glucose syrup and high maltose syrup production line that can produce 30,000 t/a of glucose syrup and 30,000 t/a of high maltose syrup
- One functional oligosaccharides and ultra-high maltose syrup production line that can produce 25,000 t/a of functional oligosaccharides mainly isomaltose syrup, and 25,000 t/a of ultra-high maltose syrup
- One functional fermented product production line that can produce trehalose, erythritol, crystalline maltose and dietary fiber (resistant dextrin), 12,500 t/a for each product
- One fat powder production line that can produce 40,000 t/a of fat powder

On 25 Nov., 2022, Shandong Sanyuan Biotechnology Co., Ltd. issued an announcement stating that after the trial production of the 50,000 t/a erythritol production line was conducted in Aug., the company completed the installation and commissioning of the production process and equipment and officially put this production line into operation.

On 12 Dec., 2022, the report of EP acceptance inspection on Yusweet's 20,000 t/a erythritol project was made public. The EI report of this project was approved in June 2021, and the commissioning of this project was conducted in Dec. 2021.

On 14 Dec., 2022, the EI report of Zhoushan Huakang Biotechnology Co., Ltd. (Zhoushan Huakang)'s 1 million t/a corn deep-processing health food ingredients project was publicized. Zhoushan Huakang is a wholly-owned subsidiary of Zhejiang Huakang Pharmaceutical Co., Ltd. (Huakang Pharma). This project is the first phase of Huakang Pharma's 2 million t/a corn deep-processing project to be constructed in Dinghai District, Zhoushan City, and it will be constructed over two stages:

- Build a starch slurry production line, a liquid sugar (sugar alcohols) production line, a crystalline sorbitol production line in Stage I
- Build a modified starch production line, a resistant dextrin production line, a polydextrose production line, a crystalline sugar alcohols (maltitol and mannitol) production line and a crystalline allulose production line in Stage II

On 28 Dec., 2022, Zhaoqing Huanfa's project of 30,000 t/a erythritol (functional sugar-free food ingredient) and 10,000 t/a β -cyclodextrin for medical use was approved by the Zhaoqing Municipal Ecology and Environment Bureau.

On 14 Feb., 2023, the construction of Shandong Guyu Biotechnology Co., Ltd.'s corn deep processing project kicked off in Zhucheng City (county level), Weifang City, Shandong Province. The project is planned to be constructed in two phases, with the following construction contents:

- Phase I: Build capacities of 200,000 t/a for maltose, 40,000 t/a for maltitol and other relevant facilities. Budgeted at USD196.60 million (RMB1.25 billion), the first phase is expected to be fully operational in 2024.
- Phase II: Build capacities of 20,000 t/a for allulose, 100,000 t/a for maltodextrin, 230,000 t/a for glucose, 100,000 t/a for sorbitol, 60,000 t/a for L-lactic acid, 30,000 t/a for polylactic acid, and other relevant facilities. The second phase has been budgeted at USD473.42 million (RMB3.01 billion).

On 18 March, 2023, Shandong Xiangchi Jianyuan Bio-Tech Co., Ltd. (Xiangchi Jianyuan) announced that its 20,000 t/a erythritol green manufacturing project was completed and put into production.

On 8 June, 2023, the EI report of Anhui BBCA Likang Pharmaceutical Co., Ltd. (BBCA Likang)'s "20,000 t/a L-Valine project" was approved. To implement this project, BBCA Likang will renovate its existing 30,000 t/a erythritol production line. Upon completion of renovation, the line will be able to alternately manufacture 20,000 t/a of L-Valine and 5,000 t/a of erythritol, adopting a flexible production mode.

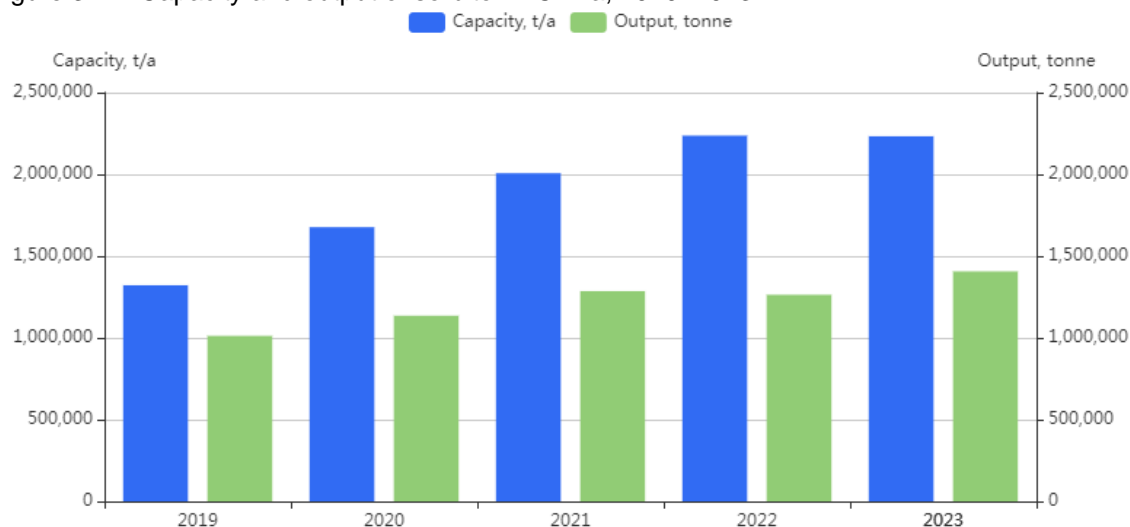
On 9 June, 2023, the introduction and the environmental impact assessment information of New Tuoyang Bioengineering Co., Ltd. (New Tuoyang Bio)'s 10,000 t/a mannitol technology upgrading project was made public. Based on the existing vitamin C production line, the project involved the construction of a production line capable of producing 10,000 t/a of mannitol and 10,000 t/a of gluconic acid derivatives, for the extension of industrial chain. The project was built up and put into operation in July 2023.

On 17 Aug., 2023, the EI report of Deosen Biochemical (Ordos) Ltd. (Deosen)'s 40,000 t/a erythritol project was approved. To implement this project, the company will build a 20,000 t/a erythritol production line and retrofit an existing xanthan gum line in order to deliver another 20,000 t/a of capacity for erythritol.

3 Sorbitol

3.1 Capacity and output of sorbitol in China, 2019–2023

Figure 3.1-1 Capacity and output of sorbitol in China, 2019–2023



Source: CCM

China's production capacity for sorbitol increased by 4.3% from 1,268,000 t/a in 2018 to 1,322,000 t/a in 2019. Owing to expansion projects of Shandong Tianli Pharmaceutical Co., Ltd., Zhaoqing Huanfa Biotechnology Co., Ltd., Zhejiang Huakang Pharmaceutical Co., Ltd. and Shandong Xinlong Group Co., Ltd. as well as newly-established projects of Heilongjiang NHU Biotechnology Co., Ltd., Yufeng Industry Group Co., Ltd. and Shandong Jianyihong Biotechnology Co., Ltd. in 2020–2022, China's sorbitol capacity increased to 2,237,000 t/a in 2022. But in 2023, a small enterprise withdrew from the market because of poor management, which slightly reduced the country's capacity to 2,233,000 t/a.

The output of sorbitol rose from 891,500 tonnes in 2018 to 1,012,500 tonnes in 2019, thanks to the increasing consumption in vitamin C production and rising overseas demand. Growing demand drove the output further up, to 1,135,600 tonnes in 2020 and 1,286,000 tonnes in 2021. In 2022, despite a surge in sorbitol exports, domestic downstream demand as a whole was affected by the COVID-19 pandemic, resulting in a decline in production to 1,263,800 tonnes. Subsequently, due to the recovery of domestic demand and the momentum in overseas demand that propped up exports, the output increased to 1,406,600 tonnes in 2023.

3.2 Major producers and distribution of sorbitol in China, 2019–2023

There were 18 active producers of sorbitol in China in 2023, and nearly half of them maintained an operating rate of or above 70%. Shandong Tianli Pharmaceutical Co., Ltd. (Shandong Tianli), Roquette (China) Co., Ltd., Zhaoqing Huanfa Bio-technology Co., Ltd., Zhejiang Huakang Pharmaceutical Co., Ltd. and Chiping Tongda Biology Co., Ltd. were the top five producers in terms of output in 2023, taking up 73.3% of the country's total output.

