

# **New Registrations of Pesticide Formulation in China in 2022**

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**Kcomber Inc.**

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## **Executive summary**

In 2022, China's new registration of pesticides dwindled sharply by 72.7% YoY. The top 20 active ingredients of China's newly approved pesticide formulations made up 22.2% of new registrations; five formulations were registered with new active ingredients; in addition, there were 45 new bio-pesticide formulations.

In China, there were 15 registrants holding 3 or above new registrations of herbicide formulation, which amounted to 120 registrations, taking up 51.5% of the total new herbicide approvals. Newly approved herbicide formulations in the forms of SL, EC and OD accounted for 67.8% of the total in this category; Amidst those fungicide formulations issued in 2022, SC made up 41.7% of the total, ranking the first by formulation types. In 2022, new insecticide formulations came in 22 different formulation types.

In China, pesticides exclusively for export-only should be marked with "EX-" serial codes, and are not allowed to be sold in China since June 2020. In 2022, over 200 new export-only registrations of pesticide were granted, representing great progresses in export-only registration.

## **Methodology**

The report is drafted by diverse methods as follows:

### - Desk research

The sources of desk research are various, including published magazines, journals, government websites and statistics, industrial statistics, association seminars as well as information from the Internet. A lot of work has gone into the compilation and analysis of the obtained information.

### - Internet

CCM visited government websites and contacted with players in the domestic agrochemical industry through B2B websites and software.

### - Data processing and presentation

The data collected and compiled are sourced from:

- √ CCM's database
- √ Published articles in periodicals, magazines, journals and third-party databases
- √ Statistics from governments and international institutes
- √ Telephone interviews with domestic producers, joint ventures, service suppliers and governments
- √ Third-party data providers
- √ Comments from industrial experts
- √ Professional databases from other sources
- √ Information from the internet

The data from various sources have been combined and cross-checked 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 the conclusions.

# 1 Overview on new registration of pesticide formulation in China in 2022

## 1.1 Registration status of China's pesticide formulation, 2022

According to data released by the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs of the People's Republic of China (ICAMA) as of 31 Dec., 2022, totaling 6,282 registrations of pesticide were granted in 2022, including 5 export-only registrations altered from full ones with validity dates extended until 2028, namely, 2 TKs (registration certificate number: EX20220243 and EX20220244) and 3 formulations (EX20220146, EX20220195 and EX20220196). Amidst the total registrations of formulation in 2022, three were cancelled before expiry like EX20220066 (teflubenzuron 300g/L SC), which was registered on 24 April, 2022 by Shandong Weifang Rainbow Chemical Co., Ltd.

Regarding China's 6,279 valid registrations, 690 were new permits and 5,589 were renewed ones. To be specific, 5,400 registrations were for pesticide formulation—613 were full or export-only registrations applied for the first time and 4,787 were renewal ones—accounting for 86% of the total.

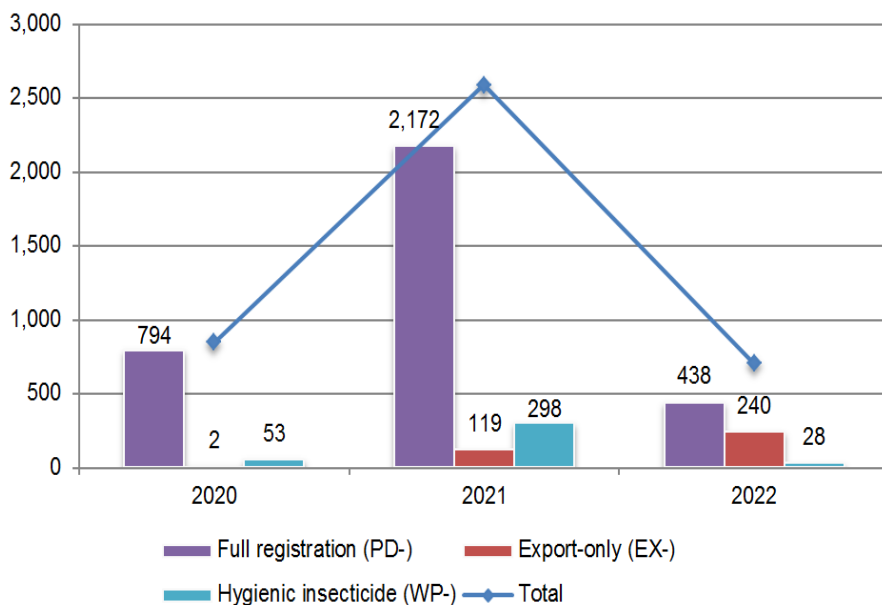
Table 1.1-1 New & renewal registrations of pesticide in China, 2022

No.	Registration type	Formulation	Technical	Total
1	New	613	77	690
2	Renewal	4,787	802	5,589
<b>Total</b>		<b>5,400</b>	<b>879</b>	<b>6,279</b>

Note: Three canceled full or export-only registrations have been excluded.

Source: Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA) & CCM

Figure 1.1-1 China's newly added registrations of pesticide by serial numbers (full, export-only and hygienic insecticide), 2020–2022



Note: In 2022, 16 export-only registrations (technical & formulation) newly changed from full ones were added.

Source: ICAMA & CCM

### - Registration status of China's export-only registration of pesticide, 2020–2022

Since June 2020, China's government has specified that certain pesticides should be registered for export only, which are strictly prohibited to be used in China. In 2020–2022, two export-only registrations of pesticide formulation were cancelled: EX20210081 (approved in 2021) and EX20220066 (approved in 2022).

A total of 240 new export-only registrations of pesticide were issued in China in 2022 with registration

numbers starting with "EX2022-", up 102% year on year. As for export-only pesticide formulations, there were 211 newly registered or renewed registrations from full ones in 2022, accounting for 87.9% of the total valid registrations for export only in 2022.

Table 1.1-2 Registration of export-only pesticide in China, 2022

No.	Item	EX2022-	EX2021-	EX2020-	Total
1	Formulation	211	99	1	311
2	Technical	29	20	1	50
<b>Total</b>		<b>240</b>	<b>119</b>	<b>2</b>	<b>361</b>

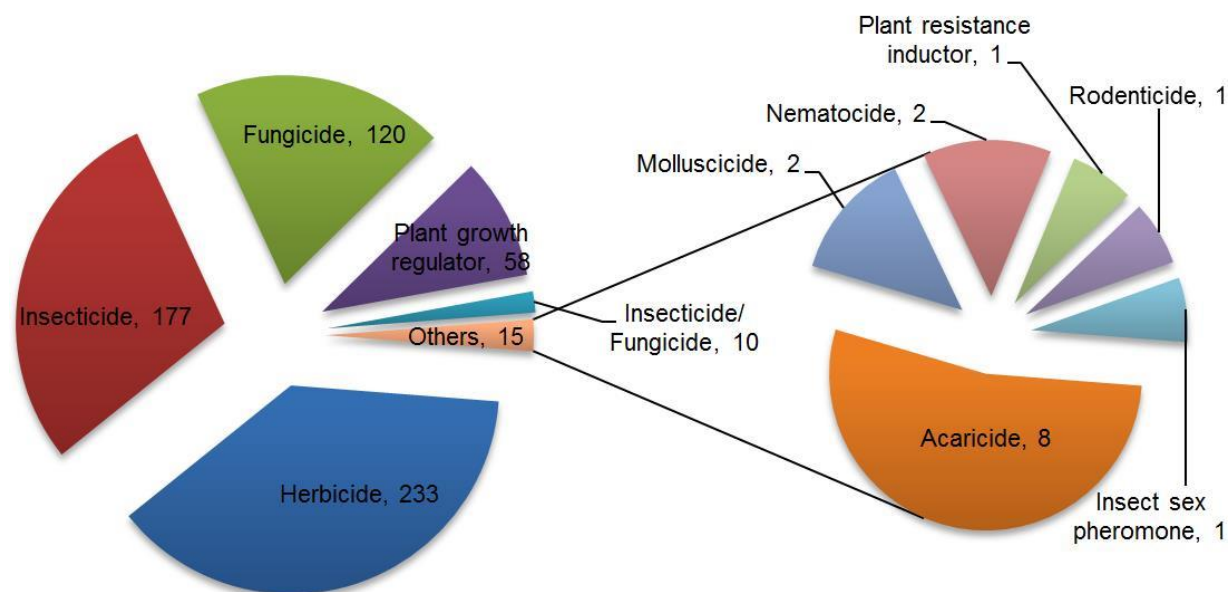
Note: As of March 2023, one herbicide and one insecticide formulations are excluded, which were approved in 2021 or 2022, respectively.

