

Production and Export of Clethodim in China 2021

The Fifth Edition

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Executive summary

As of 10 Jan., 2022, there were altogether 179 valid registrations of clethodim from 116 companies in China, including 27 for TC, 16 for TK, 110 for single formulations and 26 for mixed formulations, respectively.

In 2021, there were 13 clethodim technical producers in China, six of which were active. The capacity and output of clethodim technical in China maintained an uptrend from 2017 to 2021. The capacity increased from 13,140 t/a in 2017 to 26,680 t/a in 2021, with a CAGR of 15.22%, while the output increased from 9,450 tonnes in 2017 to 13,900 tonnes in 2021, with a CAGR of 8.02%.

With unstable growing demand, from 2016 to 2020, the total export volume (100% AI volume) of clethodim technical and formulations in China increased from 6034 tonnes to 7,627 tonnes, with a CAGR of 4.80%. In Q3 2021, China exported approximately 9,279 tonnes of clethodim.

Introduction and methodology

Production and Export of Clethodim in China is CCM's report on production situation of clethodim industry in China finished in Jan. 2022. This intelligent report attaches importance to following parts:

- Registration of clethodim (including technical and formulations) in China;
- Production (capacity & output) and producers of clethodim in China, 2017–2021;
- Export of clethodim in China by volume and price, 2016–Q3 2020.

The report is drafted by diverse methods as follows:

- Desk research

The sources of desk research are various, including published magazines, journals, government statistics, industrial statistics, customs statistics, association seminars as well as information from the Internet.

- Internet

CCM contacted with players in the domestic agrochemical industry through B2B websites and software as well as obtained registration information on the internet.

- Data processing and presentation

The data collected and compiled are sourced from:

CCM's database

China Customs

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.

- Abbreviation

CAGR: Compound annual growth rate

TC: Technical material

TK: Technical concentrate

ME: Micro emulsion

EC: Emulsifiable concentrate

OD: Oil dispersion

- Unit

t: tonne

t/a: tonne/annual

USD: currency unit in the US

RMB: currency unit in China, also named yuan

tonne: equals to metric ton in this report

Table null-1 USD/RMB exchange rate, Jan. 2016–Dec. 2021

| Year | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Average |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 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 | 6.6425 |
| 2017 | 6.8918 | 6.8713 | 6.8932 | 6.8845 | 6.8827 | 6.8019 | 6.7772 | 6.7148 | 6.5909 | 6.6493 | 6.63 | 6.6067 | 6.7662 |
| 2018 | 6.5079 | 6.3045 | 6.3352 | 6.2764 | 6.367 | 6.4078 | 6.6157 | 6.8293 | 6.8347 | 6.8957 | 6.967 | 6.9431 | 6.607 |
| 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 | 7.069 | 7.1315 | 7.071 | 6.998 | 6.8498 | 6.7796 | 6.705 | 6.5921 | 6.9284 |
| 2021 | 6.5408 | 6.4623 | 6.4754 | 6.5584 | 6.4895 | 6.3572 | 6.4709 | 6.466 | 6.468 | 6.4604 | 6.4192 | 6.3693 | 6.4615 |

Source: The People's Bank of China

1 Registration of clethodim in China

As of 10 Jan., 2022, there were altogether 179 valid registrations of clethodim from 116 companies in China, including 27 for TC, 16 for TK, 110 for single formulations and 26 for mixed formulations, respectively, according to the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA). Generally, clethodim formulations are applied to fields of soybean, rapeseed, tobacco, potato, mung bean and red bean against gramineous weeds.

Only three types of clethodim formulations—EC, OD and ME—were registered. In the registrations of clethodim's single formulations, 110 registrations were for EC and only 1 were for OD in China. As to mixed formulations, 16 registrations are for OD, 9 for EC and one for ME.

Table 1-1 Registrations of clethodim technical in China, as of 10 Jan., 2022.