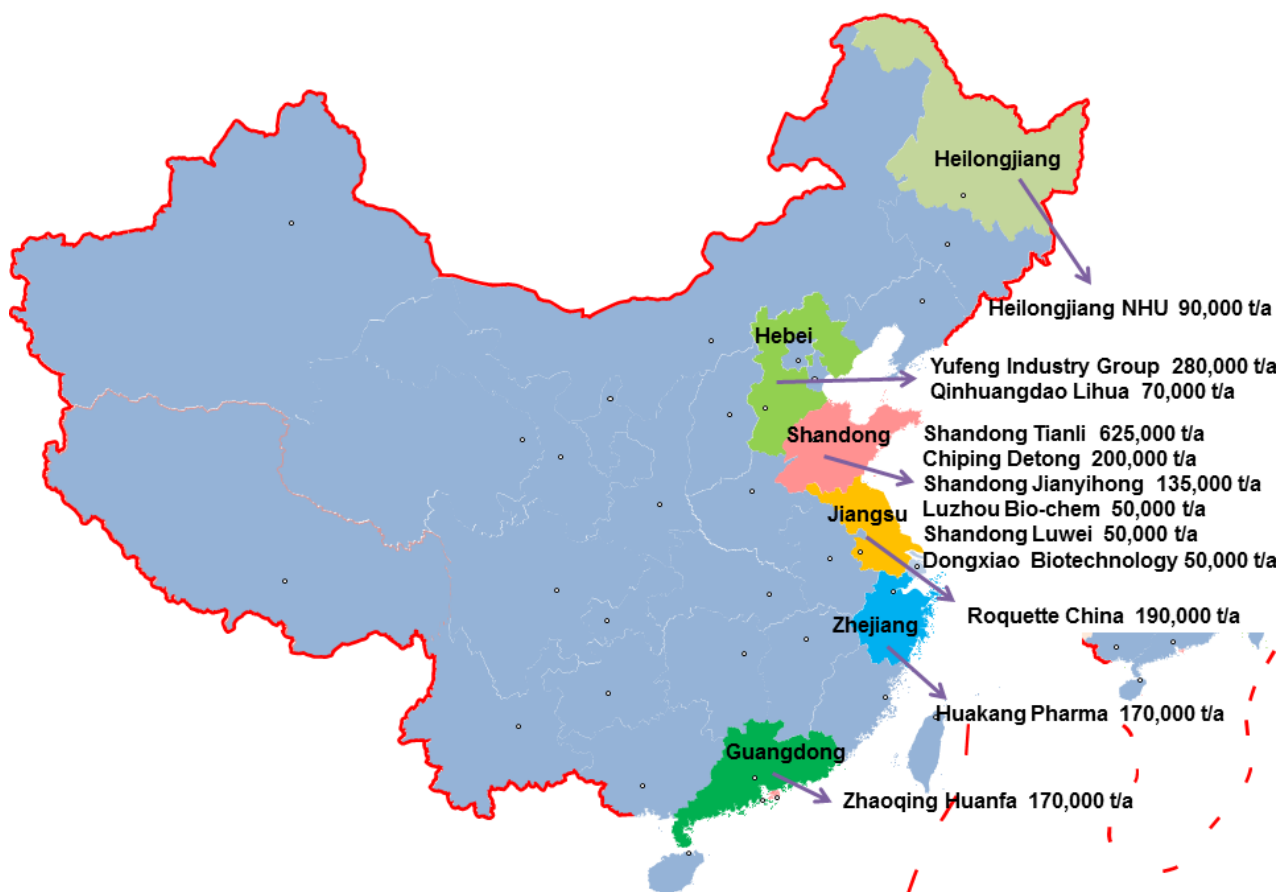
Sorbitol production is highly concentrated in the eastern parts of China. Among all regions in China, Shandong Province took the lead, capturing over 52% of the total capacity in 2023, mainly thanks to Shandong Tianli, the largest Chinese sorbitol producer. Hebei Province ranked second as a big player Yufeng Industry Group Co., Ltd. joined the industry, followed by Jiangsu Province and Guangdong Province, each of them having one active producer.

Table 3.2-1 Capacity and output of sorbitol producers in China, 2019–2023

No.	Company name	Abbreviation	Location	Status 2023	Capacity, t/a					Output, tonne				
					2023	2022	2021	2020	2019	2023	2022	2021	2020	2019
1	Shandong Tianli Pharmaceutical Co., Ltd.	Shandong Tianli	Shandong	Active	625,000	625,000	600,000	600,000	400,000	475,000	492,000	510,000	400,000	375,000
2	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	Active	280,000	280,000	280,000	/	/	94,000	68,000	30,000	/	/
3	Chiping Detong Biology Co., Ltd.	Chiping Detong	Shandong	Active	200,000	200,000	200,000	200,000	200,000	113,000	94,000	120,000	172,000	87,000
4	Roquette (China) Co., Ltd.	Roquette China	Jiangsu	Active	190,000	190,000	190,000	190,000	190,000	174,000	166,000	185,000	180,000	170,000
5	Zhaoqing Huanfa Bio-technology Co., Ltd.	Zhaoqing Huanfa	Guangdong	Active	170,000	170,000	170,000	150,000	150,000	148,000	146,000	145,000	138,000	135,000
6	Zhejiang Huakang Pharmaceutical Co., Ltd.	Huakang Pharma	Zhejiang	Active	170,000	170,000	150,000	120,000	20,000	121,000	85,000	49,000	26,000	25,000
7	Shandong Jianyihong Biotechnology Co., Ltd.	Shandong Jianyihong	Shandong	Active	135,000	135,000	/	/	/	34,000	12,000	/	/	/
8	Qinhuangdao Lihua Starch Co., Ltd.	Qinhuangdao Lihua	Hebei	Active	70,000	70,000	70,000	70,000	70,000	58,000	51,000	62,000	59,000	60,000
9	Heilongjiang NHU Biotechnology Co., Ltd.	Heilongjiang NHU	Heilongjiang	Active	90,000	90,000	60,000	60,000	/	42,700	20,000	19,600	1000	/
10	Luzhou Bio-chem Technology (Shandong) Co., Ltd.	Luzhou Bio-chem	Shandong	Active	50,000	50,000	50,000	50,000	50,000	41,500	38,600	47,000	46,000	45,000
11	Shandong Luwei Pharmaceutical Co., Ltd.	Shandong Luwei	Shandong	Active	50,000	50,000	50,000	50,000	50,000	38,000	32,400	44,000	41,000	42,000
12	Dongxiao Biotechnology Co., Ltd.	Dongxiao Biotechnology	Shandong	Active	50,000	50,000	50,000	50,000	50,000	41,000	34,000	45,000	43,000	42,000
13	Shandong Xinlong Group Co., Ltd.	Shandong Xinlong Group	Shandong	Active	20,000	20,000	10,000	10,000	10,000	8,600	7,800	9,700	7,500	6,600
14	Qingdao Brightmoon Seaweed Group Co., Ltd.	Shandong Brightmoon	Shandong	Active	10,000	10,000	10,000	10,000	10,000	5,200	4,700	6,000	6,800	7,000
15	Shouguang Zhongrui Biotechnology Co., Ltd.	Zhongrui Biotechnology	Shandong	Active	10,000	10,000	/	/	/	2,200	1,400	/	/	/
16	Shandong Jintian Bio-technology Co., Ltd.	Shandong Jintian	Shandong	Active	6,000	6,000	6,000	6,000	6,000	2,900	2,800	3,000	4,300	4,500
17	Shouguang Golden Sun Sugar Alcohol Co., Ltd.	Shouguang Golden Sun	Shandong	Idle	6,000	6,000	6,000	6,000	6,000	0	1,100	2,000	4,200	4,500
18	Shijiazhuang Huaxu Pharmaceutical Co., Ltd.	Huaxu Pharma	Hebei	Active	6,000	6,000	6,000	6,000	6,000	4,300	3,600	4,000	3,900	4,000
19	Guangxi Nanning Chemical Pharmaceutical Co., Ltd.	Nanning Chemical	Guangxi	Active	5,000	5,000	5,000	5,000	5,000	3,200	3,100	4,000	2,400	2,500
20	Shandong Lvjian Biological Technology Co., Ltd.	Shandong Lvjian	Shandong	Stopped	0	0	0	0	5,000	0	0	0	0	2,000
Others					90,000	94,000	94,000	94,000	94,000	0	300	700	500	400
Total					2,233,000	2,237,000	2,007,000	1,677,000	1,322,000	1,406,600	1,263,800	1,286,000	1,135,600	1,012,500

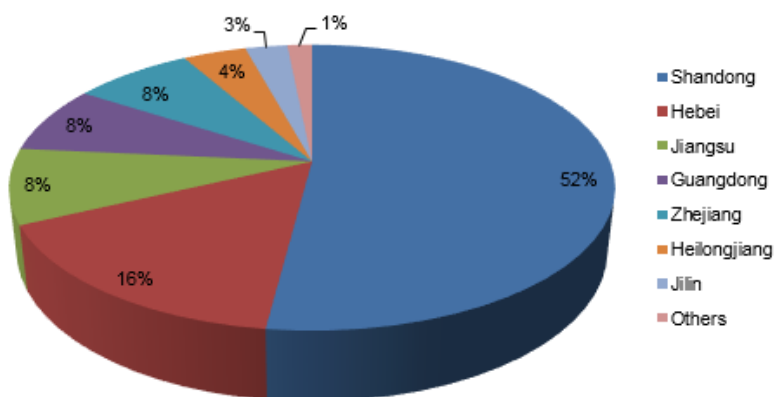
Source: CCM

Figure 3.2-1 Capacity distribution of the top ten sorbitol producers in China, 2023



Source: CCM

Figure 3.2-2 Shares of sorbitol capacity in China by region, 2023



Source: CCM

3.3 Monthly ex-works price of sorbitol in China, Jan. 2019–April 2024

The price of 70% syrup sorbitol experienced a small peak in Feb. 2019 thanks to increasing downstream demand. After that, the price went down in March 2019 and then fluctuated between USD382/t and USD424/t during H2 2019 and H1 2020.

Since July 2020, the price had gone up, driven by the higher corn price and stronger downstream demand. But the price started to drop in March 2021 due to the price cut of corn, the June 2021 price registered at USD476/t.

In the second half of 2021, driven by global inflation and rising raw material and energy prices, syrup sorbitol

prices rose to USD654/t in Nov. 2011, a five-year high. In the Spring Festival of 2021, the COVID-19 pandemic again broke out. As a result, demand for liquid sorbitol weakened in early 2022, and the price dropped to USD475/t in Feb. 2022. In March, April and May, prices recovered as the outbreak was contained and production resumed, but then weak consumption and demand pulled prices down again.

From Nov. 2022 to Jan. 2023, there was not much downstream demand for restocking before the Spring Festival, but with the support of rising corn prices, the syrup sorbitol price stopped falling and stabilized. From Feb. to April, the recovery of demand led to a rebound in prices. In May–Aug., the price first decreased then increased, which was consistent with the trend of corn price.

From Sept. 2023 to Feb. 2024, affected by the continuous decrease in corn prices, the price of syrup sorbitol showed a downward trend; but this was followed by an increase over the next two months, mainly due to increased corn prices and improved demand. The price of syrup sorbitol reached USD518/t in April 2024.