Source: ICAMA & CCM

### - Pesticide category, type and toxicity of new formulation registrations

In 2022, the 613 new formulation registrations, under 11 pesticide categories with 376 single and/or mixed active ingredient(s), marked a 75% of yearly decrease. Top three formulation categories, herbicides, insecticides and fungicides, represented 530 registrations combined, accounting for 86.5% of the total. 233 Herbicide formulations were recorded with 128 one and/or more active ingredient(s), 177 insecticide formulations (agricultural and/or hygienic ones) with 101 active ingredient(s), and 120 fungicide formulations with 94 active ingredient(s).

Figure 1.1-2 New registrations of pesticide formulation in China by category, 2022



Note: Under insecticide category, the number of registrations includes 28 hygienic insecticides (WP2022-) with 19 active ingredients.

Source: ICAMA & CCM

Table 1.1-3 China's new registration of pesticide formulation by category, 2022

No.	Category	Number of registration	Number of active ingredients
1	Herbicide	233	128
2	Insecticide	177	101
3	Fungicide	120	94
4	Plant growth regulator	58	38
5	Insecticide/ fungicide	10	7
6	Others	15	13
<b>Total</b>		<b>613</b>	<b>376</b>

Note: 1. Under insecticide category, the number of registrations includes 28 hygienic insecticides (WP2022-) with 19 active ingredients.  
2. Since certain active ingredients could be repeatedly counted in different usages, the sum of counts in each category might not equal the total.

Source: ICAMA & CCM

The newly registered pesticide formulations covered 27 types in 2022. By number of registrations, the top 5 formulation types were suspension concentrate (SC), soluble concentrate (SL), emulsifiable concentrate (EC), water dispersible granule (WG) and oil dispersion (OD), accounting for 79.4% of the total; the top 18 counted 604 (=98.5%) new registrations.

Table 1.1-4 China's new registrations of pesticide formulation by formulation type, 2020–2022

No.	Formulation type	Code	Number of registrations, 2022	Number of registrations, 2021	Number of registrations, 2020
1	Suspension concentrate	SC	173	704	234
2	Soluble concentrate	SL	111	376	93
3	Emulsifiable concentrate	EC	99	284	111
4	Water dispersible granule	WG	62	199	58
5	Oil dispersion	OD	42	221	73
6	Granule	GR	24	156	58
7	Wettable powder	WP	24	108	30
8	Flowable concentrate for seed treatment	FS	17	133	41
9	Water soluble granule	SG	10	40	11
10	Micro-emulsion	ME	9	87	19
11	Emulsion, oil in water	EW	9	40	20
12	Water soluble powder	SP	6	32	10
13	Bait	RB	5	/	/
14	Suspoemulsion	SE	4	/	/



No.	Formulation type	Code	Number of registrations, 2022	Number of registrations, 2021	Number of registrations, 2020
15	Capsule suspension	CS	3	/	/
16	Mosquito coil	MC	2	/	/
17	Tablet	TB	2	/	/
18	Ultra low volume liquid	UL	2	/	/
Others			9	111	86
<b>Total</b>			<b>613</b>	<b>2,491</b>	<b>844</b>

Source: ICAMA & CCM

By toxicity level, there were 90 new registrations of pesticide formulations registered as mild-toxic, 483 as low-toxic and 40 as moderate-toxic, in which the low-toxic ones accounted for 78.8%.

Table 1.1-5 China's new registrations of pesticide formulation by toxicity level, 2022

No.	Toxicity	Number of registrations
1	Low	474
2	Mild	89
3	Moderate	28
4	Moderate (TC: highly toxic)	12
5	Low (TC: highly toxic)	9
6	Mild (TC: highly toxic)	1
<b>Total</b>		<b>613</b>

Source: ICAMA & CCM

## 1.2 Active ingredients of China's new registration of pesticide formulation, 2022

In 2022, the top 20 ingredients of China's newly approved pesticide formulations (single & mixed) represented 136 (=22.2%) new registrations covering 10 herbicides, 8 insecticides, 1 fungicide and 1 plant growth regulator, including abamectin-aminomethyl, glufosinate-ammonium, abamectin and glyphosate.

### - Single/mixed active ingredient of China's new registrations of pesticide formulation

Table 1.2-1 Top 20 active ingredients of China's new registration of pesticide formulation, 2022

No.	Active ingredient	Category	Number of registrations
1	Abamectin-aminomethyl	Insecticide	16
2	Glufosinate-ammonium	Herbicide	14
3	Abamectin	Insecticide	13
4	Glyphosate	Herbicide	12

No.	Active ingredient	Category	Number of registrations
5	2,4-D	Herbicide	11
6	Topramezone	Herbicide	8
7	Prohexadione calcium	Plant growth regulator	7
8	Imidacloprid	Insecticide	5
9	Flumioxazin	Herbicide	5
10	Bifenthrin	Insecticide	5
11	MCPA•Glyphosate	Herbicide	4
12	Chlorothalonil	Fungicide	4
13	Diquat	Herbicide	4
14	Quinclorac	Herbicide	4
15	Dinotefuran	Insecticide	4
16	Imazamox	Herbicide	4
17	L-glufosinate	Herbicide	4
18	Chlorantraniliprole	Insecticide	4
19	Thiamethoxam	Insecticide	4
20	Lufenuron•Abamectin	Insecticide	4
<b>Total</b>			<b>136</b>

Source: ICAMA & CCM

In China, a total of 347 new registrations of single pesticide formulations contained 159 different active ingredients. Thereinto, based on the number of new registrations, the top 10 active ingredients made up 96 registrations, accounting for 36.1% of the total single pesticide formulations.

As for mixed formulations, 266 new registrations were granted in 2022 with above 217 kinds of active ingredients. Thereinto, 45 approvals were formulations mixed with 37 kinds of three active ingredients; registration of four-active-ingredient was not available in 2022. Ranked by the number of registration, the top 12 active ingredients took up 11.7% (=31) of mixed pesticide formulations, including MCPA•glyphosate, lufenuron•abamectin, 2,4-D-ethylhexyl•acetochlor•metribuzin and pyriproxifen•thiamethoxam.

Table 1.2-2 Top 10 active ingredients of single pesticide formulations by number of new registrations in China, 2022

No.	Active ingredient	Category	Number of registrations
1	Abamectin-aminomethyl	Insecticide	16
2	Glufosinate-ammonium	Herbicide	14
3	Abamectin	Insecticide	13
4	Glyphosate	Herbicide	12
5	2,4-D	Herbicide	11
6	Topramezone	Herbicide	8
7	Prohexadione calcium	Plant growth regulator	7
8	Imidacloprid	Insecticide	5
9	Flumioxazin	Herbicide	5
10	Bifenthrin	Insecticide	5
<b>Total</b>			<b>96</b>

Source: ICAMA & CCM

Table 1.2-3 Top 12 active ingredients of mixed pesticide formulations by number of new registrations in China, 2022

No.	Active ingredient	Main category	Number of registrations
1	MCPA•Glyphosate	Herbicide	4
2	Lufenuron•Abamectin	Insecticide	4
3	2,4-D-ethylhexyl•Acetochlor•Metribuzin	Herbicide	3
4	Pyriproxifen•Thiamethoxam	Insecticide	3
5	Pyraclostrobin•Fluopyram	Fungicide	3
6	Glyphosate•Glufosinate-ammonium	Herbicide	3
7	Chlorfenapyr•Lufenuron	Insecticide	3
8	Fonicamid•Bifenthrin	Insecticide	3
9	Fludioxonil•Thiamethoxam•Difenoconazole	Insecticide/ fungicide	3
10	Chlorantraniliprole•Chlorfenapyr	Insecticide	3
11	Chlorantraniliprole•Abamectin-aminomethyl	Insecticide	3
12	Nicosulfuron•Mesotrione•Atrazine	Insecticide	3
<b>Total</b>			<b>31</b>

Source: ICAMA & CCM

### - China's newly registered active ingredients of single/mixed pesticide formulations

In 2022, five pesticide formulations were registered with new active ingredients, which are two herbicides (bicyclopyrone 200 g/L SL and bicyclopyrone-S-Metolachlor 480 g/L EC), two fungicides (spiroxamine 500 g/L EC and 800 g/L EC), and one insecticide (spiromesifen 240 g/L SC); all were for export only.