| No. | Registrant | Registration number | Type of formulation | Content | Expiry date |
|-----|--|---------------------|---------------------|---------|-------------|
| 1 | Shenyang Sciencreat Chemicals Co., Ltd. | PD20070065 | TC | 94% | 2022/3/21 |
| 2 | Liaoning Cynda Chemical Co., Ltd. | PD20070066 | TC | 90% | 2027/3/20 |
| 3 | Hebei Wanquan Lihua Chemicals Co., Ltd. | PD20080651 | TK | 70% | 2023/5/27 |
| 4 | Hebei Wanquan Lihua Chemicals Co., Ltd. | PD20080653 | TC | 90% | 2023/5/27 |
| 5 | Jiangsu Sevencontinent Green Chemical Co., Ltd. | PD20082579 | TC | 95% | 2023/12/4 |
| 6 | Shaoxing Shangyu Xinyinbang Biochemical Co., Ltd. | PD20082747 | TC | 90% | 2023/12/8 |
| 7 | Jiangsu Changqing Agrochemical Co., Ltd. | PD20086078 | TC | 93% | 2023/12/30 |
| 8 | Jiangsu Agrochem Laboratory Co., Ltd. | PD20092487 | TC | 90% | 2024/2/26 |
| 9 | Yifan Biotechnology Group Co., Ltd. | PD20093488 | TC | 94% | 2024/3/23 |
| 10 | Hebei Lanrun Plant Protection Technology Co., Ltd. | PD20094828 | TC | 90% | 2024/4/13 |
| 11 | Hebei Wanquan Hongyu Chemical Co., Ltd. | PD20096012 | TC | 90% | 2024/6/12 |
| 12 | Jiangsu Flag Chemical Industry Co., Ltd. | PD20096795 | TC | 90% | 2024/9/15 |
| 13 | Jiangsu Huifeng Bio Agriculture Co., Ltd. | PD20102077 | TC | 95% | 2025/11/3 |
| 14 | Shenyang Sciencreat Chemicals Co., Ltd. | PD20110326 | TK | 37% | 2026/3/24 |
| 15 | Hengshui Jingmei Chemical Co., Ltd. | PD20110340 | TC | 95% | 2026/3/24 |
| 16 | Jiangsu Changqing Agrochemical Co., Ltd. | PD20110444 | TK | 70% | 2026/4/21 |
| 17 | Andom (Yancheng) Co., Ltd | PD20120328 | TK | 37% | 2022/2/17 |
| 18 | Wuwei Lianshuo Biotechnology Co., Ltd. | PD20120722 | TC | 90% | 2027/4/27 |
| 19 | Shandong Cynda Chemical Co., Ltd. | PD20120967 | TC | 90% | 2022/6/15 |
| 20 | Shandong Cynda Chemical Co., Ltd. | PD20122114 | TK | 37% | 2022/12/26 |
| 21 | Zhejiang Heben Pesticide & Chemicals Co., Ltd. | PD20140982 | TC | 94% | 2024/4/14 |

| No. | Registrant | Registration number | Type of formulation | Content | Expiry date |
|-----|---|---------------------|---------------------|---------|-------------|
| 22 | Hangzhou Nutrichem Co., Ltd. | PD20141071 | TC | 95% | 2024/4/25 |
| 23 | Jingbo Agrochemicals Technology Co., Ltd. | PD20142204 | TC | 95% | 2024/9/29 |
| 24 | Jiangsu Yunfan Chemical Co., Ltd. | PD20142210 | TC | 94% | 2024/9/28 |
| 25 | Jiangsu Yunfan Chemical Co., Ltd. | PD20150784 | TK | 37% | 2025/5/13 |
| 26 | Hangzhou Nutrichem Co., Ltd. | PD20151057 | TK | 70% | 2025/6/14 |
| 27 | Hangzhou Nutrichem Co., Ltd. | PD20151148 | TK | 37% | 2025/6/26 |
| 28 | Shoujian Technology Co., Ltd. | PD20151290 | TC | 95% | 2025/7/30 |
| 29 | Shanxi Lvhai Pesticide Science and Technology Co., Ltd. | PD20151560 | TC | 95% | 2025/8/3 |
| 30 | Hunan Bide Biotechnology Co., Ltd. | PD20151702 | TC | 94% | 2025/8/28 |
| 31 | Shandong Weifang Rainbow Chemical Co., Ltd. | PD20152532 | TC | 94% | 2025/12/17 |
| 32 | Hebei Wujiao Pesticide Co., Ltd. | PD20160452 | TK | 37% | 2026/3/16 |
| 33 | Hengshui Jingmei Chemical Co., Ltd. | PD20161059 | TK | 37% | 2026/8/30 |
| 34 | Shandong Weifang Rainbow Chemical Co., Ltd. | PD20161273 | TK | 37% | 2026/10/14 |
| 35 | Shandong Cynda Chemical Co., Ltd. | PD20170031 | TK | 37% | 2027/1/7 |
| 36 | Shenyang Sciencreat Chemicals Co., Ltd. | PD20170685 | TK | 70% | 2022/4/10 |
| 37 | Hebei Lansheng Biotech Co., Ltd. | PD20171148 | TC | 95% | 2022/7/19 |
| 38 | Liaoning Cynda Chemical Co., Ltd. | PD20171163 | TK | 70% | 2022/7/19 |
| 39 | Jiangsu Sevencontinent Green Chemical Co., Ltd. | PD20171250 | TK | 37% | 2022/7/19 |
| 40 | Shandong Binnong Technology Co., Ltd. | PD20171869 | TC | 95% | 2022/9/18 |
| 41 | Ningxia Gerui Fine Chemical Co., Ltd. | PD20171961 | TC | 94% | 2022/9/18 |
| 42 | Jiangsu Henglong Crop Protection Co., Ltd. | PD20183123 | TC | 95% | 2023/7/23 |
| 43 | Hebei Lansheng Biotech Co., Ltd. | PD20200395 | TK | 37% | 2025/6/8 |