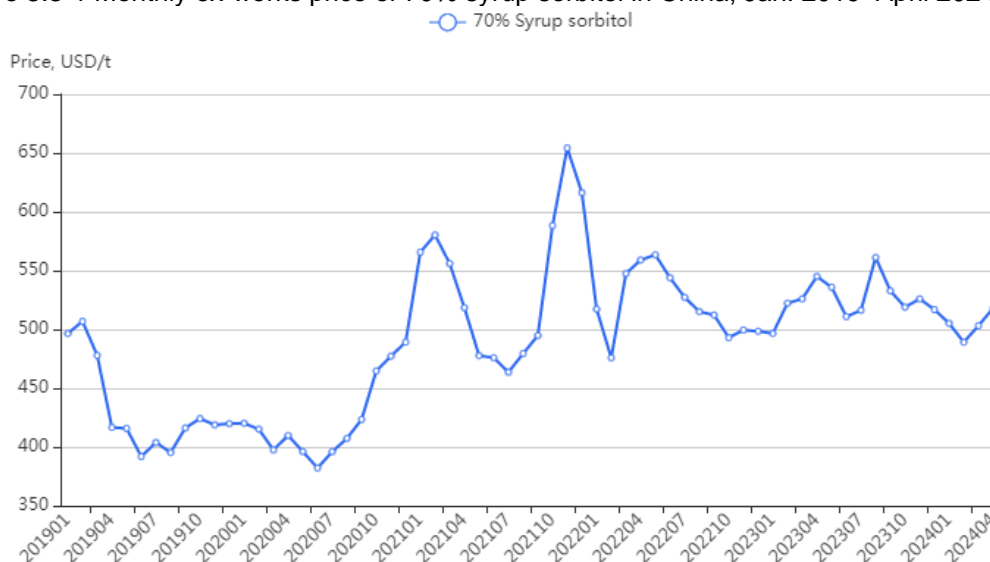
As for the ex-works price of crystalline sorbitol, it fluctuated between USD1,116/t and USD1,178/t in H1 2019. But then in H2 2019, the price climbed up owing to growing demand.

Affected by the sluggish demand under COVID-19 pandemic, the price saw a general downtrend in H1 2020. Then, as the economy recovered, the price rebounded; the price reached a new peak in Feb. 2021, and then it dropped slightly and hovered around USD1,250/t. In H2 2021, the price of crystalline sorbitol rose to a 5-year high of USD1,355/t in Nov. 2021 due to the impact of inflation.

But due to the factory shutdown during the Spring Festival, as well as the pandemic impact, the price then kept dropping and reached USD1,203/t in Feb. 2022. In the following three months, the price edged up, rising to USD1,279/t in May 2022 as the outbreak was brought under control and the production was resumed. However, as demand weakened, prices fell all the way down to USD1,127/t in Oct. From Nov. 2022 to Aug. 2023, the price fluctuated between USD1,074/t–USD1,174/t, in line with the changes in syrup sorbitol prices. But later in Sept.–Dec., the price declined drastically on sluggish weak demand, hitting a low of USD911/t in Dec.

In Jan.–April 2024, the price of crystalline sorbitol resumed an upward trend, and increased to USD966/t in April, mainly due to improved demand and slightly increased corn prices.

Figure 3.3-1 Monthly ex-works price of 70% syrup sorbitol in China, Jan. 2019–April 2024



Source: CCM

Figure 3.3-2 Monthly ex-works price of crystalline sorbitol in China, Jan. 2019–April 2024

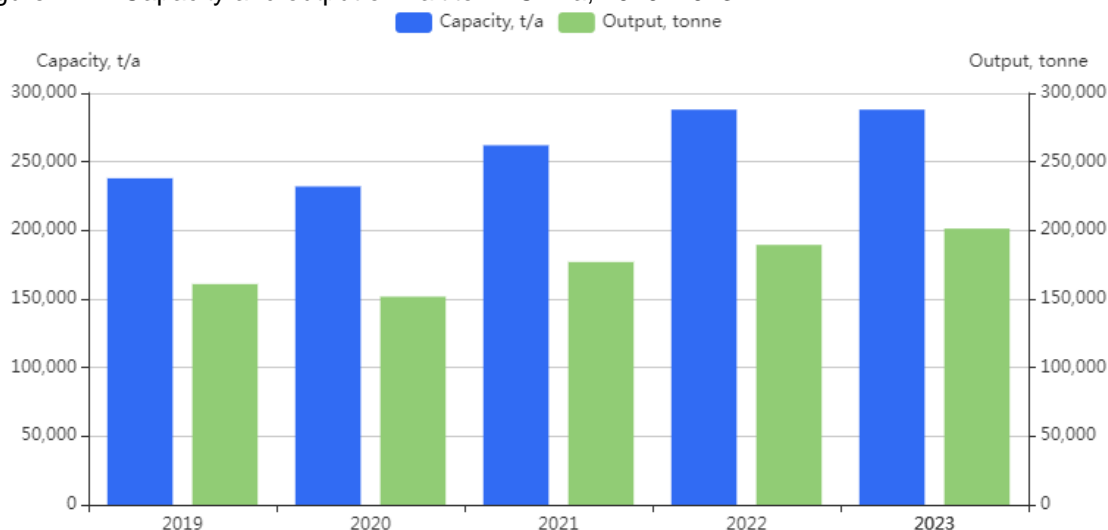


Source: CCM

4 Maltitol

4.1 Capacity and output of maltitol in China, 2019–2023

Figure 4.1-1 Capacity and output of maltitol in China, 2019–2023



Source: CCM

In 2018, due to overcapacity and low profit, Khalista (Liuzhou) Chemical Industries Ltd. stopped production; Zhejiang Huakang Pharmaceutical Co., Ltd. (Huakang Pharma) changed part of its maltitol production lines to produce xylitol. Therefore, the capacity for maltitol dropped to 231,000 t/a in 2018. However, Huakang Pharma restored its maltitol production lines in 2019; as a result, the capacity for maltitol went back up to 238,000 t/a in that year. In 2020, due to poor management, Shandong Lvjian Biological Technology Co., Ltd. stopped maltitol production, so China's maltitol capacity dropped to 232,000 t/a. Nevertheless, as Yufeng Industry Group Co., Ltd. completed the construction of its new maltitol line in 2021, and Huakang Pharma's expansion project and Shandong Jianyihong Biotechnology Co., Ltd.'s new maltitol project were put into operation in 2022, the capacity reached 288,000 t/a in 2022. In 2023, the figure remained unchanged.

With the low-sugar diet getting increasingly popular, downstream industries' demand for maltitol rose, which led to the rapid growth of maltitol production in recent years (except for 2020). The maltitol output came to 160,900 tonnes in 2019, with maltitol producers' operating rates averaging 67.6%. However, in 2020, due to the adverse impact of COVID-19 pandemic, the demand for maltitol decreased, and the output of maltitol dropped to 151,700 tonnes, down 5.7% year on year. Afterwards, with the help of economic recovery and continuous uplift in demand, the output of maltitol increased rapidly, showing a CAGR of 6.6% in 2021–2023. During the 2021–2023 period, the yearly average operating rate ranged between 65% and 70%. In 2023, the country's output of maltitol reached 201,300 tonnes.

4.2 Major producers and distribution of maltitol in China, 2019–2023

In 2023, there were 11 active maltitol producers in China. Among them, in terms of output in 2023, Shandong Tianli Pharmaceutical Co., Ltd. was the largest producer, followed by Dongxiao Biotechnology Co., Ltd., their production together accounting for about 45.2% of the country's total.

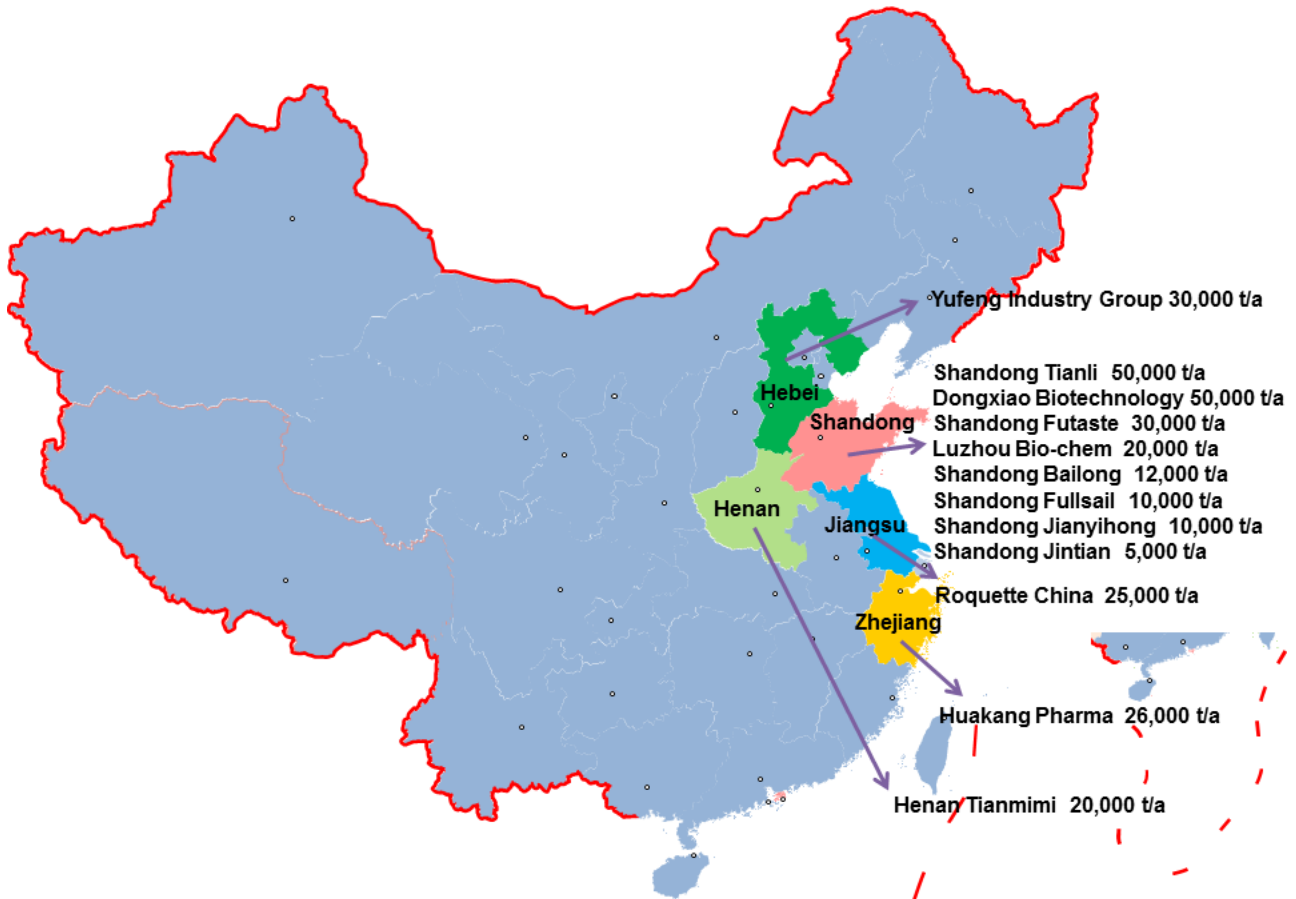
Domestic maltitol manufacturers are highly concentrated in the eastern parts of China. In 2023, the capacity in Shandong Province accounted for about 65% of the country's total, since 8 active producers were located there; Jiangsu, Hebei and Zhejiang provinces all had one active producer.

