CCM Data & Business Intelligence

Production and Market of Imidacloprid in China

The Sixth Edition

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Researched & Prepared by:

Kcomber Inc.

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1. Introduction

This is CCM's sixth edition of China's imidacloprid industry report. It attaches importance to the following parts:

- Update all the data related to imidacloprid industry from technical and formulations in China in 2011–2016, including registration, supply, export, price, consumption, etc.
- Identify the key players and potential producers of imidacloprid industry in China.
- Emphasize consumption of imidacloprid in 2012–2017, as well as the consumption structure by crops, regions and formulations in 2016.
- Figure out the development status and influencing factors including drivers and barriers.
- Forecast the imidacloprid industry development from supply, export and demand in 2017–2021.
- Get a clear understanding of the future development trend, and identify China's position of imidacloprid industry from a global perspective.
- Explore commercial opportunities of imidacloprid industry in China under the context of the new global economy situation. Analyze substitutes for imidacloprid products in domestic market.

This report is formulated in June 2017. The data is based on various sources as mentioned in the methodology below.

2. Approach for this report

The report is drafted by diverse methods as follows:
- Desk research

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

- Telephone Interview

- The interviewees cover:
- Pesticide producers
- Agricultural experts
- Traders
- Local governments
- Researchers
- Peasants
- Associations

CCM carried out extensive telephone interviews with all producers of imidacloprid technical

and many producers of formulations. From those active producers, potential producers, even producers who stopped production, CCM sourced and verified the detailed production information and market situation as well as players'comments on imidacloprid.

In a bid to understand the application situation of imidacloprid formulations in China, CCM also made contact with domestic traders, sellers and peasants as well. To directly analyze the import and export situation of imidacloprid technical and formulations, many importers and exporters were contacted whenever the verification was needed.

These raw material suppliers are also contacted to get the price, supply as well as governmental policies of raw materials and their impact on imidacloprid.

- Data processing and presentation

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 analyze the data and draw conclusions from it.

- List of definitions

Definitions of the various products, markets and processes are included where these terms arise in the text. Here are some common definitions:

- Glossary

In this report, there are many abbreviations for specifications of imidacloprid formulations and intermediate products. They are listed as follows:

AI: Active ingredient
CAGR: Compound annual growth rate
CCMP: 2-Chloro-5-(chloromethyl) pyridine
DCPD: Dicyclopentadiene
DMF: Dimethylformamide
EC: Emulsifiable concentrate
FS: Flowable concentrate for seed treatment
GR: Granular bait
MIIT: Ministry of Industry and Information Technology
MNC(s) : Multinational corporation(s)
SL: Soluble concentrate
SS: Water soluble powder for seed treatment
WP: Wettable powder
WS: Water dispersible powder for slurry treatment
WG: Water dispersible granule
YoY: Year-on-year

Imidacloprid is defined as imidacloprid technical in the report, if not specified.

- Self-applied

It is worth noting that non-crop use means the same as non-agricultural use in this report, and non-crop uses of imidacloprid mainly include the following sectors:

Self-applied, also called consumer-applied, is the largest non-crop application sector of imidacloprid, which is mainly applied to kill household pests, including termites, ants, flies, cockroaches, etc., both in the interior and exterior of the buildings.
Public health
Pest Control Operation (PCO)
Seasonal and ornamental crops
Forestry turf (golf, pasture, etc.)
Timber treatment

- Units

t: metric tonne, equal to tonne in this report
kg: kilogram
t/a: tonne per year, also metric tonne per year, also tonne/year
RMB: currency unit in China, also called Yuan
USD: currency unit in the US