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

Table 1-2 Registrations of clethodim formulations in China, as of 10 Jan., 2022.

| Formulation | | Active ingredient | Content | Number | Share | |
|---------------------|------------------|--------------------------------------|---------------|--------|------------|-------------|
| Single formulations | EC | Clethodim | 240g/L | 52 | 47.27% | |
| | | Clethodim | 120g/L | 31 | 28.18% | |
| | | Clethodim | 24% | 13 | 11.82% | |
| | | Clethodim | 30% | 6 | 5.45% | |
| | | Clethodim | 12% | 1 | 0.91% | |
| | | Clethodim | 13% | 1 | 0.91% | |
| | | Clethodim | 26% | 1 | 0.91% | |
| | | Clethodim | 35% | 4 | 3.64% | |
| | OD | Clethodim | 12% | 1 | 0.91% | |
| | Sub-total | | / | | 110 | 100% |
| Mixed formulations | OD | clethodim·clopypalid·picloram | 20% | 2 | 7.69% | |
| | | benazolin-ethyl·clethodim·clopypalid | 16% | 1 | 3.85% | |
| | | clopypalid·clethodim | 8% | 1 | 3.85% | |
| | | clethodim·rimsulfuron | 15% | 1 | 3.85% | |
| | | clomazone·fomesafen·clethodim | 37% | 4 | 15.38% | |
| | | fomesafen·clethodim | 21%, 28% | 4 | 15.38% | |
| | | clethodim·metribuzin·rimsulfuron | 22%, 25%, 28% | 3 | 11.54% | |
| | EC | clomazone·fomesafen·clethodim | 22%, 23%, 39% | 5 | 19.23% | |
| | | clethodim·haloxyfop-P-methyl | 22.5%, 23% | 2 | 7.69% | |
| | | fomesafen·clethodim | 25% | 1 | 3.85% | |
| | | benazolin-ethyl·clethodim | 12% | 1 | 3.85% | |
| | ME | fomesafen·clethodim | 30% | 1 | 3.85% | |
| | Sub-total | | / | | 26 | 100% |
| | Total | | / | | 136 | |

Note: Due to rounding, shares of sub-total may not be 100.00%.
Source: ICAMA

2 Supply of clethodim in China, 2017–2021

2.1 Overview of production

On the whole, the production capacity and output of clethodim technical in China maintained an uptrend from 2017 to 2021. The capacity increased from 13,140 t/a in 2017 to 26,680 t/a in 2021, with a CAGR of 15.22%, while the output increased from 9,450 tonnes in 2017 to 13,900 tonnes in 2021, with a CAGR of 8.02%.

Figure 2.1-1 Capacity and output of 90% clethodim technical in China, 2017–2021



Source:CCM

2.2 Producer

In 2021, there were 13 clethodim technical producers in China and six of them were active.

Along with the new production line (2,000 t/a) of Liaoning Cynda Chemical Co., Ltd. (Liaoning Cynda)—the wholly-owned subsidiary of Shandong Cynda Chemical Co., Ltd. (Shandong Cynda)—putting into trial production, Shandong Cynda became the largest clethodim producer in China by its production capacity of 6,100 t/a in 2021. Meanwhile, Yifan Biotechnology Group Co., Ltd.'s production capacity remained at 6,000 t/a in 2021.

Given strong pressures from environmental protection policies, some clethodim technical producers in China were still in production suspension, and Yancheng South Chemicals Co., Ltd. even decided to transfer all pesticide qualifications to its subsidiary—Hangzhou Nutrichem Co., Ltd.—and quit.