Table 4.2-1 Capacity and output of maltitol producers in China, 2019–2023

No.	Producer	Abbreviation	Location	Status 2023	Capacity, t/a					Output, tonne				
					2023	2022	2021	2020	2019	2023	2022	2021	2020	2019
1	Shandong Tianli Pharmaceutical Co., Ltd.	Shandong Tianli	Shandong	Active	50,000	50,000	50,000	50,000	50,000	45,800	46,500	48,000	41,000	39,000
2	Dongxiao Biotechnology Co., Ltd.	Dongxiao Biotechnology	Shandong	Active	50,000	50,000	50,000	50,000	50,000	45,200	44,000	45,000	31,000	32,000
3	Roquette (China) Co., Ltd.	Roquette China	Jiangsu	Active	25,000	25,000	25,000	25,000	25,000	22,400	21,800	23,000	21,500	22,000
4	Shandong Futaste Pharmaceutical Co., Ltd.	Shandong Futaste	Shandong	Active	30,000	30,000	30,000	30,000	30,000	19,500	19,000	18,000	17,500	18,000
5	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	Active	30,000	30,000	30,000	/	/	13,500	10,000	4000	/	/
6	Luzhou Bio-chem Technology (Shandong) Co., Ltd.	Luzhou Bio-chem	Shandong	Active	20,000	20,000	20,000	20,000	20,000	18,200	17,600	17,000	12,000	13,000
7	Zhejiang Huakang Pharmaceutical Co., Ltd.	Huakang Pharma	Zhejiang	Active	26,000	26,000	10,000	10,000	10,000	15,600	13,500	9,500	7,200	8,200
8	Shandong Bailong Chuangyuan Bio-tech Co., Ltd.	Shandong Bailong	Shandong	Active	12,000	12,000	12,000	12,000	6,000	8,100	7,000	3,000	3,600	3,800
9	Shandong Fullsail Biotechnology Co., Ltd.	Shandong Fullsail	Shandong	Active	10,000	10,000	10,000	10,000	10,000	7,900	7,700	8,500	6,300	6,500
10	Shandong Jianyihong Biotechnology Co., Ltd.	Shandong Jianyihong	Shandong	Active	10,000	10,000	/	/	/	3,000	800	/	/	/
11	Shandong Jintian Bio-technology Co., Ltd.	Shandong Jintian	Shandong	Active	5,000	5,000	5,000	5,000	5,000	2,100	1,500	1,000	3,100	3,200
12	Henan Tianmimi Sugar Industry Co., Ltd.	Henan Tianmimi	Henan	Idle	20,000	20,000	20,000	20,000	20,000	0	0	0	8,500	10,200
13	Shandong Lvjian Biological Technology Co., Ltd.	Shandong Lvjian	Shandong	Stopped	0	0	0	0	12,000	/	/	/	/	5,000
Total					288,000	288,000	262,000	232,000	238,000	201,300	189,400	177,000	151,700	160,900

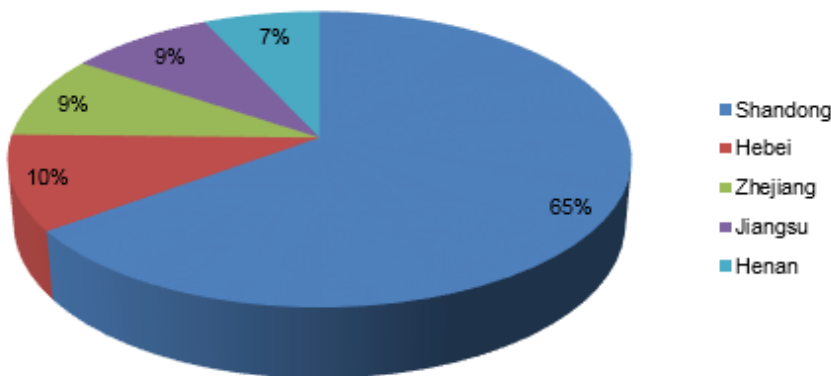
Source: CCM

Figure 4.2-1 Capacity distribution of maltitol producers in China, 2023



Source: CCM

Figure 4.2-2 Shares of maltitol capacity in China by region, 2023



Source: CCM

4.3 Monthly ex-works price of maltitol in China, Jan. 2019–April 2024

In Feb. 2019, the ex-works price of liquid maltitol in China climbed up to a small peak of USD648/t but then fell all the way to USD522/t in Sept. The decline was attributed to the increasing supply and shrinking demand. Thereafter, due to the sluggish market, the price stayed below USD550/t all the way to July 2020, though the price of corn was quite stable.

Then, with the price of corn and demand increasing, the price shot up. It rose to a historical high in March

2021 at USD710/t. Later, due to the downward adjustment of raw material prices, the price slipped to USD650/t in Aug. From Sept. to Dec. 2021, prices rose again to USD707/t in Dec., influenced by global inflation and rising raw material prices. Subsequently, due to the Spring Festival and the pandemic control, the price fell and then rebounded to USD701/t in April 2022. In the following 7 months, due to the decreasing corn price and lack of demand momentum, the price fell all the way to USD569/t in Nov.

From Dec. 2022 to April 2023, the price rebounded on the back of rising corn prices and recovering demand. But then from May to Dec., the price swung between USD591/t and USD631/t, mainly influenced by the price of corn. In Jan. 2024, the price of liquid maltitol grew to USD608/t but then dropped to USD571/t in April due to sluggish demand.

As for the price of crystalline maltitol, it fluctuated between USD1,820/t and USD1,950/t from Jan. 2019 to Dec. 2019. However, it headed south further and hit the bottom at USD1,697/t in July 2020; the fall was triggered by shrinking demand under COVID-19 pandemic. Since Aug. 2020, supported by increasing demand and corn price, it climbed up quickly and reached USD2,281/t in June 2021. In H2 2021, due to global inflation and rising raw material prices, prices continued their upward march to USD2,648/t in Nov., a 5-year high.

From Dec. 2021 to April 2022, prices fluctuated between USD2,508/t to USD2,539/t; from May to Dec, as demand weakened, prices down all the way to USD1,825/t in Dec., which was already below 2021 levels and even close to the price lows of 2018 and 2019. The price rose slightly in Jan. and Feb. 2023 due to short-term growing demand. From March 2023 to April 2024, it hovered between USD1,829/t to USD1,894/t, maintaining a relatively stable level.

Figure 4.3-1 Monthly ex-works price of 75% liquid maltitol in China, Jan. 2019–April 2024



Source: CCM

Figure 4.3-2 Monthly ex-works price of crystalline maltitol in China, Jan. 2019–April 2024

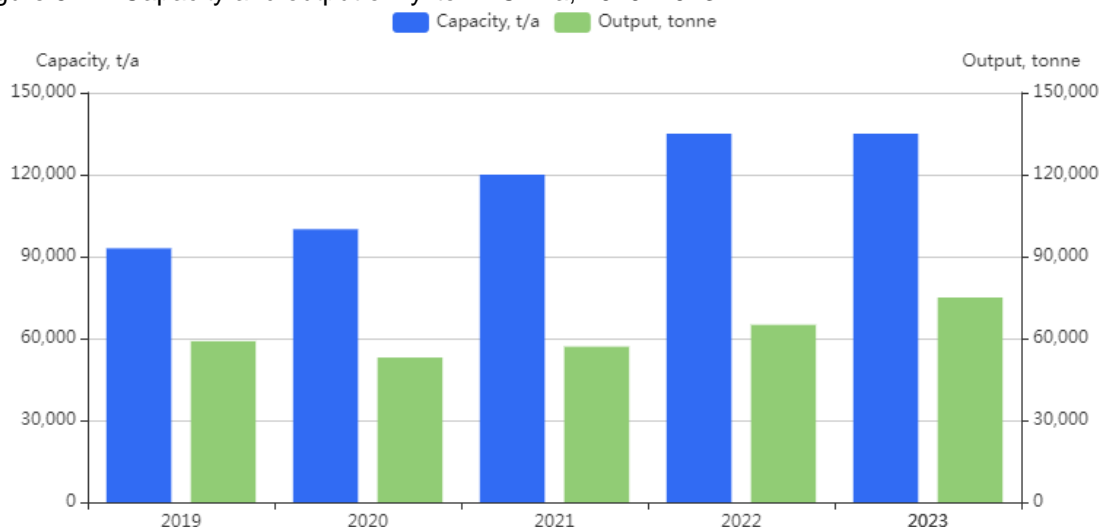


Source: CCM

5 Xylitol

5.1 Capacity and output of xylitol in China, 2019–2023

Figure 5.1-1 Capacity and output of xylitol in China, 2019–2023



Source: CCM

The capacity for xylitol in China increased from 93,000 t/a in 2019 to 135,000 t/a in 2022, with a CAGR of 13.2%. It is worth noting that from 2020 to 2022, Shandong Bailong Chuangyuan Bio-tech Co., Ltd. (Shandong Bailong), Shandong Jianyihong Biotechnology Co., Ltd. (Shandong Jianyihong) and Jinan Shengquan Healtang Biotech Co., Ltd. (Shengquan Healtang) successively entered the xylitol industry. In 2023, China's capacity for xylitol remained stable.

The output of xylitol decreased from 59,000 tonnes in 2019 to 53,000 tonnes in 2020. But it increased rapidly in 2021–2023 thanks to the strong export demand, presenting a CAGR of 14.7%, and the output reached 75,000 tonnes in 2023.