Table USD/RMB exchange rate, 2012–April 2017

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
2012	6.3168	6.3000	6.3081	6.2966	6.3062	6.3178	6.3235	6.3404	6.3395	6.3144	6.2953	6.2900	6.3124
2013	6.2787	6.2842	6.2743	6.2471	6.1970	6.1718	6.1725	6.1708	6.1588	6.1393	6.1372	6.1160	6.1956
2014	6.1043	6.1128	6.1358	6.1553	6.1636	6.1557	6.1569	6.1606	6.1528	6.1441	6.1432	6.1238	6.1424
2015	6.1272	6.1339	6.1507	6.1302	6.1143	6.1161	6.1167	6.3056	6.3691	6.3486	6.3666	6.4476	6.2272
2016	6.5527	6.5311	6.5064	6.4762	6.5315	6.5874	6.6774	6.6474	6.6715	6.7442	6.8375	6.9182	6.6401
2017	6.8918	6.8713	6.8932	6.8845	-	-	-	-	-	-	-	-	-

Source: The People's Bank of China

3. Executive summary

With fast development in recent years, China's pesticide industry becomes more and more important in the global pesticide industry chain. Imidacloprid, as one of the major insecticides in China, also takes an important role in the global market. China is not only an imidacloprid producer that can guarantee its own agricultural production, but also an important imidacloprid exporter in the world. China has many advantages in the production of imidacloprid, including efficient production technology, stable raw material supply and low production cost, etc.

✓ Production & producers

Nowadays, China is a major imidacloprid supplier in the world. China's total capacity of imidacloprid technical has reached 30,600 t/a as of April 2017. And China produced about 23,100 tonnes of imidacloprid technical in 2016.

Thanks to the large demand from overseas market, China's output of imidacloprid (calculated by 100% technical) will continuously increase with an expected CAGR of 3.33% in 2017–2021.

The production of imidacloprid will be gradually concentrated in producers who have advanced production technology and wide distribution channels, such as Jiangsu Kwin Group Co., Ltd. (Jiangsu Kwin), Jiangsu Yangnong Chemical Group Co., Ltd. (Yangnong Chemical), Hailir Pesticides and Chemicals Group Co., Ltd. (Hailir Group) and Jiangsu Changqing Agrochemical Co., Ltd. (Jiangsu Changqing).

There were 18 active producers and 2 idle producers of imidacloprid technical in China as of April 2017. The top 5 producers by capacity are Jiangsu Kwin (5,000 t/a), Jiangsu Changqing (3,000 t/a), Hebei Yetian Agrochemicals Co., Ltd. (2,500 t/a), Hailir Group (2,500 t/a) and Yangnong Chemical (2,500 t/a), accounting for 50.65% of China's total capacity. Also, there were totally 13 producers with imidacloprid capacity reaching over 1,000 t/a as of April 2017.

✓ Import & export

Thanks to the large global demand for imidacloprid, more and more Chinese imidacloprid has been exported, with the CAGR of its export volume reaching 14.13% in 2012–2016. The export volume of imidacloprid (calculated by 100% technical) witnessed a CAGR of 8.49% in 2012–2016, owing to the growing demand from overseas market mainly caused by the expiration of imidacloprid patents in South America. It is forecasted that the export volume of imidacloprid (calculated by 100% technical) will keep growing with a CAGR of 3.90% in 2017–2021 and Chinese imidacloprid will be increasingly dependent on overseas market.

In 2016, the total export volume of imidacloprid in China was 32,268 tonnes, including 13,561 tonnes of technical and 18,707 tonnes of formulations. And the total export volume of imidacloprid technical (calculated by 100% technical) was around 13,027 tonnes, accounting for 70.43% of the total export volume of imidacloprid of 18,496 tonnes (calculated by 100% technical) in 2016.

Because of the abundant supply and high quality of homemade imidacloprid, China imports a small amount of imidacloprid formulations.

✓ Consumption & demand

At present, major imidacloprid formulations consumed in China are 10% WP, 200g/L SL, 25% WP and 5% EC. Owing to the growing pest resistance, more and more imidacloprid

formulations with high content are needed, such as 50% WP and 70% WG.