Table 1.2-4 China's new formulation registration with newly registered active ingredients, 2022

No.	Active ingredient	Content	Type	Registrant (EN)	Category
1	Bicyclopyrone	200 g/L	SL	Shandong Weifang Rainbow Chemical Co., Ltd.	Herbicide
2	Bicyclopyrone-S-Metolachlor	480 g/L	EC	Shandong Weifang Rainbow Chemical Co., Ltd.	Herbicide
3	Spiromesifen	240 g/L	SC	Shandong Weifang Rainbow Chemical Co., Ltd.	Insecticide
4	Spiroxamine	800 g/L	EC	Shandong Weifang Rainbow Chemical Co., Ltd.	Fungicide
5	Spiroxamine	500 g/L	EC	Shaanxi Hengrun Chemical Industry Co., Ltd.	Fungicide

Source: ICAMA & CCM

### - China's new formulation registrations with single/mixed biological active ingredient

In addition, with 35 kinds of active ingredients of bio-pesticides, there were 45 new formulation registrations in China this year; 31 of which were plant growth regulators, followed by 6 insecticides and 5 fungicides. Notably, oligosaccharins have been found as the active ingredient in bio-pesticides under the categories of fungicide, acaricide, plant growth regulator and insect sex pheromone.

Table 1.2-5 New registrations of bio-pesticide formulations in China by category, 2022

Category	Number of registration
Plant growth regulator	31
Insecticide	6
Fungicide	5
Acaricide	1
Insect sex pheromone	1
Plant resistance inductor	1
Herbicide and others	0
<b>Total</b>	<b>45</b>

Source: ICAMA & CCM

Table 1.2-6 Active ingredients of China's new bio-pesticide formulations under the categories of insecticide, fungicide and/or herbicide, 2022

No.	Active ingredient	Content	Type	Registrant (EN)	Category
1	Abamectin-aminomethyl-Bacillus thuringiensis	2.2%	SC	Shandong Lukang Biological Pesticide Co., Ltd.	Insecticide
2	Beauveria bassiana	30.0 billion Spores/g	WP	Xi'an Dingsheng Biochemical Co., Ltd.	Insecticide

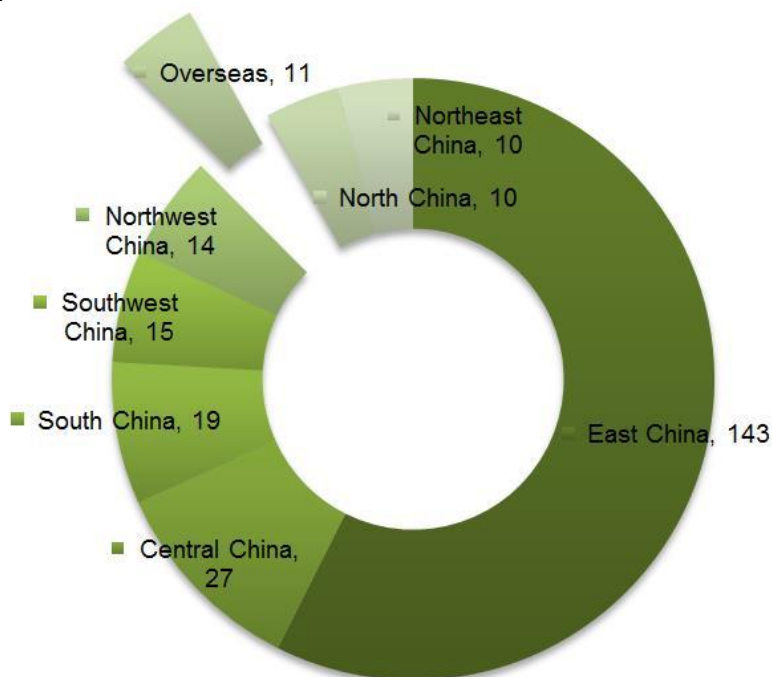
No.	Active ingredient	Content	Type	Registrant (EN)	Category
3	D-Limonene	18%	SL	Qingdao Rishengyuan Crop Nutrition Co., Ltd.	Insecticide
4	Matrine•Veratramine	1%	SL	Shaanxi Xiannong Biological Science and Technology Co., Ltd.	Insecticide
5	Metarhizium anisopliae	10.0 billion Spores/g	WP	Ningxia Zhongwei Taike Biotechnology Co., Ltd.	Insecticide
6	Spodopteralitura NPV	1.0 billion PIB/mL	SC	Guangdong Zhenge Biotechnology Co., Ltd.	Insecticide
7	Bacillus subtilis	100.0 billion CFU/g	WP	Qingdao Star Cropscience Co., Ltd.	Fungicide
8	Bacillus subtilis	10.0 billion CFU/g	WP	Shandong Guihe Biotechnology Co., Ltd.	Fungicide
9	Berberine	10%	WP	Sichuan Niannianfeng Biotechnology Co., Ltd.	Fungicide
10	Fosthiazate•Oligosaccharins	6%	GR	Guangdong Zhenge Biotechnology Co., Ltd.	Fungicide
11	Oligosaccharins	0.15%	GR	Mengzhou Shalongda Plant Protection Technology Co., Ltd.	Fungicide

Note: 1. No new herbicide formulation was registered with any active ingredient of bio-pesticide in 2022. 2. PD20220145 (oligosaccharins 1% SL), PD20220004 (thiazuron•oligosaccharins 3% SL) and PD20220175 (oligosaccharins 5% SL) were registered under the categories of acaricide, plant growth regulator and insect sex pheromone, respectively.  
Source: ICAMA & CCM

### 1.3 Registrants of China's new registration of pesticide formulation, 2022

In 2022, there were 249 registrants holding China's new registrations of pesticide formulations, including 238 domestic companies and 11 overseas companies. Thereinto, Chinese registrants were located in seven regions across China. The majority of the new registrations concentrates in East China (394).

Figure 1.3-1 Number of registrants with China's new registrations of pesticide formulation by geographic region, 2022



Source: ICAMA & CCM

Table 1.3-1 Registrants with China's new registrations of pesticide formulation by geographic region, 2022

No.	Region	Number of registrant	Number of registrations
1	East China	143	394
2	Central China	27	52
3	Northwest China	14	35
4	Southwest China	15	34
5	North China	10	33
6	South China	19	31
7	Northeast China	10	17
	Overseas	11	17
	<b>Total</b>	<b>249</b>	<b>613</b>

Source: ICAMA & CCM

There were 17 enterprises holding more than 5 new formulation registrations, which amounted to 211 new registrations, accounting for 34.4% of the total formulation approvals. The biggest holder by registration number was Shandong Weifang Rainbow Chemical Co., Ltd. (77).