5.2 Major producers and distribution of xylitol in China, 2019–2023

From 2017 to 2019, Zhejiang Huakang Pharmaceutical Co., Ltd. (Huakang Pharma) expanded its capacity from 20,000 t/a to 35,000 t/a. A new entrant in 2019, Harbin Yimei Bioengineering Technology Co., Ltd., joined the market with a capacity of 10,000 t/a. In 2020, Shandong Bailong Chuangyuan Bio-tech Co., Ltd. completed its new construction of 5,000 t/a xylitol project, becoming a new player in Shandong Province.

There were seven active xylitol producers in China in 2023.

- Huakang Pharma, with a capacity of 35,000 t/a, was still the biggest xylitol manufacturer in China in 2023.
- Shengquan Healtang's 15,000 t/a xylitol project was put into operation in 2022.
- Shandong Jianyihong put its 20,000 t/a xylitol line into operation at the end of 2021.
- Yusweet Co., Ltd. (formerly known as Anyang Yuxin Xylitol Technology Co., Ltd.) expanded its capacity to 20,000 t/a in 2020.
- Shandong Longlive Bio-technology Co., Ltd. has suspended its xylitol production since 2020 due to financial problems.
- Shandong Lvjian Biological Technology Co., Ltd. stopped xylitol production in 2020 due to poor business operations.

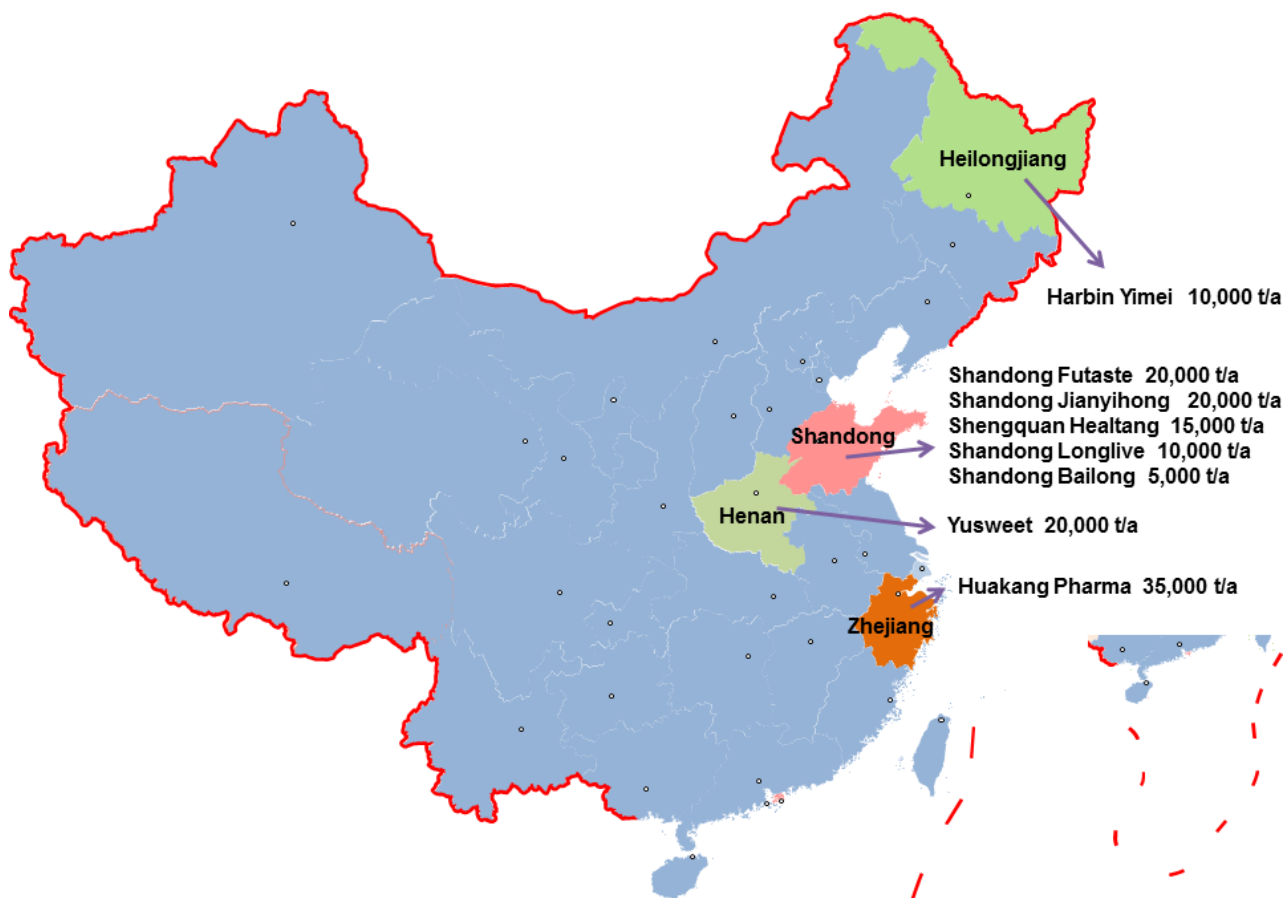
Table 5.2-1 Capacity and output of xylitol producers in China, 2019–2023

No.	Producer	Abbreviation	Location	Status, 2023	Capacity, t/a					Output, tonne				
					2023	2022	2021	2020	2019	2023	2022	2021	2020	2019
1	Zhejiang Huakang Pharmaceutical Co., Ltd.	Huakang Pharma	Zhejiang	Active	35,000	35,000	35,000	35,000	35,000	34,000	34,000	34,000	32,000	34,000
2	Yusweet Co., Ltd.	Yusweet	Henan	Active	20,000	20,000	20,000	20,000	10,000	15,800	13,000	9,300	9,000	9,000
3	Shandong Futaste Pharmaceutical Co., Ltd.	Shandong Futaste	Shandong	Active	20,000	20,000	20,000	20,000	20,000	10,000	9,000	9,000	9,000	9,000
4	Shandong Jianyihong Biotechnology Co., Ltd.	Shandong Jianyihong	Shandong	Active	20,000	20,000	20,000	/	/	5,000	4,000	1,000	/	/
5	Jinan Shengquan Healtang Biotech Co., Ltd.	Shengquan Healtang	Shandong	Active	15,000	15,000	/	/	/	6,000	1,000	/	/	/
6	Harbin Yimei Bioengineering Technology Co., Ltd.	Harbin Yimei	Heilongjiang	Active	10,000	10,000	10,000	10,000	10,000	3,000	3,000	3,000	2,600	200
7	Shandong Longlive Bio-technology Co., Ltd.	Shandong Longlive	Shandong	Idle	10,000	10,000	10,000	10,000	10,000	0	0	0	0	2,300
8	Shandong Bailong Chuangyuan Bio-tech Co., Ltd.	Shandong Bailong	Shandong	Active	5,000	5,000	5,000	5,000	/	1,200	1,000	700	400	/
9	Shandong Lvjian Biological Technology Co., Ltd.	Shandong Lvjian	Shandong	Stopped	0	0	0	0	8,000	/	/	/	/	4,500
Total					135,000	135,000	120,000	100,000	93,000	75,000	65,000	57,000	53,000	59,000

Source: CCM

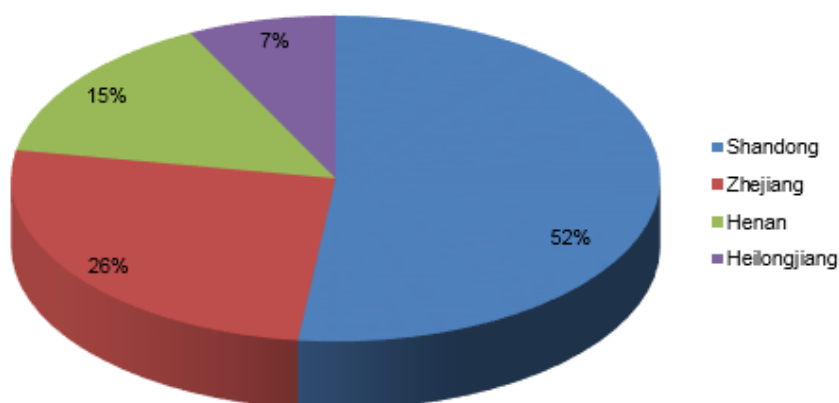
Domestic xylitol manufacturers are mainly located in Shandong, Zhejiang, Henan and Heilongjiang provinces. The capacity in Shandong Province accounted for around 52% of the total in 2023.

Figure 5.2-1 Capacity distribution of xylitol producers in China, 2023



Source: CCM

Figure 5.2-2 Share of xylitol capacity in China by region, 2023



Source: CCM

5.3 Monthly ex-works price of xylitol in China, Jan. 2019–April 2024

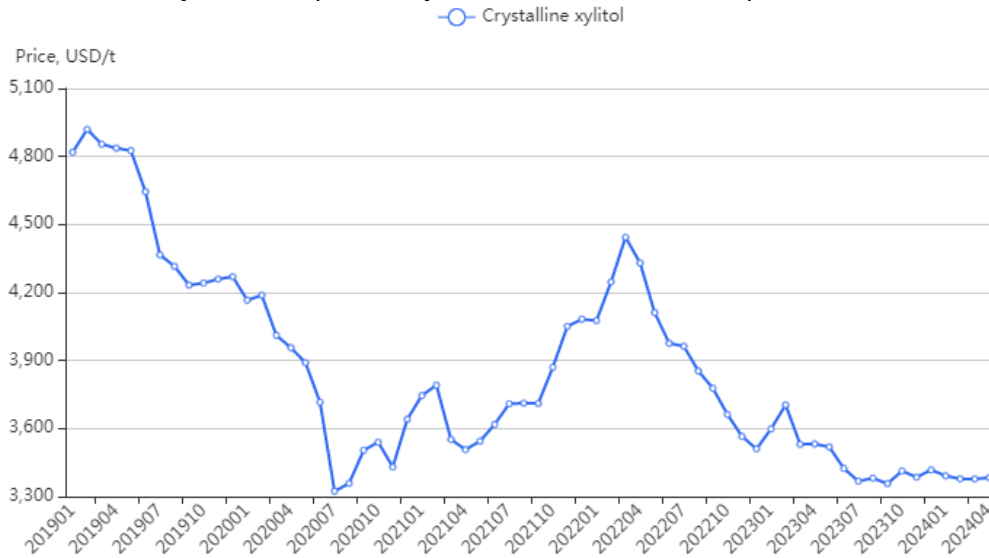
In Jan. 2019–July 2020, the price of xylitol in China showed a downward trend, mainly due to abundant supply and poor demand abroad. The price in July 2020 dropped to USD3,323/t, 37.4% lower than that in June 2018. According to data from China Customs, the export volume of xylitol was 43,935 tonnes in 2019, down 5.1% year on year; however, in H1 2020, due to sluggish overseas demand under the COVID-19

pandemic, the figure was only 20,502 tonnes, down 2.9% year on year.

As the domestic economy started to recover from H2 2020, both the demand for xylitol and the price of corn witnessed increases, leading the price of xylitol to rise slowly and reach USD3,791/t in Feb. 2021. From April 2021 to March 2022, the price rose from USD3,507/t to USD4,443/t with an increase of about 27%, which was influenced by various factors, such as the increase in raw material prices and higher demand. And then the price kept dropping and reached USD3,510/t in Dec. 2022, due to the weak demand.

In 2023, the price of xylitol first increased slightly but then showed a downward trend from USD3,704/t in Feb. to USD3,368/t in July, primarily explained by sluggish domestic demand. From Aug. 2023 to April 2024, supported by strong overseas demand, the price maintained around USD3,400/t despite the fact that raw material prices continued to decrease.

Figure 5.3-1 Monthly ex-works price of xylitol in China, Jan. 2019–April 2024

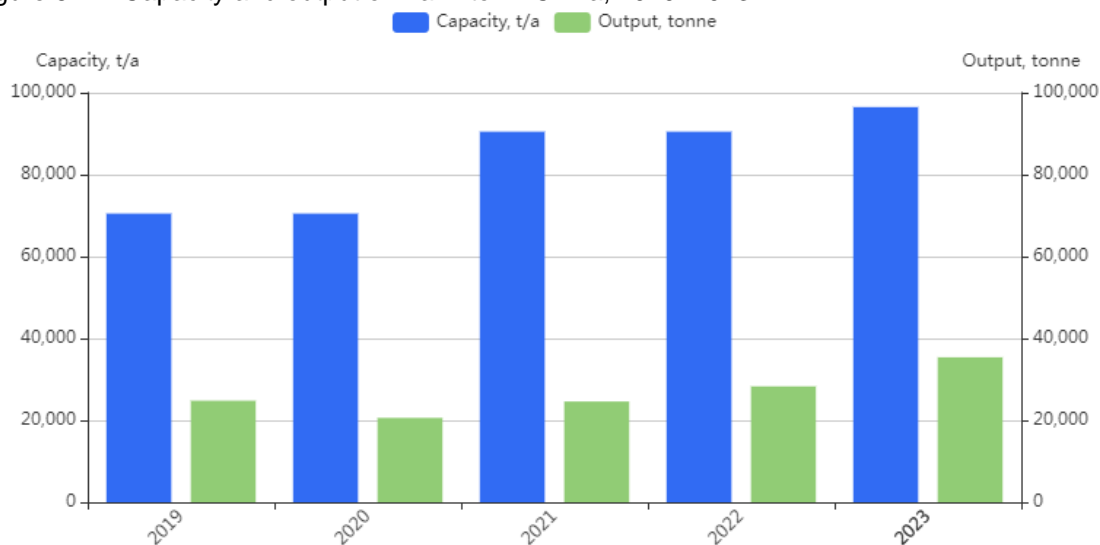


Source: CCM

6 Mannitol

6.1 Capacity and output of mannitol in China, 2019–2023

Figure 6.1-1 Capacity and output of mannitol in China, 2019–2023



Source: CCM

The capacity for mannitol in China increased slightly from 67,500 t/a in 2018 to 70,500 t/a in 2019, and remained unchanged in 2020. Later, the capacity climbed up to 90,500 t/a in 2021, as Zhaoqing Huanfa Biotechnology Co., Ltd. (Zhaoqing Huanfa) and Yufeng Industry Group Co., Ltd. (Yufeng Industry Group) entered the industry. In 2023, New Tuoyang Bio-engineering Co., Ltd. (New Tuoyang Bio) became a new entrant of the industry, increasing the country's capacity to 96,500 t/a.

As for the output, China's mannitol output declined by 20.5% year on year to 24,800 tonnes in 2019 due to weak demand. In 2020, the output reduced further to some 20,600 tonnes, while the industry's average operating rate remained low due to the influence of the COVID-19 pandemic, standing at 29.2%. The country's output recovered to 24,600 tonnes in 2021, and it further increased to 28,300 tonnes in 2022 and 35,400 tonnes in 2023, thanks to the rapid growth of overseas demand.

6.2 Major producers and distribution of mannitol in China, 2019–2023

There were eight active mannitol producers in China in 2023. Among these producers, Shandong Tianli Pharmaceutical Co., Ltd. ranked first, with a capacity of 30,000 t/a. Harbin Yimei Bioengineering Technology Co., Ltd. started to produce mannitol in 2019, with a capacity of 3,000 t/a. Zhaoqing Huanfa and Yufeng Industry Group started to produce mannitol in 2021. New Tuoyang Bio put its 10,000 t/a mannitol production line into operation in 2023. Shandong Jiejing Group Co., Ltd. and Jiangsu Zhongda Biotechnology Group Co., Ltd. suspended production since 2015 and stopped the mannitol business in 2023.

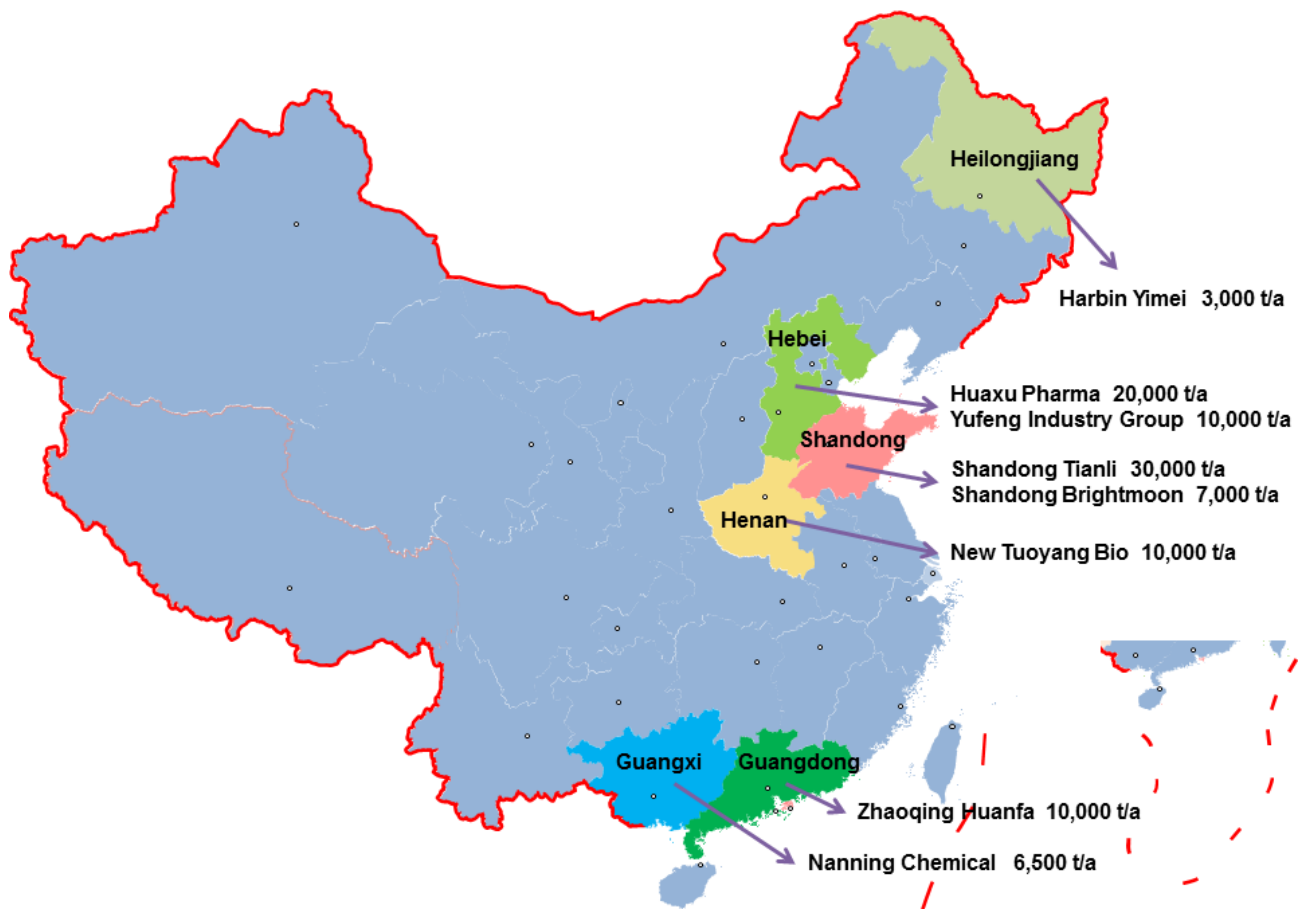
Table 6.2-1 Capacity and output of mannitol producers in China, 2019–2023

No.	Company	Abbreviation	Location	Status 2023	Capacity, t/a					Output, tonne				
					2023	2022	2021	2020	2019	2023	2022	2021	2020	2019
1	Shandong Tianli Pharmaceutical Co., Ltd.	Shandong Tianli	Shandong	Active	30,000	30,000	30,000	30,000	30,000	14,700	11,000	9,200	7,600	9,800
2	Shijiazhuang Huaxu Pharmaceutical Co., Ltd.	Huaxu Pharma	Hebei	Active	20,000	20,000	20,000	20,000	20,000	6,000	5,800	5,500	5,400	6,200
3	Zhaoqing Huanfa Bio-technology Co., Ltd.	Zhaoqing Huanfa	Guangdong	Active	10,000	10,000	10,000	/	/	2,600	1,200	800	/	/
4	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	Active	10,000	10,000	10,000	/	/	2,300	1,400	800	/	/
5	New Tuoyang Bio-engineering Co., Ltd.	New Tuoyang Bio	Henan	Active	10,000	/	/	/	/	500	/	/	/	/
6	Qingdao Brightmoon Seaweed Group Co., Ltd.	Shandong Brightmoon	Shandong	Active	7,000	7,000	7,000	7,000	7,000	3,600	3,700	4,000	3,900	6,000
7	Guangxi Nanning Chemical Pharmaceutical Co., Ltd.	Nanning Chemical	Guangxi	Active	6,500	6,500	6,500	6,500	6,500	4,900	4,400	3,800	3,400	2,500
8	Harbin Yimei Bioengineering Technology Co., Ltd.	Harbin Yimei	Heilongjiang	Active	3,000	3,000	3,000	3,000	3,000	800	800	500	300	300
9	Shandong Jiejing Group Co., Ltd.	Shandong Jiejing	Shandong	Stopped	0	3,000	3,000	3,000	3,000	/	0	0	0	0
10	Jiangsu Zhongda Biotechnology Group Co., Ltd.	Jiangsu Zhongda	Jiangsu	Stopped	0	1,000	1,000	1,000	1,000	/	0	0	0	0
Total					96,500	90,500	90,500	70,500	70,500	35,400	28,300	24,600	20,600	24,800

Source: CCM

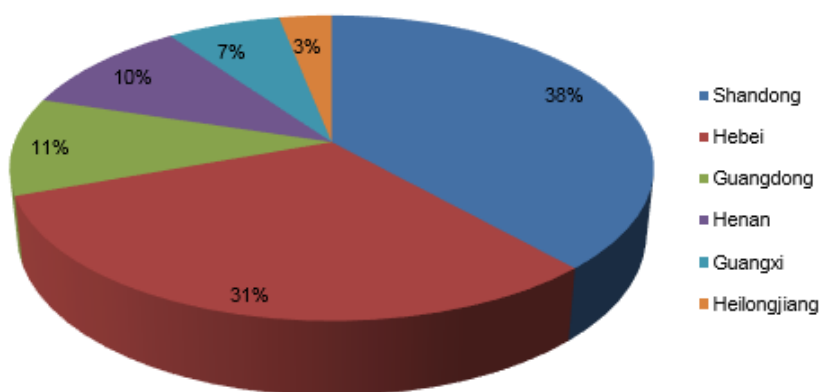
Production of mannitol is mainly concentrated in Shandong and Hebei provinces, with a combined capacity of 67,000 t/a in 2023, which accounted for about 69% of the total in China.

Figure 6.2-1 Capacity distribution of mannitol producers in China, 2023



Source: CCM

Figure 6.2-2 Shares of mannitol capacity in China by region, 2023



Source: CCM

6.3 Monthly ex-works price of mannitol in China, Jan. 2019–April 2024

From Jan. 2019 to Feb. 2020, the price of mannitol showed an upward trend on the whole and peaked at USD5,054/t in Feb. 2020. But then it dropped steadily to USD3,858/t in Aug. due to sluggish demand and fierce competition under COVID-19 pandemic.

Later, with the economy perking up and demand increasing, the price of mannitol recovered slightly and kept hovering around USD4,300/t till May 2021. However, as the prices of raw materials declined since May 2021, the price of mannitol fell to USD3,556/t in Sept. From Oct. 2021 to April 2022, the price showed oscillations, eventually rising to USD4,094/t in April, because of global inflation. Subsequently, the price dropped to USD3,330/t in Nov. 2022 as the pandemic was brought under control and demand fell.

From Dec. 2022 to Feb. 2023, the price rose due to growing demand, but then it kept falling, reaching USD2,647/t in Nov. 2023 amid decreasing corn prices and increasing supply. In Dec. 2023–April 2024, the price was relatively stable and maintained at about USD2,700/t, reflecting a balance between supply and demand in the market.

Figure 6.3-1 Monthly ex-works price of food-grade mannitol in China, Jan. 2019–April 2024

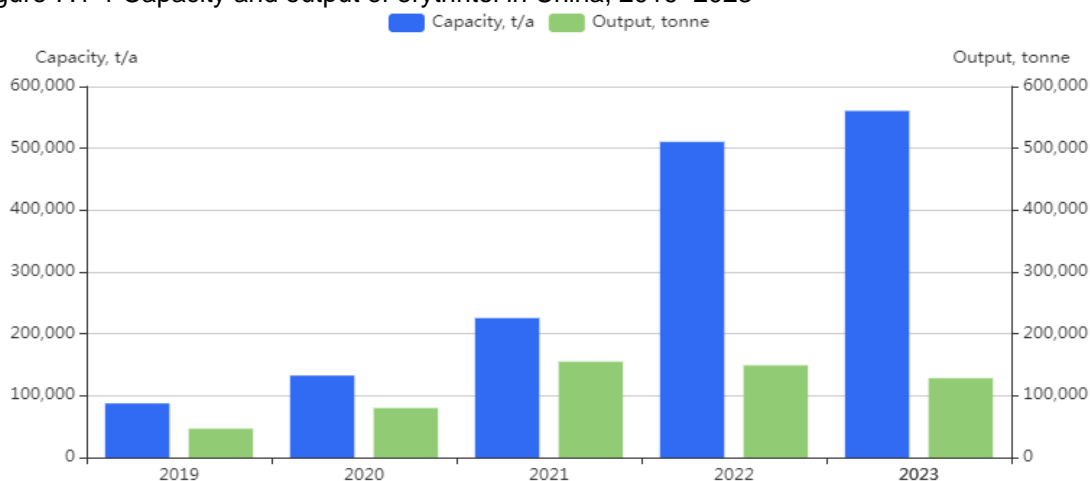


Source: CCM

7 Erythritol

7.1 Capacity and output of erythritol in China, 2019–2023

Figure 7.1-1 Capacity and output of erythritol in China, 2019–2023



Source: CCM

Erythritol has been gaining popularity, due to its low hygroscopicity, anti-cavity effect and low calories, which allow it to be used as a functional condiment. The capacity for erythritol rose from 87,500 t/a in 2019 to 225,500 t/a in 2021, growing at a CAGR of 60.5%, as the rising market demand has driven major producers to expand their erythritol capacity. In 2022, eight new entrants set foot in the market and started to produce erythritol; therefore, the capacity for erythritol increased by over 126% year on year to 510,500 t/a. However, due to the severe overcapacity, the capacity growth slowed down in 2023, with the capacity increasing by nearly 10% year on year to 560,500 t/a.

The output of erythritol grew rapidly to 155,000 tonnes in 2021, over 7 times higher than that in 2017. But in 2022 and 2023, the output dropped to 149,000 tonnes and 128,200 tonnes respectively, owing to the sluggish demand and intense market competition.

The average operating rate of China's erythritol industry climbed up from around 53% in 2018 to about 69% in 2021, but it fell sharply to 29% in 2022. Such drastic decline was because the domestic capacity has nearly doubled compared to the previous year, while demand saw no improvement. In 2023, there was no sign of recovery in demand for erythritol; therefore, the industry's average operating rate further contracted to 23%.

7.2 Major producers and distribution of erythritol in China, 2019–2023

There were 12 active erythritol producers in China in 2023, 6 of which are located in Shandong Province.

Upon completion of a series of technical transformation projects on erythritol production since 2018, Shandong Sanyuan Biotechnology Co., Ltd. (Shandong Sanyuan) has become the largest erythritol producer in China, with a capacity of 135,000 t/a in 2023. Dongxiao Biotechnology Co., Ltd. and Baolingbao Biology Co., Ltd. (Baolingbao Biology) also expanded production capacity in 2020–2023, ranking second and third in terms of capacity in 2023, respectively.

However, Baolingbao Biology, Shandong Chiping Chunrui Bio-Food Co., Ltd. and Jilin Jia'ao Biotechnology Co., Ltd. suspended production in 2023 due the fierce competition in the market. Shandong Futaste Pharmaceutical Co., Ltd. and Zibo Zhongshi Green Biotech Co., Ltd. ceased production in 2020 (the latter resumed production in a small scale in 2021), and Sichuan Anyi Biotechnology Co., Ltd. has suspended production since 2018.

Table 7.2-1 Capacity and output of erythritol producers in China, 2019–2023

No.	Producer	Abbreviation	Location	Status 2023	Capacity, t/a					Output, tonne				
					2023	2022	2021	2020	2019	2023	2022	2021	2020	2019
1	Shandong Sanyuan Biotechnology Co., Ltd.	Shandong Sanyuan	Shandong	Active	135,000	135,000	85,000	65,000	50,000	45,000	46,000	82,000	49,000	26,600
2	Dongxiao Biotechnology Co., Ltd.	Dongxiao Biotechnology	Shandong	Active	90,000	60,000	30,000	30,000	10,000	45,000	43,500	27,000	16,000	9,000
3	Baolingbao Biology Co., Ltd.	Baolingbao Biology	Shandong	Idle	63,000	63,000	33,000	20,000	10,000	0	20,000	25,000	15,000	9,800
4	Zhejiang Huakang Pharmaceutical Co., Ltd.	Huakang Pharma	Zhejiang	Active	30,000	30,000	/	/	/	3,000	10,000	/	/	/
5	Shandong Starlight So True Biological Technology Co., Ltd.	Starlight So True	Shandong	Active	30,000	30,000	/	/	/	2,000	1,000	/	/	/
6	Yuxing Biotechnology (Group) Co., Ltd.	Yuxing Biotechnology	Hebei	Active	20,000	20,000	20,000	/	/	15,000	13,000	10,000	/	/
7	Shandong Fuyang Biotechnology Co., Ltd.	Shandong Fuyang	Shandong	Active	20,000	20,000	20,000	/	/	9,000	8,000	8,000	/	/
8	Shandong Chiping Chunrui Bio-Food Co., Ltd.	Shandong Chunrui	Shandong	Idle	20,000	20,000	20,000	/	/	0	2,000	2,000	/	/
9	Ningxia Eppen Biotech Co., Ltd.	Ningxia Eppen	Ningxia	Active	20,000	20,000	/	/	/	1,500	1,000	/	/	/
10	Binzhou Zhongyu Food Co., Ltd.	Binzhou Zhongyu	Shandong	Active	20,000	20,000	/	/	/	1,500	1,000	/	/	/
11	Yusweet Co., Ltd.	Yusweet	Henan	Active	20,000	20,000	/	/	/	1,200	1,000	/	/	/
12	Heilongjiang Longfeng Corn Development Co., Ltd.	Heilongjiang Longfeng	Heilongjiang	Active	20,000	20,000	/	/	/	1,000	1,000	/	/	/
13	Jilin Jia'ao Biotechnology Co., Ltd.	Jilin Jia'ao	Jilin	Idle	20,000	20,000	/	/	/	0	1,000	/	/	/
14	Shandong Xiangchi Jianyuan Bio-Tech Co., Ltd.	Xiangchi Jianyuan	Shandong	Active	20,000	/	/	/	/	1,000	/	/	/	/
15	Chuzhou Refine Biology Co., Ltd.	Chuzhou Refine	Anhui	Active	15,000	15,000	/	/	/	3,000	500	/	/	/
16	Zibo Zhongshi Green Biotech Co., Ltd.	Zhongshi Green	Shandong	Idle	4,500	4,500	4,500	4,500	4,500	0	0	1,000	0	500
17	Shandong Futaste Pharmaceutical Co., Ltd.	Shandong Futaste	Shandong	Idle	3,000	3,000	3,000	3,000	3,000	0	0	0	0	700
18	Sichuan Anyi Biotechnology Co., Ltd.	Sichuan Anyi	Sichuan	Idle	10,000	10,000	10,000	10,000	10,000	0	0	0	0	0
Total					560,500	510,500	225,500	132,500	87,500	128,200	149,000	155,000	80,000	46,600

Source: CCM

In 2019–2021, erythritol witnessed a spike in demand as it is increasingly popular among consumers. In order to seize more market shares in the booming sector, many companies planned to establish new erythritol projects and accelerated the construction of new projects in the past three years.

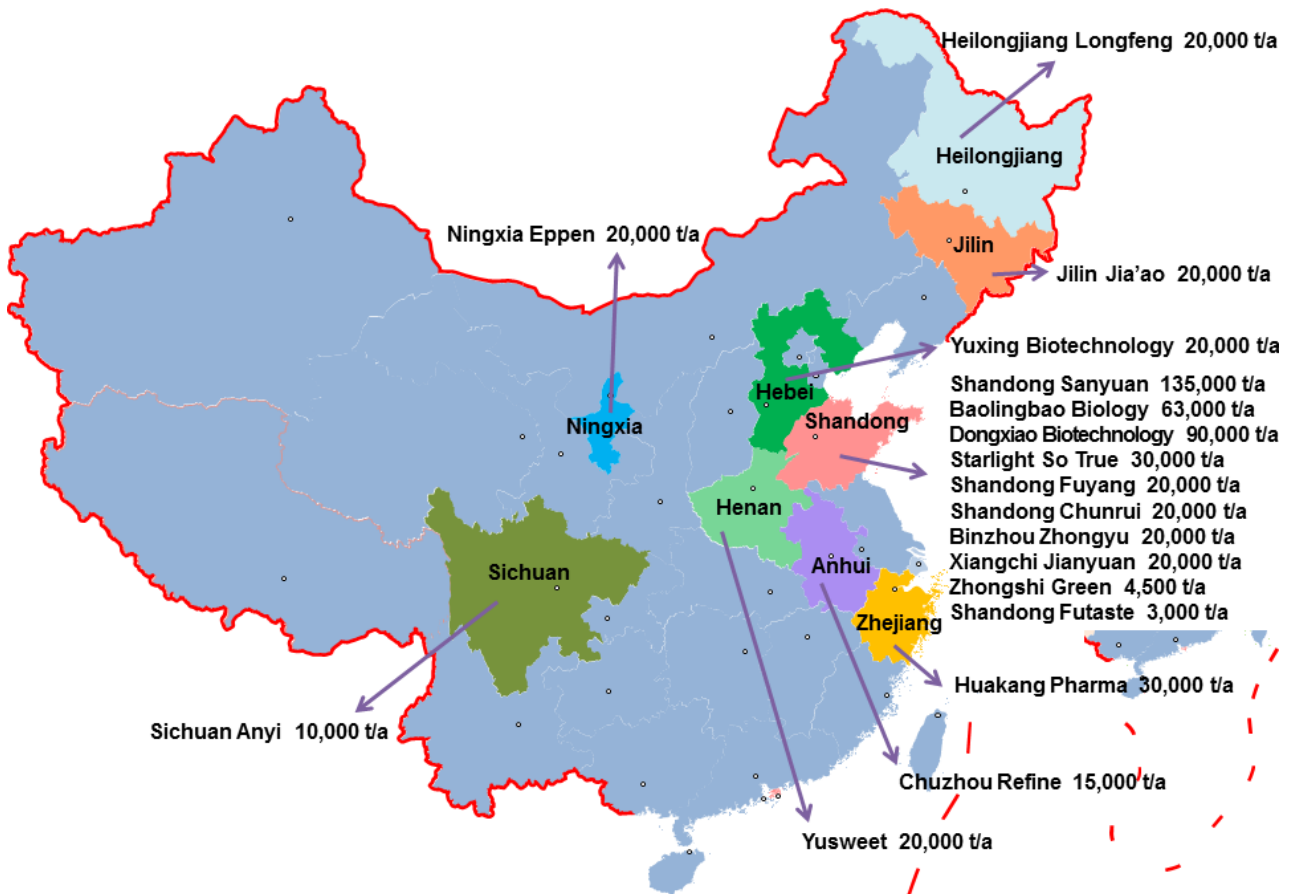
In 2022, there were 11 new erythritol projects built and put into production, including 3 expansion projects by Shandong Sanyuan, Baolingbao Biology and Dongxiao Biotechnology, and 8 new construction projects by newcomers.

- Shandong Sanyuan's 50,000 t/a and Baolingbao Biology's 30,000 t/a erythritol expansion projects were put into production in Nov. and Oct., respectively; Dongxiao Biotechnology's 30,000 t/a expansion project was completed and put into operation in mid-2022.
- Huakang Pharma's new project with an annual output of 30,000 t/a erythritol began trial operation in May.
- Ningxia Eppen put its 20,000 t/a production line into operation in Jan.
- Binzhou Zhongyu's 20,000 t/a production line was commissioned at the end of Jan. and put into production in Feb.
- Yusweet's 20,000 t/a new project was completed construction in Dec. 2021 and put into operation in early 2022.
- Heilongjiang Longfeng's 20,000 t/a project was built and put into commissioning in Aug.
- Jilin Jia'ao's 20,000 t/a new production line completed the environmental self-inspection acceptance in Aug., but has suspended production since 30 Sept. due to changes in market demand and production costs.
- Starlight So True's 30,000 t/a erythritol production line completed construction and started trial production in July.
- Chuzhou Refine's new project with a capacity of 15,000 t/a built up and was put into operation in early 2022.

In 2023, Dongxiao Biotechnology's another 30,000 t/a new project was completed and put into trial production in Jan. And a new player Xiangchi Jianyuan finished the construction of its 20,000 t/a production line, and put it into operation in March.

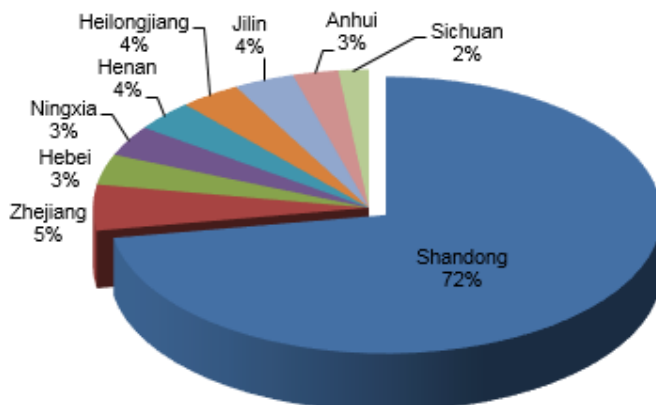
In addition, Anhui BBKA Likang Pharmaceutical Co., Ltd.'s 30,000 t/a erythritol project was built in Oct. 2020, but the project has not been put into production due to the fierce market competition; the company is implementing technical transformation for the production line, after which the capacity of the production line will be reduced to 5,000 t/a.

Figure 7.2-1 Capacity distribution of erythritol producers in China, 2023



Source: CCM

Figure 7.2-2 Shares of erythritol capacity in China by region, 2023



Source: CCM

7.3 Monthly ex-works price of erythritol in China, Jan. 2019–April 2024

In 2019, due to surges in erythritol exports and domestic downstream demand, the price of erythritol rose slightly compared with that in 2018. The yearly average ex-works price increased from USD2,649/t in 2018 to USD2,730/t in 2019. In H1 2020, against the backdrop of the COVID-19 outbreak, the price was generally climbing up due to an increase in the price of its raw material corn starch and rising downstream demand. In H2, the price first went down as new capacity came on stream, but it soon edged up with the raw material prices mounting.

In April 2021, with the demand growing rapidly, erythritol was in short supply and its price soared to USD4,574/t. The price stayed at such a level for several months. As new erythritol capacity in several

enterprises was put into production, the shortage eased and the price plummeted in Sept., sinking further to USD2,786/t in Oct.

As a large number of producers rushed to put new projects into production, the erythritol market fell into vicious competition, leading the price of erythritol to fall from USD2,960/t in Nov. 2021 to USD1,318/t in Nov. 2022. Subsequently, the price saw a slight increase to USD1,544/t in Dec. but then fluctuated between USD1,386/t to USD1,630/t from Jan. 2023 to Feb. 2024 due to persistent oversupply and declined demand. However, the price of erythritol rose to USD1,692/t in April 2024 with the recovery of downstream demand.

Figure 7.3-1 Monthly ex-works price of erythritol in China, Jan. 2019–April 2024



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