Imidacloprid is mainly used in the control of rice planthoppers and aphids on rice, wheat, vegetables, cotton, etc. Rice is the largest application field of imidacloprid, and wheat ranks the second by consumption of imidacloprid (calculated by 100% technical, similarly hereinafter). For these two crops, about 2,229 tonnes of imidacloprid had been consumed in 2016, accounting for 54.30% of the total consumption of imidacloprid. Owing to high imidacloprid resistance of rice planthoppers, the consumption of imidacloprid on rice decreased in 2016 and it is estimated to decline in the next few years until the resistance recovers to a normal level. With the decline of the cotton planting area in China, the consumption of imidacloprid on cotton also showed a downtrend in China in 2016. As for wheat, the consumption of imidacloprid will keep a stable growth. Fruits and vegetables' consumption of imidacloprid will increase. The application of seed treatment technology will boost the demand for imidacloprid, especially from wheat.

Imidacloprid is effective on nymphs and adults of rice planthoppers. At present, there are several insecticides which can be substitutes for it, mainly including acetamiprid, pymetrozine, etc.

- ✓ Price change of imidacloprid technical

During 2012–2016, the ex-works price of imidacloprid 95% technical in China fluctuated. It had reached the highest record in May 2013 and then kept stable at about USD22,000/t–USD23,500/t in March 2014. But it decreased from USD22,420/t in April 2014 to USD13,996/t in July 2016. Since August 2016, the price had begun to increase.

The ex-works price of imidacloprid 95% technical in China in April 2017 was USD23,787/t.

4. What's in this report?

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

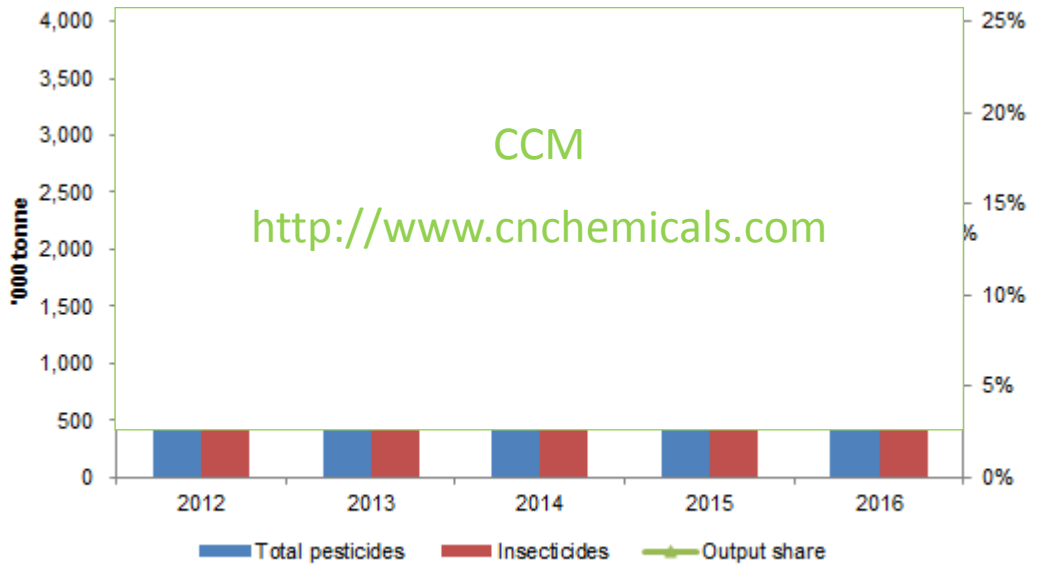
1 Introduction to imidacloprid industry in China

1.1 Brief introduction to insecticide industry

In recent two decades, the pesticide industry in China has been developing rapidly. The output of pesticides has almost doubled every five years while pesticide varieties have increased several times as well, which makes China become a major supplier of pesticides in the world. Now China can produce more than 400 varieties of pesticides, among which around 200 are widely produced and there are about 400 varieties of pesticides exported to other countries. Nowadays, China is not only a pesticide producer for guaranteeing its own agricultural

production, but also an important pesticide exporter for other countries. Specifically, the output of Chinese pesticides has reached 3.55 million tonnes (calculated by 100% technical, similarly hereinafter) in 2012, ranking the first in the world. In 2016, China's pesticide technical output recorded as high as XXX million tonnes.

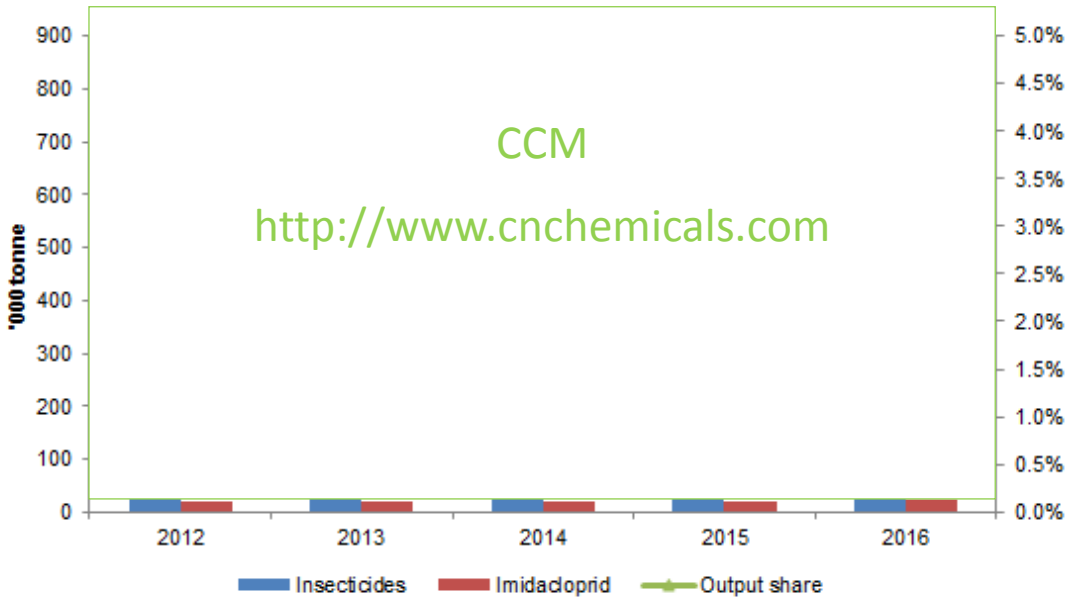
Figure 1.1-1 Output volume and output share of insecticides in pesticides in China, 2012–2016



Note: The output was converted to 100% technical.

Source: The National Bureau of Statistics of China (NBS)

Figure 1.3-1 Output share of imidacloprid in insecticide industry in China, 2012–2016



Source: CCM

2 Supply & demand of imidacloprid in China

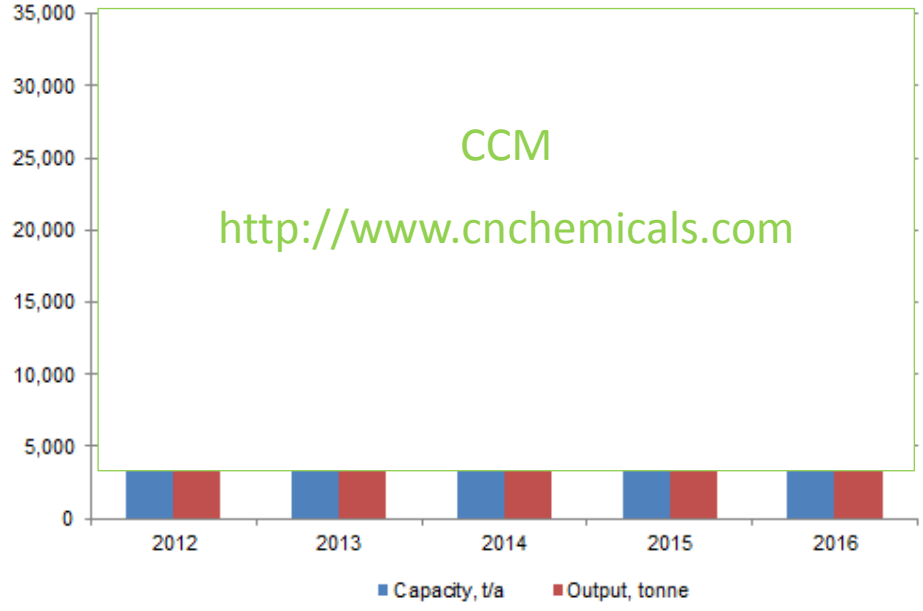
Table 2.1.2-2 Cost analysis of raw materials in production of imidacloprid technical in China by DCPD route, March 2017

No.	Raw material	Consumption, unit/t	Price, USD/t	Unit cost, USD/t
1	Dicyclopentadiene (DCPD, 96%)	XXX	XXX	XXX
2	Acrylaldehyde (99%)	XXX	XXX	XXX
3	Acrylonitrile (99.5%)	XXX	XXX	XXX
4	Methylbenzene (99.5%)	XXX	XXX	XXX
5	Hydrochloric acid (31%)	XXX	XXX	XXX
6	Sodium chloride (99%)	XXX	XXX	XXX
7	Liquid chlorine (99%)	XXX	XXX	XXX
8	Phosphorus oxychloride (99%)	XXX	XXX	XXX
9	Sodium carbonate (99%)	XXX	XXX	XXX
10	Tert-Butanol (99.5%)	XXX	XXX	XXX
11	Potassium hydroxide (95%)	XXX	XXX	XXX
12	N-Nitroiminoimidazolidine (98%)	XXX	XXX	XXX
13	Dimethylformamide (DMF, 99.5%)	XXX	XXX	XXX
14	2-Butanone (99.5%)	XXX	XXX	XXX
15	Sodium hydroxide (99%)	XXX	XXX	XXX
16	Catalyst (Pt or Cu) (99%)	XXX	XXX	XXX
Total				XXX

Source: CCM

2.3 Current supply of imidacloprid in China

Figure 2.3.1-1 Capacity and output of imidacloprid technical in China, 2012–2016



Source: CCM

2.3.2 Key technical producers, 2012–2016

- Producers of imidacloprid technical

According to CCM's investigation in April 2017, XXX companies have been confirmed to be involved in the production of imidacloprid technical, among which XXX are active producers and XXX are idle.

Table 2.3.2-1 Capacity of imidacloprid technical producers in China, as of April 2017

No.	Capacity distribution	Number of producers	Total capacity, t/a	Share of capacity
1	⩾3,000	XXX	XXX	XXX
2	⩾1,000 and ＜3,000	XXX	XXX	XXX
3	⩾500 and ＜1,000	XXX	XXX	XXX
4	＜500	XXX	XXX	XXX
Others		XXX	XXX	XXX
Total		XXX	XXX	XXX

Source: CCM

Table 2.3.2-2 Geographical distribution of imidacloprid technical production in China, 2016

No.	Region	Number of producers	Capacity, t/a	Share of capacity	Output, t/a	Share of output
1	Jiangsu Province	XXX	XXX	XXX	XXX	XXX
2	Shandong Province	XXX	XXX	XXX	XXX	XXX
3	Hebei Province	XXX	XXX	XXX	XXX	XXX
4	Zhejiang Province	XXX	XXX	XXX	XXX	XXX
5	Henan Province	XXX	XXX	XXX	XXX	XXX
6	Anhui Province	XXX	XXX	XXX	XXX	XXX
Others		XXX	XXX	XXX	XXX	XXX
Total		**XXX**	**XXX**	**XXX**	**XXX**	**XXX**

Source: CCM

Table 2.3.2-3 Basic information of imidacloprid technical producers in China

No.	Producer	Abbreviation	Location	Ownership	Registration number	Launch time	Status, as of April 2017
1	Jiangsu Kwin Group Co., Ltd.	Jiangsu Kwin	Jiangsu Province	Private	PD20040061	2001	Active
2	XXX	XXX	XXX	XXX	XXX	XXX	XXX
…	XXX	XXX	XXX	XXX	XXX	XXX	XXX
20	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: CCM

Table 2.3.2-4 Capacity and output of imidacloprid technical producers in China, 2012–2016

No.	Producer	2016		2015		2014		2013		2012	
		Capacity (t/a)	Output (tonne)	Capacity (t/a)	Output (tonne)	Capacity (t/a)	Output (tonne)	Capacity (t/a)	Output (tonne)	Capacity (t/a)	Output (tonne)
1	Jiangsu Kwin Group Co., Ltd.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
…	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
20	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Others		XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: CCM

2.4 Circulation

2.4.1 Price of imidacloprid technical in China, 2012–2016

During 2012–2016, the ex-works price of imidacloprid technical in China reached the highest record in May 2013 and then kept stable at about XXX–XXX in March 2014. But it decreased from XXX in April 2014 to XXX in July 2016. During August 2016–April 2017, it was on the rise.

Figure 2.4.1-1 Monthly average ex-works price of imidacloprid 95% technical in China, Jan. 2012–April 2017

Source: CCM

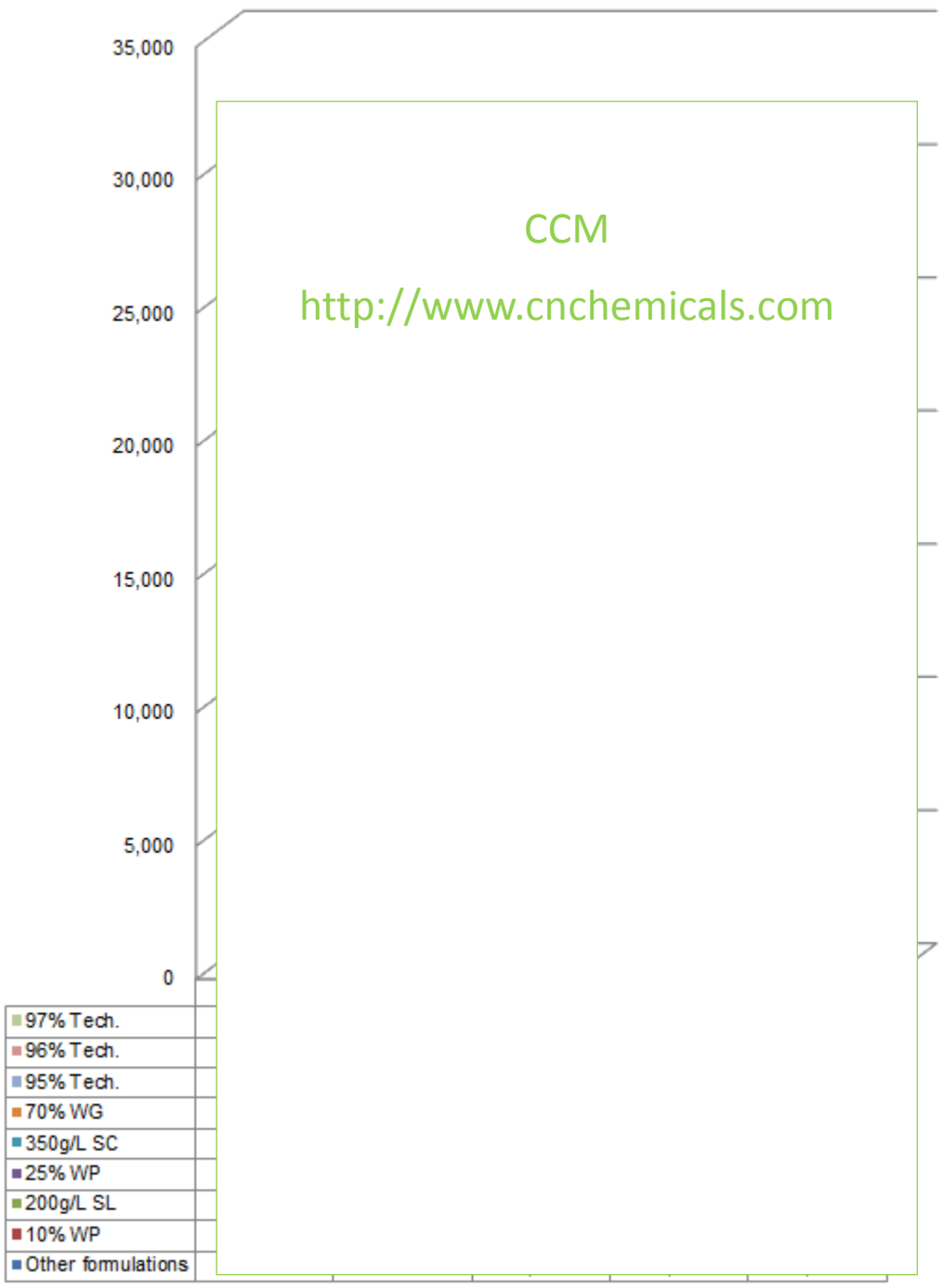
2.4.2 Export & import analysis of imidacloprid