Table 1.3-2 China's main registrants of new pesticide formulation, 2022

No.	Registrant (EN)	Registrant (CN)	Province	Number of registrations
1	Shandong Weifang Rainbow Chemical Co., Ltd.	山东潍坊润丰化工股份有限公司	Shandong Province	77
2	Shandong Binnong Technology Co., Ltd.	山东滨农科技有限公司	Shandong Province	16
3	Hebei Veyong Bio-Chemical Co., Ltd.	河北威远生物化工有限公司	Hebei Province	13
4	Jiangsu Rotam Chemistry Co., Ltd.	江苏龙灯化学有限公司	Jiangsu Province	12
5	Zenenorva Crop Protection (Anhui) Co., Ltd.	捷利诺华作物保护(安徽)有限公司	Anhui Province	11
6	Shaanxi Tunpsion Biotechnology Co., Ltd.	陕西汤普森生物科技有限公司	Shaanxi Province	9
7	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	浙江中山化工集团股份有限公司	Zhejiang Province	9
8	Jiangxi Zhongxun Agro-Chemical Co., Ltd.	江西中迅农化有限公司	Jiangxi Province	7
9	Jiangxi Zhonghe Chemical Industry Co., Ltd.	江西众和化工有限公司	Jiangxi Province	7
10	SixF Crop Protection Co., Ltd.	六夫丁作物保护有限公司	Henan Province	7
11	Shaanxi Meibang Pharmaceutical Group Co., Ltd.	陕西美邦药业集团股份有限公司	Shaanxi Province	7
12	Hebei Guanlong Agrochemical Co., Ltd.	河北冠龙农化有限公司	Hebei Province	6

13	Hunan Agricultural University Heartale Agrochem Co., Ltd.	湖南农大海特农化有限公司	Hunan Province	6
14	Ningbo Sunjoy Agrosience Co., Ltd.	宁波三江益农化学有限公司	Zhejiang Province	6
15	Shaanxi Yitianfeng Crop Technology Co., Ltd.	陕西亿田丰作物科技有限公司	Shaanxi Province	6
16	Zhejiang Heben Pesticide & Chemicals Co., Ltd.	浙江禾本科技股份有限公司	Zhejiang Province	6
17	Zhengzhou Zhengshi Chemical Co., Ltd.	郑州郑氏化工产品有限公司	Henan Province	6
<b>Total</b>				<b>211</b>

Note: Zenenorva Crop Protection (Anhui) Co., Ltd. is a Chinese branch of Zenenorva Co., Ltd., a UK-based pesticide enterprise.  
Source: ICAMA & CCM

### - Foreign registrants approved with China's pesticide formulation registrations in 2022

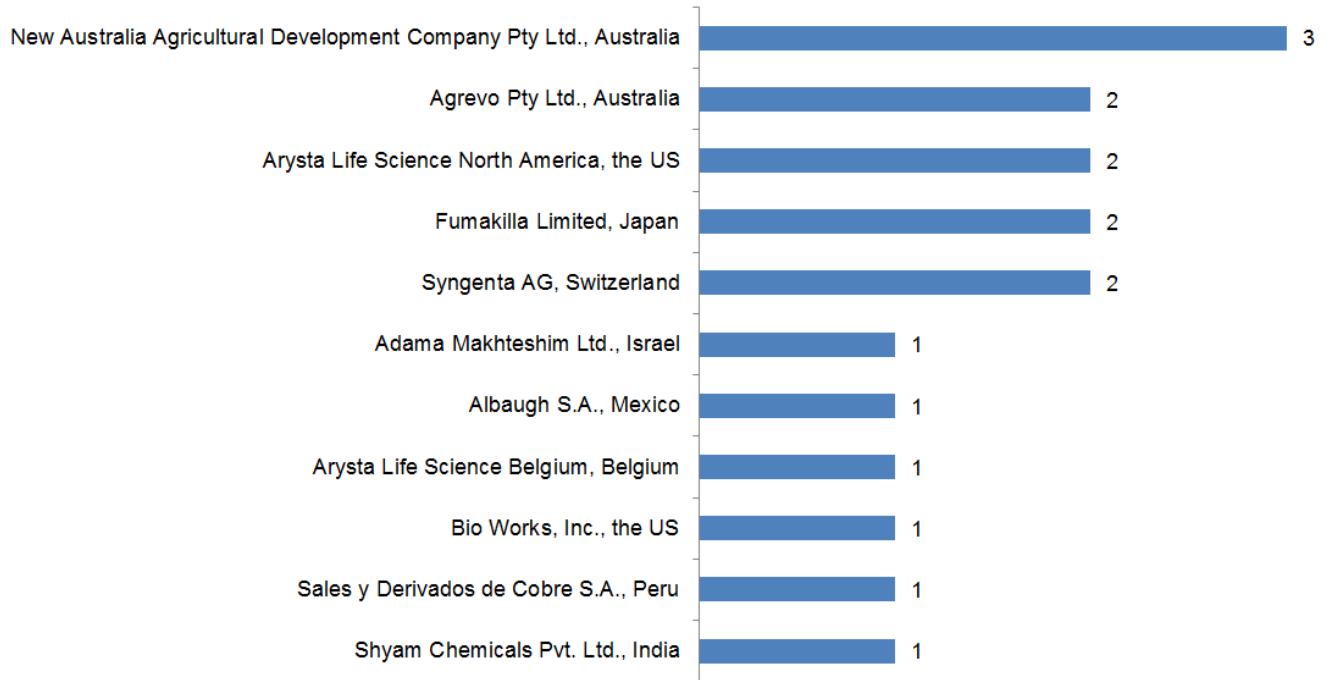
Among the 17 new formulations by foreign companies, fungicide was the popular registered category, followed by insecticide. There were two insecticides for hygienic use registered for export only, both held by Fumakilla Limited. The only herbicide registration (S-Metolachlor 40% SU) in the 17 is held by New Australia Agricultural Development Company Pty Ltd.

Table 1.3-3 Foreign registrants of new pesticide formulation in China, 2022

No.	Registrant (EN)	Registrant (CN)	Country	Number of registrations
1	New Australia Agricultural Development Company Pty Ltd.	澳大利亚新澳农业发展有限公司	Australia	3
2	Agrevo Pty Ltd.	澳大利亚艾格福有限公司	Australia	2
3	Syngenta AG	瑞士先正达作物保护有限公司	Switzerland	2
4	Fumakilla Limited	福马(日本)株式会社	Japan	2
5	Arysta Life Science North America	爱利思达生物化学品北美有限公司	The US	2
6	Arysta Life Science Belgium	爱利思达生物化学品比利时公司	Belgium	1
7	Adama Makhteshim Ltd.	安道麦马克西姆有限公司	Israel	1
8	BioWorks, Inc.	美国拜沃股份有限公司	The US	1
9	Sales y Derivados de Cobre S.A.	秘鲁萨尔德库·铜盐及铜衍生物股份有限公司	Peru	1
10	Albaugh S.A.	墨西哥澳宝公司	Mexico	1
11	Shyam Chemicals Pvt. Ltd.	印度希亚姆化工有限公司	India	1
<b>Total</b>				<b>17</b>

Note: Agrevo Pty Ltd. held two new registrations (PD20220046 and PD20220076), both of which were transferred to Shandong Zhongxin Kenong Biological Technology Co., Ltd. on 24 Oct., 2022.  
Source: ICAMA & CCM

Figure 1.3-2 Number of new registration of formulation from foreign registrants, 2022



Source: ICAMA & CCM



## 2 China's new registration of herbicide formulation, 2022

### 2.1 Main registrants of herbicide formulation in China

In 2022, 233 new registrations of herbicide formulation were held by 105 registrants. The top 15 holders, each with 3 or above registrations, gained 120 approvals, taking up 51.5% of the total new ones. Among them, Shandong Weifang Rainbow Chemical Co., Ltd. ranked the first with 52 new formulation registrations, followed by Shandong Binnong Technology Co., Ltd. and Jielinehua Crop Protection (Anhui) Co., Ltd., holding 14 and 9 permits, respectively.