Capacity and output of clethodim technical in China, 2017~2021

| No. | Company | Status, 2021 | 2021 | | 2020 | | 2019 | | 2018 | | 2017 | |
|--------------|---|--------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| | | | Capacity | Output | Capacity | Output | Capacity | Output | Capacity | Output | Capacity | Output |
| 1 | Yifan Biotechnology Group Co., Ltd. | Active | 6,000 | 4,600 | 6,000 | 3,500 | 3,000 | 3,000 | 3,000 | 1,800 | 700 | 700 |
| 2 | Shandong Cynda Chemical Co., Ltd. | Active | 6,100 | 5,500 | 4,100 | 4,000 | 4,100 | 3,200 | 3,000 | 3,000 | 3,000 | 3,300 |
| 3 | Cangzhou Green Chemical Co., Ltd. | Active | 3,000 | 1,400 | 3,000 | 1,500 | 3,000 | 1,450 | 500 | 400 | 500 | 400 |
| 4 | Shenyang Sciencreat Chemicals Co., Ltd. | Active | 1,200 | 700 | 1,600 | 1,200 | 1,600 | 1,000 | 1,600 | 920 | 900 | 800 |
| 5 | Hebei Wujiao Pesticide Co., Ltd. | Active | 1,000 | 1,000 | 1,000 | 950 | 1,000 | 1,000 | 1,000 | 980 | 1,000 | 850 |
| total | | | 26,680 | 13,900 | 22280 | 13,750 | 19,280 | 12,100 | 15,680 | 10,170 | 13,140 | 9,450 |

Liaoning Cynda Chemical Co., Ltd.'s additional 2,000 t/a clethodim technical production lines are in the trial production, which has increased the Shandong Cynda Chemical Co., Ltd.'s production capacity to 6,100 t/a at the end of 2021.

Ningxia Gerun Biotechnology Co., Ltd.'s 5,000 t/a clethodim technical project has been under environmental impact assessment.

Hebei Lansheng Biotech Co., Ltd.'s 4,000 t/a project has completed and was on trial. Besides, its subsidiary, Hebei Lanrun PLANT Protection Technology Co., Ltd., also has 1,000 t/a clethodim capacity.

Hebei Wujiao Pesticide Co., Ltd. transferred 90% TC qualification to its subsidiary, Wuwei Lianshuo Biotechnology Co., Ltd., whose environmental impact assessment of the 4,000 t/a clethodim technical project has been approved by local governments.

Potential capacity of clethodim technical in China, 2021

| No. | Producer | Project location | Planned capacity, t/a | Remark |
|-----|---|-------------------------------|-----------------------|--|
| 1 | Liaoning Cynda Chemical Co., Ltd. | Liaoning Province | 5,000 | On trial |
| 2 | Ningxia Gerun Biotechnology Co., Ltd. | Ningxia Hui Autonomous Region | 5,000 | Under environmental impact assessment |
| 3 | Hebei Lansheng Biotech Co., Ltd. | Hebei Province | 4,000 | On trial |
| 4 | Wuwei Lianshuo Biotechnology Co., Ltd. | Gansu Province | 4,000 | Environmental impact assessment approved |
| 5 | Yifan Biotechnology Group Co., Ltd. | Ningxia Hui Autonomous Region | 3,000 | On trial |
| 6 | Jiangsu Sevencontinent Green Chemical Co., Ltd. | Shandong Province | 3,000 | Under construction |

| No. | Producer | Project location | Planned capacity, t/a | Remark |
|------------|----------------------------------|-------------------------|------------------------------|--|
| 7 | Weifang Cynda Chemical Co., Ltd. | Shandong Province | 2,000 | Environmental impact assessment approved |

3 Export of clethodim in China, 2016–Q3 2021

3.1 Export situation

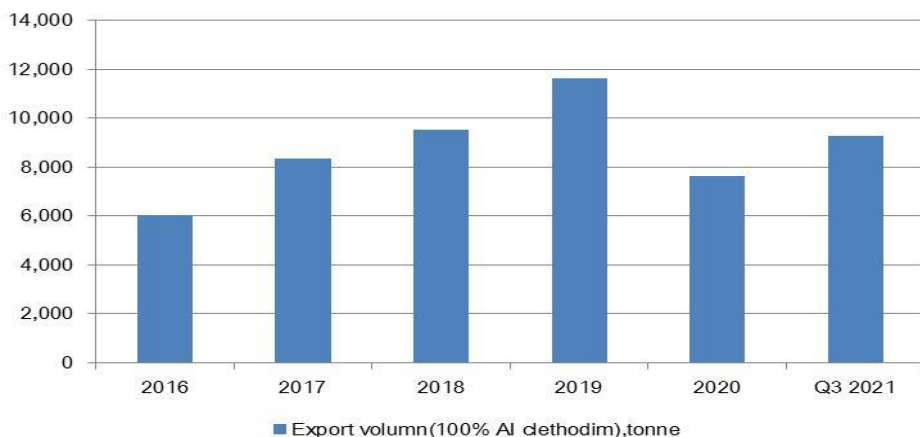
With unstable growing demand, from 2016 to 2020, the total export volume (converted into 100% AI) of clethodim technical and formulations in China increased from 6034 tonnes to 7,627 tonnes, with a CAGR of 4.80%. In Q3 2021, China exported approximately 9,279 tonnes of clethodim, registering a YoY increase of 59.93%.

In 2020, China's major export-oriented clethodim products were 7% TK, 90% TC and 94% TC. Of those, 37% TK and 94% TC, accounted for 63.36% and 30.43% of China's total export volume (in real terms) of clethodim technical, respectively. While the types of exported clethodim formulations were 120g/L EC and 240g/L EC; the latter, in particular, accounted for 97.06% of the total export volume of clethodim formulations in 2020.

In 2020, the number of export destinations of clethodim reached 41. The top five export destinations by volume were Argentina, Brazil, the US, Paraguay and Uruguay in the year, accounting for 97.76% of China's total clethodim export volume (100% AI volume).

In 2020, a total of 112 companies took part in the clethodim export business in China. The top three exporters by volume (100% AI volume) were Jiangsu Anpon Electrochemical Co., Ltd. ,Shandong Cynda Chemical Co., Ltd. and Jiangsu Yunfan Chemical Co., Ltd., respectively.

Figure 3.1-1 China's exports of clethodim, 2016–Q3 2021



Source: China Customs and CCM

Table 3.1-1 China's exports of clethodim by month, Q3 2021

| Month | Formulation | | | | | | Technical | | | | | | | | | | | | Total (100% AI clethodim), tonne |
|--------------|---------------------|----------------------|-----------------------|----------------------|------------------|----------------------|----------------------|----------------------|------------------|----------------------|------------------|----------------------|---------------------|----------------------|----------------------|----------------------|---------------------|----------------------|---|
| | 120g/L EC | | 240g/L EC | | 36% EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | Volume, tonne | Price, USD/ kg | |
| Jan. | 170.31 0 | 0.27 | 1302.34 5 | 4.03 | 0.000 | \ | 669.67 6 | 0.11 | 0.000 | \ | 30.000 | 15.41 | 0.010 | 60.00 | 156.00 4 | 13.65 | 0.000 | \ | 767.457 |
| Feb. | 99.940 | 1.51 | 804.698 | 5.50 | 0.000 | \ | 952.20 0 | 1.70 | 24.010 | 9.91 | 0.000 | \ | 0.000 | \ | 118.00 0 | 15.95 | 67.655 | 0.01 | 757.481 |
| March | 105.84 0 | 0.00 | 2224.74 7 | 5.55 | 0.000 | \ | 908.62 0 | 5.12 | 0.000 | \ | 18.000 | 13.75 | 0.000 | \ | 200.00 0 | 15.67 | 84.600 | 3.00 | 1189.647 |
| April | 1.620 | 5.73 | 2247.96 0 | 5.69 | 0.000 | \ | 587.33 8 | 2.25 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 322.93 2 | 13.86 | 95.009 | 6.67 | 1151.776 |
| May | 1.620 | 6.14 | 3283.96 9 | 7.72 | 0.000 | \ | 63.000 | 6.45 | 0.000 | \ | 0.000 | \ | 100.00 0 | 14.00 | 715.07 5 | 9.79 | 20.400 | 28.80 | 1596.207 |
| June | 304.21 9 | 5.20 | 2445.70 3 | 6.84 | 46.000 | 7.20 | 881.70 4 | 7.94 | 0.000 | \ | 0.000 | \ | 128.00 0 | 14.23 | 842.61 6 | 11.31 | 39.000 | 28.69 | 1914.415 |
| July | 65.284 | 1.96 | 2077.24 8 | 5.42 | 21.600 | 8.03 | 742.96 0 | 6.52 | 0.000 | \ | 0.000 | \ | 24.010 | 13.96 | 274.32 7 | 8.41 | 20.000 | 28.80 | 1088.242 |
| Aug. | 54.788 | 0.10 | 154.880 | 5.05 | 21.600 | 8.30 | 72.000 | 6.30 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 687.80 0 | 15.38 | 46.000 | 28.31 | 768.394 |
| