

Production and Market of Glycine in China

The Seventh Edition

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Kcomber Inc.

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1. Introduction

Objectives of this research are to present an in-depth and comprehensive view of Chinese glycine market. CCM's goal of this research is to determine the current status of Chinese glycine industry and assess its growth potential from 2018 to 2022.

Having accumulated profound understanding on industrial chains of glyphosate, the most important downstream industry of glycine, CCM will present an insight into glycine market and future trends, together with its industry structure, including upstream products, applications, etc. A review of glycine's competitiveness is also provided in the report.

All of the four grades of glycine, including tech-grade, food-grade, pharmaceutical-grade and feed-grade, will be investigated in this research.

This report will present industry insights from the following aspects.

- Supply (capacity, output, inventory)
- Key players (active producers, potential producers)
- Technology
- Raw materials
- Demand by volume
- Trade
- Price

2. Approach for this report

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

- Telephone Interviews

The interviewees include:

- Producers
- Traders
- Researchers
- Raw material suppliers
- End users

- Data processing and presentation

The data collected and compiled were sourced from:

- Published articles from Chinese periodicals, magazines, journals, and third-party databases
- Government statistics & Customs statistics
- Telephone interviews with Chinese producers, traders, end users, etc.
- Comments from industrial experts
- CCM's database
- Professional database from other sources
- Information from the Internet

The data from various channels have been combined to make this report as precise and scientific as possible. Throughout the process, a series of internal discussions were held in order to analyse the data and draw conclusions from it.

- Information sources

Sources of desk research are various, including published magazines, journals, government statistics, industry statistics, customs statistics, association seminars as well as information on the internet. A lot of work has been done to compile and analyse the information obtained. When necessary, checks were made with Chinese market players regarding market information such as production, demand, consumption, competition, etc.

3. Executive summary

Four grades of glycine are produced in China, namely tech-grade, food-grade, feed-grade and pharmaceutical-grade. Among them, tech-grade glycine has kept the dominate role, and about XXX% of tech-grade glycine was consumed to produce the other three grades of glycine in 2010–2017.

China's glycine industry has developed fast since 2010, driven by the fast development of its key downstream products—glyphosate technical. The national tech-grade glycine capacity increased from XXX t/a in 2010 to XXX t/a in 2017, and the national tech-grade glycine output increased from XXX tonnes in 2010 to XXX tonnes in 2017.

Hebei Donghua Chemical Group (Hebei Donghua) has kept being the top glycine producer in China and even in Asia, with a tech-grade glycine capacity of XXX t/a in 2017, and it still has a XXX t/a tech-grade glycine expansion plan.

Some glyphosate producers have built up or planned to construct glycine production lines for their glyphosate technical production.

- Yichang Jinxin Chemical Co., Ltd. (Yichang Jinxin)'s XXX t/a glycine is firstly supplied to Hubei Trisun Chemical Co., Ltd. (Hubei Trisun), one of the brother companies of the former.
- Sichuan Leshan Fuhua Tongda Agro-chemical Technology Co., Ltd. (Fuhua Tongda)'s XXX t/a glycine is mainly consumed by itself.
- Inner Mongolia Tenglong Fine Chemical Co., Ltd. (Inner Mongolia Tenglong)'s XXX t/a glycine is consumed by itself.
- Henan HDF Chemical Co., Ltd. (Henan HDF)'s XXX t/a glycine is mainly consumed by itself.
- Hebi Nonglin Pharmaceutical Co., Ltd. (Hebi Nonglin) plans to construct a glycine production line with a capacity of XXX t/a.

Almost all Chinese glycine producers adopt a lagging technology called the chloroacetic acid ammonolysis process. Guang'an Chengyang Bio-tech Co., Ltd. (Guang'an Chengyang), whose glycine production lines were built up in Nov. 2015, is the only company in China adopting the hydantion process.

Chinese glycine production is highly concentrated, while its upstream industries including both chloroacetic acid and urotropine are scattered.

The price of glycine is closely linked with that of glyphosate (high-positive correlation), because of glycine's limited consumption fields and simple production technology. In H2 2016, the glycine and glyphosate markets began to recover, with gradual increases in prices and rises in corporate profits. As of the end of 2017, the prices of glycine and glyphosate reached the highest levels in nearly three years, as a result of the increasingly stringent environmental policies and rising demand for glyphosate stimulated by the ban on the use of paraquat AS.

Quite different from the overseas consumption structure, the largest end use segment of glycine in China is glyphosate, followed by pharmaceutical, dyeing, carboxymethyl cellulose (CMC), carboxymethyl starch, etc. The output of glycine route glyphosate reached XXX tonnes in 2017, consuming about XXX tonnes of glycine at total.

China's glycine industry tends to develop stably in the coming five years (2018–2022), along with the promotion of GM crops especially GM soybean and corn, and sustained demand for glyphosate. China's tech-grade glycine capacity is estimated to be over XXX t/a in 2022 if all potential glycine projects are launched in the coming few years.

4. What is in the report?

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

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1 Overview of glycine in China

1.1 Introduction of glycine in China

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Table 1.1-1 Supply and demand of glycine in China, 2010–2017

Year	Capacity, t/a		Output, tonne		Export (others), tonne	Apparent consumption, tonne	
	Tech-grade	Others	Tech-grade	Others		Tech-grade	Others
2010	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2011	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2012	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2013	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2014	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2015	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2016	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2017	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Note: 1. The year-end inventory of tech-grade glycine is taken into account, while that of others is not.

2. Others include feed-grade, food-grade and pharmaceutical-grade glycine.

Source: China Customs & CCM

...

2 Production of glycine in China

2.1 Supply of glycine in China

2.1.1 Capacity and output of glycine in China, 2010–2017

...

Table 2.1.1-1 Capacity and output of glycine in China, 2011–2017

Year	Capacity, t/a		Output, tonne			
	Tech-grade	Others	Tech-grade	Food-grade	Feed-grade	Pharmaceutical-grade
2011	XXX	XXX	XXX	XXX	XXX	XXX
2012	XXX	XXX	XXX	XXX	XXX	XXX
2013	XXX	XXX	XXX	XXX	XXX	XXX
2014	XXX	XXX	XXX	XXX	XXX	XXX
2015	XXX	XXX	XXX	XXX	XXX	XXX
2016	XXX	XXX	XXX	XXX	XXX	XXX
2017	XXX	XXX	XXX	XXX	XXX	XXX

Note: Others include food-grade, feed-grade and pharmaceutical-grade glycine.

Source: CCM

2.1.2 Key glycine producers in China

2.1.2.1 Production of various grades of glycine by producer in China in 2017

Table 2.1.2.1-1 Production for various grades glycine in China by producer, 2017

No.	Producer	Abbreviation	Status '17	Production situation '17			
				Tech-grade	Food-grade	Feed-grade	Pharmaceutical-grade
1	Hebei Donghua Chemical Group	Hebei Donghua	Active	√	√	√	√
2	XXX	XXX	Active	XX	XX	XX	XX
3	XXX	XXX	Active	XX	XX	XX	XX
4	XXX	XXX	Active	XX	XX	XX	XX
5	XXX	XXX	Active	XX	XX	XX	XX
...	XXX	XXX	Active	XX	XX	XX	XX
...	XXX	XXX	Active	XX	XX	XX	XX

Note: √: produce, X: not produce

Source: CCM

Table 2.1.2.1-2 Capacity of glycine in China by producer, 2010–2017, t/a

No.	Producer	Capacity '17		...		Capacity '11		Capacity '10	
		Tech-grade	Others	Tech-grade	Others	Tech-grade	Others	Tech-grade	Others
1	Hebei Donghua Chemical Group	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
...	...	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Note: Others include food-grade, feed-grade and pharmaceutical-grade.

Source: CCM

...

2.1.2.2 Distribution and market share of glycine producers in China

...

Table 2.1.2.2-1 Industrial concentration of tech-grade glycine in terms of output in China, 2010–2017

No.	Item	Value							
		2017	2016	2015	2014	2013	2012	2011	2010
1	Top one concentration ratio	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2	Top five concentration ratio	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
3	Top ten concentration ratio	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
4	Herfindahl-Hirschman Index (HHI)	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: CCM

...

2.1.2.4 Output of glycine by producer in China

Table 2.1.2.4-1 Output of glycine in China by producer, 2010–2017, tonne

No	Producer	Output '17		Output '16		Output '15		Output '14		Output '13		Output '12		Output '11		Output '10	
		Tech-grade	Others														
1	Hebei Donghua	XXX	XXX														
2	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Note: Others include food-grade, feed-grade and pharmaceutical-grade glycine.

Source: CCM

...

2.1.2.5 Inventory of glycine by producer in China

Table 2.1.2.5-1 Inventory of glycine in China by producer, 2010–2017, tonne

No.	Producer	Inventory '17	Inventory '16	Inventory '15	Inventory '14	Inventory '13	Inventory '12	Inventory '11	Inventory '10
1	Hebei Donghua	XXX							
2	XXX								
3	XXX								
4	XXX								
...	XXX								

Note: The year-end inventory of tech-grade glycine is taken into account, while that of others is not.

Source: CCM

...

2.1.3 Potential production lines of glycine in China

Table 2.1.3-1 Potential projects of glycine in China, as of 2017

Classification	Company	Designed capacity, t/a	Planned commissioning date (estimated)	Details
Expansion	XXXXXX	XXX tech-grade	XXX	XXXXXXXXXXXXXXXXXX
	XXXXXX	XXX tech-grade	XXX	XXXXXXXXXXXXXXXXXX
	XXXXXX	XXX tech-grade, XXX feed-grade, XXX food-grade	XXX	XXXXXXXXXXXXXXXXXX
				XXXXXXXXXXXXXXXXXX
				XXXXXXXXXXXXXXXXXX
XXXXXX	XXX food-grade	XXX	XXXXXXXXXXXXXXXXXX	
New	XXXXXX	2 nd phase: XXX tech-grade, XXX food-grade	XXX	XXXXXXXXXXXXXXXXXX
	XXXXXX	XXX tech-grade	XXX	XXXXXXXXXXXXXXXXXX
	XXXXXX	XXX tech-grade	XXX	XXXXXXXXXXXXXXXXXX
	XXXXXX	XXX tech-grade	XXX	XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX				

Source: CCM

...

2.2 Price of glycine in China

2.2.1 Price of glycine in China, Jan. 2010–Feb. 2018

Figure 2.2.1-1 Monthly ex-works price of tech-grade glycine in China, Jan. 2010–Feb. 2018



Source: CCM

...

2.3 Export of glycine in China

2.3.1 Export volume of glycine in China, 2010–2017

Figure 2.3.1-1 China's export volume of various grades glycine, 2010–2017



Source: China Customs & CCM

www.cnchemicals.com

E-mail: econtact@cnchemicals.com

2.3.3 Export destination of glycine in China, 2010–2017

...

Table 2.3.3-8 China's exports of glycine by destination, 2017

No.	Country/region	Food-grade		Feed-grade		Pharmaceutical-grade	
		Volume, tonne	Price, USD/t	Volume, tonne	Price, USD/t	Volume, tonne	Price, USD/t
1	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX	XXX
...	XXX	XXX	XXX	XXX	XXX	XXX	XXX
...	XXX	XXX	XXX	XXX	XXX	XXX	XXX
...	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Others		XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX

Note: The data has been rounded.

Source: China Customs & CCM

...

2.3.4 Exporter of glycine in China, 2010–2017

...

Table 2.3.4-8 China's exports of glycine by exporter, 2017

No.	Exporter	Food-grade		Feed-grade		Pharmaceutical-grade	
		Volume, tonne	Price, USD/t	Volume, tonne	Price, USD/t	Volume, tonne	Price, USD/t
1	XXX *	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX*	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX	XXX
...	XXX	XXX	XXX	XXX	XXX	XXX	XXX
...	XXX *	XXX	XXX	XXX	XXX	XXX	XXX
...	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Others		XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX

Note: 1. * Glycine producers or their related companies

2. The data has been rounded.

Source: China Customs & CCM

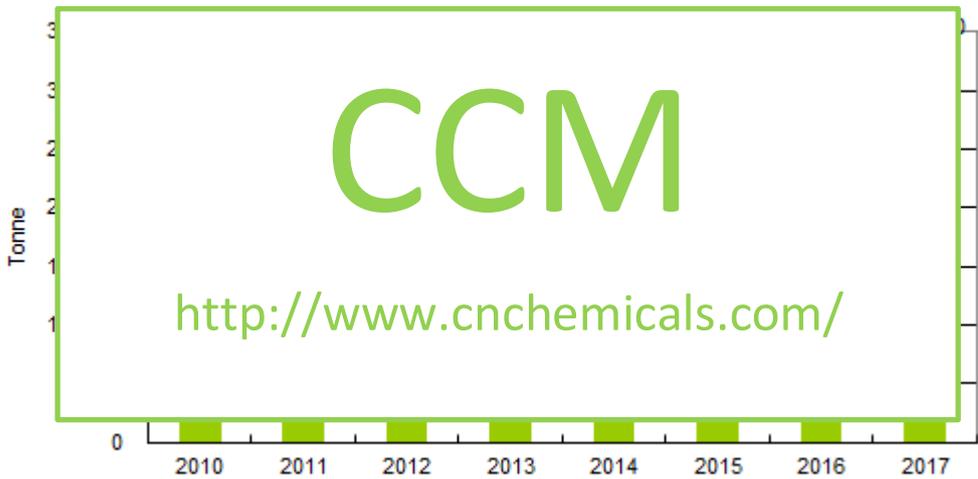
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3 Demand for glycine in China

3.1 Consumption of glycine in China, 2010–2017

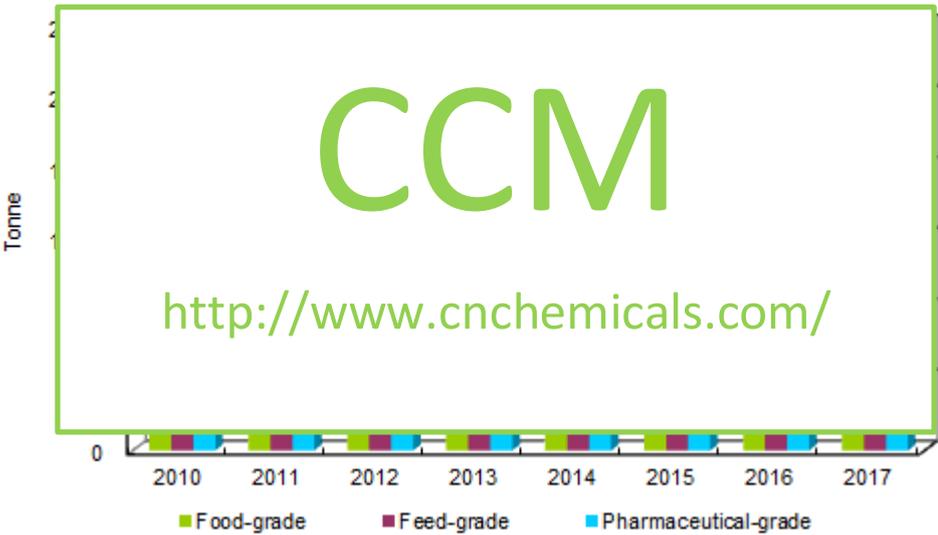
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Figure 3.1-1 Consumption of tech-grade glycine in China, 2010–2017



Source: CCM

Figure 3.1-2 Consumption of various grades glycine in China, 2010–2017



Source: CCM

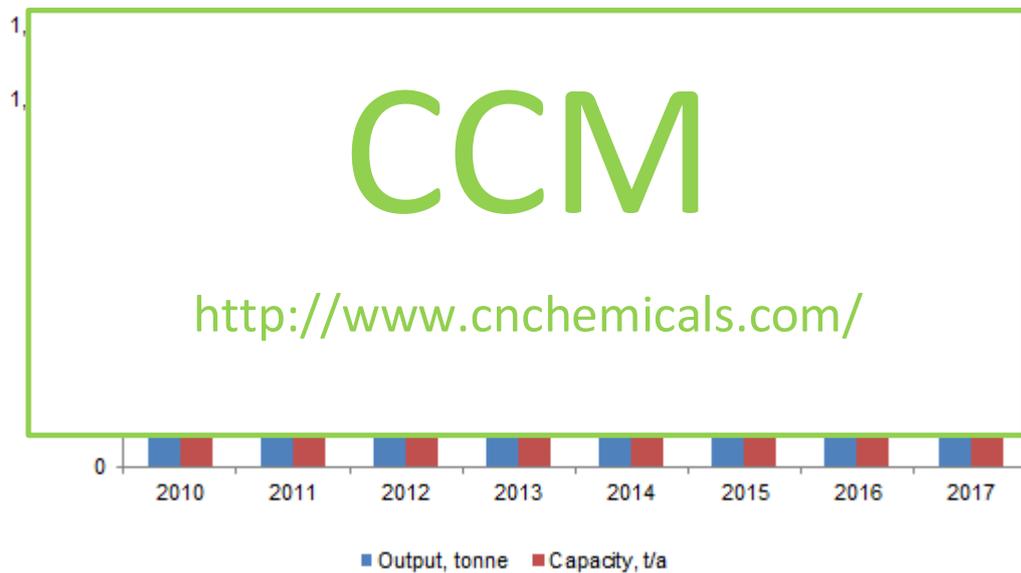
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3.2 Major application segments of glycine in China, 2010–2017

3.2.1 Glyphosate

...

Figure 3.2.1-1 Capacity and output of glyphosate technical in China, 2010–2017



Source: CCM

...

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