Table 2.1-1 Main registrants of new herbicide formulation registration in China, 2022

No.	Registrant (EN)	Registrant (CN)	Province	Number of registrations
1	Shandong Weifang Rainbow Chemical Co., Ltd.	山东潍坊润丰化工股份有限公司	Shandong Province	52
2	Shandong Binnong Technology Co., Ltd.	山东滨农科技有限公司	Shandong Province	14
3	Zenenorva Crop Protection (Anhui) Co., Ltd.	捷利诺华作物保护(安徽)有限公司	Anhui Province	9
4	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	浙江中山化工集团股份有限公司	Zhejiang Province	7
5	Weifang Sino-agri Union Chemical Co., Ltd.	潍坊中农联合化工有限公司	Shandong Province	5
6	Hangzhou Nutrichem Co., Ltd.	杭州颖泰生物科技有限公司	Zhejiang Province	4
7	Lier Chemical Co., Ltd.	利尔化学股份有限公司	Sichuan Province	4
8	Shandong Sinomey Chemicals Co., Ltd.	山东中禾化学有限公司	Shandong Province	4
9	CAC Nantong Chemical Co., Ltd.	南通泰禾化工股份有限公司	Jiangsu Province	3
10	Heze Maotai Ruinong Biotechnology Co., Ltd.	菏泽茂泰瑞农生物科技有限公司	Shandong Province	3
11	Jilin Jinqiu Pesticide Co., Ltd.	吉林金秋农药有限公司	Jilin Province	3
12	Max (Rudong) Chemicals Co., Ltd.	迈克斯(如东)化工有限公司	Jiangsu Province	3
13	Shandong Lvbang Crop Science Co., Ltd.	山东绿邦作物科学股份有限公司	Shandong Province	3
14	Sichuan Lier Crop Science Co., Ltd.	四川利尔作物科学有限公司	Sichuan Province	3
15	Xianglin Mefront Biotechnology (Huai'an) Co., Ltd.	祥霖美丰生物科技(淮安)有限公司	Jiangsu Province	3
	Other			113
	<b>Total</b>			<b>233</b>

Source: ICAMA & CCM

## 2.2 New registrations of herbicide formulation by formulation type

In 2022, the 233 new registrations of herbicide formulation in China came in 13 formulation types, the top 3 of which were SL, EC and OD, adding up to 158 new registrations, accounting for 67.8% of the total in this category.

Table 2.2-1 New registrations of herbicide formulation in China by formulation type, 2022

No.	Formulation type	Code	Number of registrations
1	Soluble concentrate	SL	68
2	Emulsifiable concentrate	EC	52
3	Oil dispersion	OD	38
4	Suspension concentrate	SC	32
5	Water dispersible granule	WG	16
6	Water soluble granule	SG	7
7	Micro emulsion	ME	4
8	Suspoemulsion	SE	4
9	Wettable powder	WP	4
10	Granule	GR	3
11	Emulsion, oil in water	EW	3
12	Capsule suspension	CS	1
13	Water soluble powder	SP	1
<b>Total</b>			<b>233</b>

Source: ICAMA & CCM

## 2.3 New registrations of herbicide formulation by toxicity

Among the 233 new registrations of herbicide formulation in 2022, 206 were low-toxic, 26 were mild-toxic and only one was moderate-toxic.

Table 2.3-1 New registrations of herbicide formulation in China by toxicity level, 2022

No.	Toxicity	Number of registrations
1	Low	206
2	Mild	26
3	Moderate	1
<b>Total</b>		<b>233</b>

Source: ICAMA & CCM

## 2.4 Major herbicide active ingredients of China's new registration

Among the 233 new registrations of herbicide formulations in 2022, there were 128 kinds of active ingredients. In particular, 150 new formulations were approved with single active ingredient, and the other 83 ones contained two or three active ingredients.

As to those new registrations of single herbicide formulations, 57 kinds of active ingredients were involved. Calculated by the number of new registration, glufosinate-ammonium and glyphosate were the two most popular active ingredients, accounting for 26 registrations altogether, followed by 2,4-D, topramezone, flumioxazin, etc. There were 71 kinds of active ingredient combinations used in 83 mixtures registered under the herbicide formulation category. By the number of new registration, the top 7 combinations included MCPA•glyphosate, 2,4-D-ethylhexyl•acetochlor•metribuzin, glyphosate•glufosinate-ammonium, nicosulfuron•mesotrione•atrazine, etc., accounting for 19 new registrations.

Table 2.4-1 Major active ingredients of new herbicide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Glufosinate-ammonium	14
2	Glyphosate	12
3	2,4-D	11
4	Topramezone	8
5	Flumioxazin	5
6	Diquat	4
7	Imazamox	4
8	L-glufosinate	4
9	MCPA•Glyphosate	4
10	Quinclorac	4
	Other	163
	<b>Total</b>	<b>233</b>

Source: ICAMA & CCM

### - Active ingredients of single or mixed herbicide formulation

Table 2.4-2 Major active ingredients of new single herbicide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Glufosinate-ammonium	14
2	Glyphosate	12
3	2,4-D	11
4	Topramezone	8
5	Flumioxazin	5

No.	Active ingredient	Number of registrations
6	Diquat	4
7	Quinclorac	4
8	Imazamox	4
9	L-glufosinate	4
10	Clopyralid	3
11	Cyhalofop-butyl	3
12	Clodinafop-propargyl	3
13	Dicamba	3
14	Fomesafen	3
15	Haloxypop-P-methyl	3
16	MCPA	3
17	Triclopyr-butotyl	3
	Other	60
	<b>Total</b>	<b>150</b>

Source: ICAMA & CCM

Table 2.4-3 Major active ingredients of new mixed herbicide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	MCPA•Glyphosate	4
2	2,4-D-ethylhexyl•Acetochlor•Metribuzin	3
3	Glyphosate•Glufosinate-ammonium	3
4	Nicosulfuron•Mesotrione•Atrazine	3
5	Clomazone•Fomesafen•Haloxypop-P-methyl	2
6	MCPA•Bentazone	2
7	Quinclorac•Metamifop	2
	Other	64
	<b>Total</b>	<b>83</b>

Source: ICAMA & CCM

### 3 China's new registration of insecticide formulation, 2022

#### 3.1 Main registrants of insecticide formulation in China

China's new registrations of insecticide formulation were held by 100 registrants in 2022. Accounting for 20% with 36 approvals out of the total insecticide formulations, the top 4 registrants were Hebei Veyong Bio-Chemical Co., Ltd., Shandong Weifang Rainbow Chemical Co., Ltd., Jiangsu Rotam Chemistry Co., Ltd. and Shaanxi Tunpsion Biotechnology Co., Ltd.

Table 3.1-1 Main registrants of new insecticide formulation registration in China, 2022

No.	Registrant	Registrant (CN)	Province	Number of registrations
1	Hebei Veyong Bio-Chemical Co., Ltd.	河北威远生物化工有限公司	Hebei Province	13
2	Shandong Weifang Rainbow Chemical Co., Ltd.	山东潍坊润丰化工股份有限公司	Shandong Province	11
3	Jiangsu Rotam Chemistry Co., Ltd.	江苏龙灯化学有限公司	Jiangsu Province	6
4	Shaanxi Tunpsion Biotechnology Co., Ltd.	陕西汤普森生物科技有限公司	Shaanxi Province	6
5	Ningbo Sunjoy Agrosience Co., Ltd.	宁波三江益农化学有限公司	Zhejiang Province	5
6	Hebei Guanlong Agrochemical Co., Ltd.	河北冠龙农化有限公司	Hebei Province	4
7	Hebei Xingbai Agricultural Technology Co., Ltd.	河北兴柏农业科技股份有限公司	Hebei Province	4
8	Jiangxi Zhongxun Agro-Chemical Co., Ltd.	江西中迅农化有限公司	Jiangxi Province	4
9	Qingdao Zhengdao Pharmaceutical Co., Ltd.	青岛正道药业有限公司	Shandong Province	4
10	Shaanxi Meibang Pharmaceutical Group Co., Ltd.	陕西美邦药业集团股份有限公司	Shaanxi Province	4
11	Xuchang Jian'an Changsheng Daily Chemical Co., Ltd.	许昌市建安区昌盛日化实业有限公司	Henan Province	4
12	Shaanxi Yitianfeng Crop Science and Technology Co., Ltd.	陕西亿田丰作物科技有限公司	Shaanxi Province	3
13	Shandong Jingbo Agrochemicals Technology Co., Ltd.	山东京博农化科技股份有限公司	Shandong Province	3
14	Shandong United Pesticide Industry Co., Ltd.	山东省联合农药工业有限公司	Shandong Province	3
Other				103
<b>Total</b>				<b>177</b>

Source: ICAMA & CCM

#### 3.2 New registrations of insecticide formulation by formulation type

In 2022, the 177 new registrations of insecticide formulation in China came in 22 different formulation types. The top 3 types, namely SC, EC and WG, made up 124 new registrations, accounting for 70% of the total in this category.

Table 3.2-1 New registrations of insecticide formulation in China by formulation type, 2022

No.	Formulation type	Code	Number of registrations
1	Suspension concentrate	SC	72
2	Emulsifiable concentrate	EC	30
3	Water dispersible granule	WG	22
4	Granule	GR	10
5	Soluble concentrate	SL	8
6	Bait	RB	4
7	Flowable concentrate for seed treatment	FS	4
8	Wettable powder	WP	4
9	Emulsion, oil in water	EW	3
10	Capsule suspension	CS	2
11	Micro emulsion	ME	2
12	Mosquito coil	MC	2
13	Oil dispersion	OD	2
14	Tablet	TB	2
15	Ultra low volume liquid	UL	2
16	Water soluble granule	SG	2
17	Aerosol dispenser	AE	1
18	Dustable powder	DP	1
19	Oil miscible liquid	OL	1
20	Proof mat	PM	1
21	Repellent liquid	RQ	1
22	Water dispersible powder for slurry seed treatment	WS	1
<b>Total</b>			<b>177</b>

Source: ICAMA & CCM

### 3.3 New registrations of insecticide formulation by toxicity

In the 177 new registrations of insecticide formulation in 2022, 115 were low-toxic, including 7 low-toxic (TC: highly toxic), taking up around 65% of the total; the others were mild-toxic and moderate-toxic, involving 30 and 32 new registrations, respectively.

Table 3.3-1 New registrations of insecticide formulation in China by toxicity level, 2022

No.	Toxicity	Number of registrations
1	Low	108
2	Mild	30
3	Moderate	20
4	Moderate (TC: highly toxic)	12
5	Low (TC: highly toxic)	7
<b>Total</b>		<b>177</b>

Source: ICAMA & CCM

### 3.4 Major insecticide active ingredients of China's new registration

In 2022, 99 single insecticide formulations were newly registered in China with 43 kinds of active ingredients, led by Abamectin-aminomethyl, abamectin, bifenthrin and imidacloprid; and 78 mixed insecticide formulations were registered, accounting for 44% of the total new registration of insecticide formulation in China, with active ingredient mixtures led by the top six—chlorantraniliprole•abamectin-aminomethyl, chlorantraniliprole•chlorfenapyr, chlorfenapyr•lufenuron, flonicamid•bifenthrin, lufenuron•abamectin and pyriproxifen•thiamethoxam.

Counted by number of new registrations in 2022, the top seven insecticides were all single formulations, taking up 28.2% (=50) of the total insecticides formulation registrations.

Table 3.4-1 Top 7 active ingredients of insecticide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Abamectin-aminomethyl	16
2	Abamectin	12
3	Bifenthrin	5
4	Imidacloprid	5
5	Chlorantraniliprole	4
6	Dinotefuran	4
7	Thiamethoxam	4
Other		127
<b>Total</b>		<b>177</b>

Source: ICAMA & CCM

**- Active ingredient of single or mixed insecticide formulation**

Table 3.4-2 Top 11 active ingredients of single insecticide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Abamectin-aminomethyl	16
2	Abamectin	12
3	Bifenthrin	5
4	Imidacloprid	5
5	Chlorantraniliprole	4
6	Dinotefuran	4
7	Thiamethoxam	4
8	Clothianidin	3
9	Flonicamid	3
10	Malathion	3
11	Petroleum oil	3
	Other	37
	<b>Total</b>	<b>99</b>

Source: ICAMA & CCM

Table 3.4-3 Top 14 active ingredients of mixed insecticide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Chlorantraniliprole•Abamectin-aminomethyl	3
2	Chlorantraniliprole•Chlorfenapyr	3
3	Chlorfenapyr•Lufenuron	3
4	Flonicamid•Bifenthrin	3
5	Lufenuron•Abamectin	3
6	Pyriproxifen•Thiamethoxam	3
7	Chlorantraniliprole•Lufenuron	2
8	Clothianidin•Cyfluthrin	2
9	Clothianidin•Chlorantraniliprole	2
10	Dinotefuran•Bifenthrin	2
11	Imidacloprid•Beta-cyfluthrin	2



No.	Active ingredient	Number of registrations
12	Pyriproxifen•Dinotefuran	2
13	Thiamethoxam•Bifenthrin	2
14	Tolfenpyrad•Lufenuron	2
Other		40
<b>Total</b>		<b>74</b>

Source: ICAMA & CCM

## 4 China's new registration of fungicide formulation, 2022

### 4.1 Main registrants of fungicide formulation in China

In 2022, there were 100 registrants holding 120 new registrations of fungicide formulation, the top 8 of which accounting for 29.2% of the total and each obtained 3+ permits. Specifically, Shandong Weifang Rainbow Chemical Co., Ltd. and Zhejiang Heben Pesticide & Chemicals Co., Ltd. topped the list with 12 and 5 approvals, respectively.

Table 4.1-1 Main registrants of new fungicide formulation registration in China, 2022

No.	Registrant	Registrant (CN)	Province	Number of registrations
1	Shandong Weifang Rainbow Chemical Co., Ltd.	山东潍坊润丰化工股份有限公司	Shandong Province	12
2	Zhejiang Heben Pesticide & Chemicals Co., Ltd.	浙江禾本科技股份有限公司	Zhejiang Province	5
3	BASF Crop Protection (Jiangsu) Co., Ltd.	巴斯夫植物保护(江苏)有限公司	Jiangsu Province	3
4	Jiangsu Rotam Chemistry Co., Ltd.	江苏龙灯化学有限公司	Jiangsu Province	3
5	Jiangxi Zhonghe Chemical Industry Co., Ltd.	江西众和化工有限公司	Jiangxi Province	3
6	Qingdao Rainbow Chemical Co., Ltd.	青岛润农化工有限公司	Shandong Province	3
7	SixF Crop Protection Co., Ltd.	六夫丁作物保护有限公司	Henan Province	3
8	Yunnan Yunda Technology Agrochemical Co., Ltd.	云南云大科技农化有限公司	Yunnan Province	3
Other				85
<b>Total</b>				<b>120</b>

Source: ICAMA & CCM

### 4.2 New registrations of fungicide formulation by formulation type

In 2022, the 120 new registrations of fungicide formulation in China came in 11 different formulation types. Thereinto, suspension concentrate (SC) made up 50 new registrations, accounting for 41.7% of the total in this category.

Table 4.2-1 New registrations of fungicide formulation in China by formulation type, 2022

No.	Formulation type	Code	Number of registrations
1	Suspension concentrate	SC	50
2	Water dispersible granule	WG	20
3	Emulsifiable concentrate	EC	14
4	Wettable powder	WP	13
5	Granule	GR	9

No.	Formulation type	Code	Number of registrations
6	Soluble concentrate	SL	4
7	Emulsion, oil in water	EW	3
8	Flowable concentrate for seed treatment	FS	3
9	Micro-emulsion	ME	2
10	Smoke generator	FU	1
11	Water soluble powder	SP	1
<b>Total</b>			<b>120</b>

Source: ICAMA & CCM

#### 4.3 New registrations of fungicide formulation by toxicity

Among China's new registrations of fungicide formulation in 2022, 94 were low-toxic including 1 low-toxic (TC: highly toxic), 20 were mild-toxic and 6 were moderate-toxic.

Table 4.3-1 New registrations of fungicide formulation in China by toxicity level, 2022

No.	Toxicity	Number of registrations
1	Low	93
2	Mild	20
3	Moderate	6
4	Low (TC: highly toxic)	1
<b>Total</b>		<b>120</b>

Source: ICAMA & CCM

#### 4.4 Major fungicide active ingredients of China's new registration

In general, 94 active ingredients/ingredient combinations were involved in the 120 new fungicide formulations in 2022. Counted by the number of registration, the top 6 kinds of active ingredients, with chlorothalonil topping the list, were contained in 19 fungicide formulations, which accounted for 15.8% of the total new approvals.

In terms of single formulations, 56 registration certificates were approved with 38 different active ingredients. By number of new registrations, chlorothalonil, metalaxyl, propiconazole, pyraclostrobin and tebuconazole ranked the top five, accounting for 28.6% of the total new single fungicide formulations.

As for mixed formulations, the number of new registrations went to 64, involving 56 combinations of active ingredients, the top 7 active ingredients of which were pyraclostrobin•fluopyram with 4 registrations, followed by azoxystrobin•hymexazol, pyraclostrobin•mefentrifluconazole, pyraclostrobin•prochloraz, famoxadone•cyazofamid, fluopicolide•cyazofamid and tebuconazole•trifloxystrobin, each with 3 permits, taking up 23.4% of the total.

Table 4.4-1 Top 6 active ingredients of fungicide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Chlorothalonil	4
2	Metalaxyl	3
3	Propiconazole	3
4	Pyraclostrobin	3
5	Pyraclostrobin•fluopyram	3
6	Tebuconazole	3
	Other	101
	<b>Total</b>	<b>120</b>

Source: ICAMA & CCM

#### - Active ingredient of single or mixed fungicide formulation

Table 4.4-2 Top 12 active ingredients of single fungicide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Chlorothalonil	4
2	Metalaxyl	3
3	Pyraclostrobin	3
4	Propiconazole	3
5	Tebuconazole	3
6	Bacillus subtilis	2
7	Copper hydroxide	2
8	Copper oxychloride	2
9	Fluazinam	2
10	Kasugamycin	2
11	Propamocarb	2
12	Spiroxamine	2
	Other	26
	<b>Total</b>	<b>56</b>

Source: ICAMA & CCM

Table 4.4-3 Top 7 active ingredients of mixed fungicide formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Pyraclostrobin•Fluopyram	3
2	Azoxystrobin•Hymexazol	2
3	Pyraclostrobin•Mefentrifluconazole	2
4	Pyraclostrobin•Prochloraz	2
5	Famoxadone•Cyazofamid	2
6	Fluopicolide•Cyazofamid	2
7	Tebuconazole•Trifloxystrobin	2
Other		49
<b>Total</b>		<b>64</b>

Source: ICAMA & CCM

## 5 China's new export-only registration of pesticide formulation in 2022

### 5.1 Status of China's export-only registration, 2020–2022

China facilitates market supervision of pesticide and offer easy identification for consumers by using special registration production certificate numbers on pesticide TC/TK and formulations, such as codes starting with "PD", "PDN", "WP" or "EX". Among them, the "EX-" codes are for pesticides exclusively for export which are not allowed to be sold and used in China since 2020.

According to the data released by ICAMA, totaling 363 export-only registrations of pesticides (technical & formulation) were granted in 2020–2022, including 2 cancelled formulation products. Amidst the valid 311 formulation registrations, 68% (=211) were issued in 2022, marking great progresses compared with that in 2021 and 2020.

Table 5.1-1 Export-only registration of pesticide technical & formulation in China, 2020–2022

Year	Formulation	Technical (TC & TK)	Total
2020	1	1	2
2021	99	20	119
2022	211	29	240
<b>Total</b>	<b>311</b>	<b>50</b>	<b>361</b>

Note: 1. Two formulations (EX20210081 and EX20220066) were excluded, both of which were cancelled as of March 2023. 2. In 2022, 16 newly changed export-only registrations from full registration were added with 3 TC/TK pesticides and 13 formulations.  
Source: ICAMA & CCM

As of April 2023, China has required pesticides involving certain active ingredients to change from full registrations to export-only ones in a timely manner. Details of the related products are as below:

- Chlorimuron-ethyl: totaling 25 existing products, 12 formulations of which have been changed as export-only ones. Thereinto, 8 products were altered in 2022 in the forms of 25% WG (=4), 75% WG (=2) and 25% WP (=2);
- Paraquat: totaling 35 products available, only 5 of which completed the process of alteration. Among them, three TK products in the forms of 42% TK or 32.6% TK were altered in 2022 and one (30.5% TK) in 2020, as well as one formulation (200 g/L AC) in 2021.
- Metsulfuron-methyl: totaling 35 valid products exist. Only four formulations have passed the changing applications, with three approved in 2022, involving forms of 20% WG, 60% WG and 60% WP;
- 2,4-Dibutyl: among the 31 existing products, only 4 formulations saw the codes changed to "EX2021-" (=1) and "EX2023-" (=3);
- Methidathion: only four technical registrations of this product are available in China, which have not yet been changed as for export-only. Notably, two of them were extended to Jan. or Feb. 2028.
- Fipronil: there were eight fipronil formulations that had been registered as export-only ones in 2020–2022, of which six were altered from full ones, including two (50 g/L FS and 20% SC) approved in 2022, three in the forms of 50 g/L SC (=2) and 80% WG (=1) in 2021, and one (50 g/L SC) in 2020.

### 5.2 Main registrants of new export-only pesticide formulation in China, 2022

There were 63 Chinese enterprises obtaining 211 new registrations of pesticide formulations for export only in 2022. Among them, over 79% of these registrants with 173 approvals were located in East China. By the number of registrations, Shandong Weifang Rainbow Chemical Co., Ltd. topped the list by holding 76 new export-only permits in 2022, followed by Hebei Veyong Bio-Chemical Co., Ltd. (12), Jiangsu Rotam Chemistry Co., Ltd. (9) and Shandong Binnong Technology Co., Ltd. (8).

Table 5.2-1 China's new export-only formulation registrations by geographic region and by number of registrants, 2022

No.	Region	Number of registrations	Number of registrant
1	East China	173	50
2	Southwest China	8	4
3	Northwest China	4	3
4	North China	16	2
5	Northeast China	8	2
6	Central China	2	2
<b>Total</b>		<b>211</b>	<b>63</b>

Source: ICAMA & CCM

Table 5.2-2 Main registrants of China's new export-only formulation registrations, 2022

No.	Registrant	Registrant (CN)	Province	Number of registrations
1	Shandong Weifang Rainbow Chemical Co., Ltd.	山东潍坊润丰化工股份有限公司	Shandong Province	76
2	Hebei Veyong Bio-Chemical Co., Ltd.	河北威远生物化工有限公司	Hebei Province	12
3	Jiangsu Rotam Chemistry Co., Ltd.	江苏龙灯化学有限公司	Jiangsu Province	9
4	Shandong Binnong Technology Co., Ltd.	山东滨农科技有限公司	Shandong Province	8
5	Heilongjiang Jixiang Agrochemical Co., Ltd.	黑龙江吉翔农化有限公司	Heilongjiang Province	6
6	Ningbo Sunjoy Agrosience Co., Ltd.	宁波三江益农化学有限公司	Zhejiang Province	5
7	Shandong Jingbo Agrochemicals Technology Co., Ltd.	山东京博农化科技股份有限公司	Shandong Province	5
8	Zhejiang Heben Pesticide & Chemicals Co., Ltd.	浙江禾本科技股份有限公司	Zhejiang Province	5
9	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	浙江中山化工集团股份有限公司	Zhejiang Province	5
10	Hebei Xingbai Agricultural Technology Co., Ltd.	河北兴柏农业科技股份有限公司	Hebei Province	4
11	Lier Chemical Co., Ltd.	利尔化学股份有限公司	Sichuan Province	4
12	Jiangsu Ruidong Pesticide Co., Ltd.	江苏瑞东农药有限公司	Jiangsu Province	3
13	Max (Rudong) Chemicals Co., Ltd.	迈克斯(如东)化工有限公司	Jiangsu Province	3
14	CAC Nantong Chemical Co., Ltd.	南通泰禾化工股份有限公司	Jiangsu Province	3
15	Qingdao Rainbow Chemical Co., Ltd.	青岛润农化工有限公司	Shandong Province	3

No.	Registrant	Registrant (CN)	Province	Number of registrations
16	Shandong United Pesticide Industry Co., Ltd.	山东省联合农药工业有限公司	Shandong Province	3
17	Zhejiang Tide Cropscience Co., Ltd.	浙江泰达作物科技有限公司	Zhejiang Province	3
Other				54
<b>Total</b>				<b>211</b>

Source: ICAMA & CCM

### 5.3 Export-only registration of pesticide formulation by category, 2022

In 2022, there were 211 new export-only pesticide formulation registrations under 5 categories in China, including 109 herbicides, 58 insecticides, 34 fungicides, 7 plant growth regulators and 3 acaricides.

Table 5.3-1 China's new registrations of export-only formulation by category, 2022

No.	Category	Number of registrations	Proportion
1	Herbicide	109	52%
2	Insecticide	58	27%
3	Fungicide	34	16%
4	Plant growth regulator	7	3%
5	Acaricide	3	1%
<b>Total</b>		<b>211</b>	<b>100%</b>

Source: ICAMA & CCM

### 5.4 Export-only registration of pesticide formulation by formulation type, 2022

In 2022, the total China's new export-only pesticide formulation can be sorted by 12 formulation types, 183 (=86.7%) registrations of which were under the top 4 formulation types, namely EC, SL, SC and WG.

Table 5.4-1 China's new registrations of export-only formulation by formulation type, 2022

No.	Formulation type	Code	Number of registrations
1	Emulsifiable concentrate	EC	60
2	Soluble concentrate	SL	50
3	Suspension concentrate	SC	37
4	Water dispersible granule	WG	36
5	Wettable powder	WP	11
6	Water soluble granule	SG	6



No.	Formulation type	Code	Number of registrations
7	Emulsion, oil in water	EW	3
8	Ultra low volume liquid	UL	2
9	Flowable concentrate for seed treatment	FS	2
10	Paste	PA	1
11	Oil dispersion	OD	1
12	Suspoemulsion	SE	1
<b>Total</b>			<b>211</b>

Source: ICAMA & CCM

### 5.5 Export-only registration of pesticide formulation by toxicity, 2022

China had 211 new export-only certificates of formulation issued in 2022, a sharp increase from 99 registrations in 2021. In terms of toxicity, 151 new approvals were low-toxic, accounting for 72% of the total new formulations for export only, in addition to 35 mild-toxic and 25 moderate-toxic ones.

Table 5.5-1 China's new registrations of export-only formulation by toxicity level, 2022

No.	Toxicity	Number of registrations
1	Low	148
2	Mild	35
3	Moderate	16
4	Moderate (TC: highly toxic)	9
5	Low (TC: highly toxic)	3
<b>Total</b>		<b>211</b>

Source: ICAMA & CCM

### 5.6 Active ingredient of China's export-only pesticide formulation, 2022

In 2022, there were altogether 112 kinds of active ingredient and/or combinations in the 211 newly registered pesticide formulations for export only. Thereinto, the number of single formulations reached 193, accounting for 91.5% of the total, with predominant active ingredients including abamectin-aminomethyl (=13), abamectin (=11), 2,4-D (=10), glyphosate (=10) and glufosinate-ammonium (=10). In addition, 18 mixed formulations were registered with two or three active ingredients, such as abamectin-aminomethyl•lufenuron, abamectin-aminomethyl•tebufenozide and pyraclostrobin•difenoconazole; each combination had only one registration.

Table 5.6-1 Major active ingredients of export-only formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Abamectin-aminomethyl	13
2	Abamectin	11
3	2,4-D	10
4	Glyphosate	10
5	Glufosinate-ammonium	8
6	Chlorimuron-ethyl	8
7	Imidacloprid	4
8	Imazamox	4
	Other	143
	<b>Total</b>	<b>211</b>

Source: ICAMA & CCM

**- Single/mixed active ingredients of China's new pesticide formulation for export only**

Table 5.6-2 Major active ingredients of single export-only formulation in China, 2022

No.	Active ingredient	Number of registrations
1	Abamectin-aminomethyl	13
2	Abamectin	11
3	2,4-D	10
4	Glyphosate	10
5	Chlorimuron-ethyl	8
6	Glufosinate-ammonium	8
7	Imidacloprid	4
8	Imazamox	4
9	Chlorothalonil	3
10	Propiconazole	3
11	Clopyralid	3
12	Dicamba	3
13	Fipronil	3
14	Haloxypop-P-methyl	3

No.	Active ingredient	Number of registrations
15	Metsulfuron-methyl	3
16	Metalaxyl	3
17	Malathion	3
	Other	98
	<b>Total</b>	<b>193</b>

Source: ICAMA & CCM

Table 5.6-3 Active ingredients of mixed export-only formulation in China, 2022

No.	Active ingredient	Number of registrations
1	2,4-D-ethylhexyl•Florasulam	1
2	Abamectin-aminomethyl•Lufenuron	1
3	Abamectin-aminomethyl•Tebuconazole	1
4	Acetamiprid•Abamectin	1
5	Acetamiprid•Bifenthrin	1
6	Acetamiprid•Bifenthrin•Abamectin	1
7	Azoxystrobin•Carbendazim•Tebuconazole	1
8	Bicyclopyrone•S-Metolachlor	1
9	Clodinafop-propargyl•Fenoxaprop-P-ethyl	1
10	Clopyralid•Picloram•Aminopyralid	1
11	Florasulam•Thifensulfuron-methyl•Tribenuron-methyl	1
12	Imazethapyr•Imazamox	1
13	Mesotrione•Atrazine	1
14	Metalaxyl•Propamocarb	1
15	Prothioconazole•Bixafen	1
16	Prothioconazole•Bixafen•Trifloxystrobin	1
17	Pyraclostrobin•Boscalid	1
18	Pyraclostrobin•Difenoconazole	1
	<b>Total</b>	<b>18</b>

Source: ICAMA & CCM

## 6 Conclusion

Since 2013, China's yearly new registrations of pesticides went through large ups and downs, but on the whole in a downward trend. Compared with that in 2021, the number of newly added pesticide registrations (registration codes starting with "PD-", " PDN-", "WP-" or " EX-") plunged by 72.7% in 2022, proceeding with negative growth for the sixth year, which conformed to China's pesticide reduction policy.

According to the statistics, the highlights of China's new pesticide registrations in 2022 are as below:

- In 2022, as to the full permissions of pesticide products for field crops (starting with "PD-"), the registrations of prothioconazole TC and chlorantraniliprole TC witnessed explosive growths, and multiple formulations had their application scopes expanded for the first time;
- With the implementation of regulation for export-only registration ("EX-"), more new pesticides have been registered in China. Notably, the newly registered active ingredients in 2022, namely spiromesifen, butafenacil, cyclanilide, 1,4-dimethylnaphthalene, metominostrobin, bicyclopyrone, spiromesifen and fosamine, are all for export trade only.
- In efforts to prompt the industrial development, China has continued to reduce the usage of chemical pesticides, ensure quality safety of agro-products and protect the ecological environment. With more preferential policies leaned to bio-pesticides in the registration and review process, China saw 45 new bio-pesticide registrations in 2022.
- Comparatively, hygienic insecticide ("WP-") is widely applied, easy to obtain registrations and low in cost, which has become the first choice for pesticide enterprises. Amongst the newly registered hygienic insecticides in 2022, most formulations were in the forms of RB and SC, and active ingredients like pyriproxyfen, dinotefuran, imidacloprid, meperfluthrin had predominated for two consecutive years.

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