2.4.2.1 Export, 2012–2016

Main varieties of imidacloprid products for export

The major varieties of exported imidacloprid technical are 95% technical, 96% technical and 97% technical. With the development of production technology and overseas customers' improving requirements, the content of imidacloprid technical exported from China has been improved. The export volume of high content imidacloprid technical (97%) has increased sharply in recent years, up to XXX tonnes in 2013, the highest volume in recent years. And it kept above XXX tonnes in 2014 and 2015 and XXX tonnes in 2016 while that in 2008 and 2011 was only XXX tonnes and XXX tonnes respectively. Now, the export volume of imidacloprid 97% technical accounts for the largest part of the total export volume of imidacloprid technical.

Figure 2.4.2.1-1 Export volume of imidacloprid technical and formulations in China, 2012–2016, tonne



Note: Other formulations include 200g/L SC, 240g/L SC, 250g/L SL, 480g/L SC, 50% WP, 5% EC, 600g/L FS, 600g/L SC, 70% WP and 70% WS.

Source: China Customs and CCM

Table 2.4.2.1-1 China's exports of imidacloprid by month, 2016

Month	10% WP		200g/L SL		350g/L SC		70% WG		Other formulations		Technical		Total value, USD
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	
Jan.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Feb.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
March	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
April	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
May	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
June	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
July	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Aug.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Sept.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Oct.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Nov.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Dec.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Note: Other formulations include 200g/L SC, 240g/L SC, 25% WP, 480g/L SC, 5% EC, 600g/L FS, 600g/L SC, 70% WP and 70% WS.

Source: China Customs and CCM

Table 2.4.2.1-6 China's exports of imidacloprid by exporter, 2016

No.	Exporter	10% WP		200g/L SL		350g/L SC		70% WG		Other formulations		Technical		Total value, USD
		Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	
1	Jiangsu Yangnong Chemical Co., Ltd.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2	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
20	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Others		XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Note: Other formulations include 200g/L SC, 240g/L SC, 25% WP, 480g/L SC, 5% EC, 600g/L FS, 600g/L SC, 70% WP and 70% WS.

Source: China Customs and CCM

Table 2.4.2.1-11 China's exports of imidacloprid by destination, 2016

No.	Destination	10% WP		200g/L SL		350g/L SC		70% WG		Other formulations		Technical		Total value, USD
		Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	
1	Brazil	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
2	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
20	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Others		XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Note: Other formulations include 200g/L SC,200g/L SL,240g/L SC, 25% WP, 350g/L SC, 80g/L SC, 5% EC, 600g/L FS, 600g/L SC, 70% WDG, 70% WP and 70% WS.

Source: China Customs and CCM

2.5 Consumption for imidacloprid in China

2.5.1 Consumption summary, 2012–2016

Imidacloprid is one of the most widely used insecticides in China, which is mainly applied on rice, wheat, fruit trees, vegetables, cotton, tea, etc. Imidacloprid has also been used in seed coating formulations and the control of household and public health pests. It has the effects of contact toxicity, stomach poison and systemic action on pests and it has played an important part in the agricultural production in China for a long period.

Table 2.5.1-1 Output, export, import and apparent consumption of imidacloprid (calculated by 100% technical) in China, 2012–2016, tonne

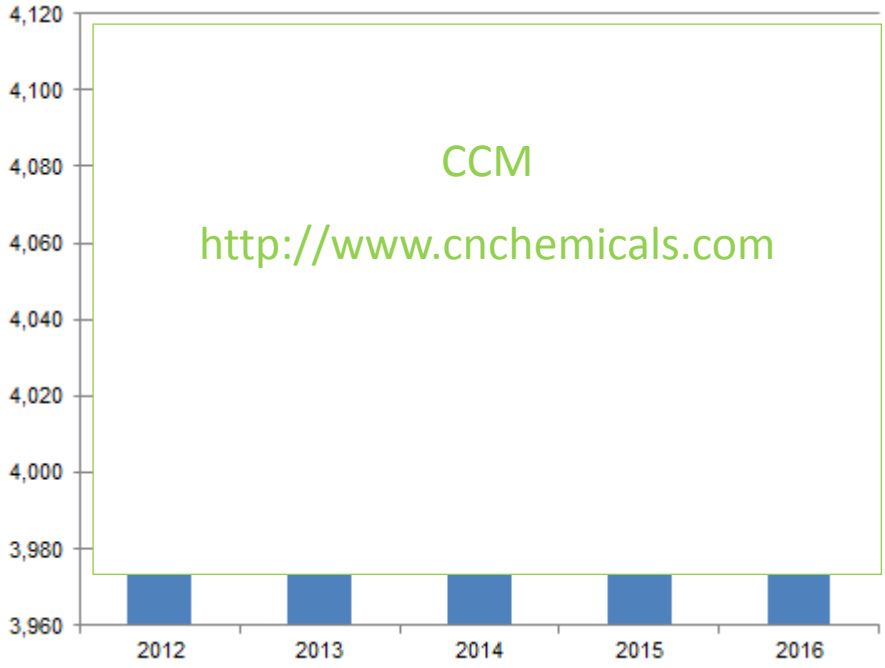
Year	Technical output	Export volume			Import volume	Apparent consumption volume
		Technical	Formulations	Total		
2012	XXX	XXX	XXX	XXX	XXX	XXX
2013	XXX	XXX	XXX	XXX	XXX	XXX
2014	XXX	XXX	XXX	XXX	XXX	XXX
2015	XXX	XXX	XXX	XXX	XXX	XXX
2016	XXX	XXX	XXX	XXX	XXX	XXX

Note: Import volume in 2012–2016 was assumed according to CCM's estimation.

Apparent consumption=output + import - export

Source: CCM

Figure 2.5.1-1 Actual consumption volume of imidacloprid (calculated by 100% technical) in China, 2012–2016, tonne



Source: CCM

2.5.2 Share by crops

Imidacloprid is mainly used on rice, wheat, vegetables, fruits and cotton in China. The consumption volume of imidacloprid (calculated by 100% technical) on these crops reached XXX tonnes in 2016, accounting for XXX% of the total consumption volume in China. Rice has been the largest consumption field of imidacloprid in China in recent years.

Table 2.5.2-1 Planting area of major crops in China, 2012–2016, '000 ha

Year	Rice	Wheat	Vegetable	Fruit	Cotton
2012	XXX	XXX	XXX	XXX	XXX
2013	XXX	XXX	XXX	XXX	XXX
2014	XXX	XXX	XXX	XXX	XXX
2015	XXX	XXX	XXX	XXX	XXX
2016	XXX	XXX	XXX	XXX	XXX

Note: The planting area of vegetables and fruits in 2016 was based on CCM's estimation.

Source: The National Bureau of Statistics of China and CCM

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If you want more information, please feel free to contact us
Tel: +86-20-37616606 Fax: +86-20-37616968
Email: econtact@cnchemicals.com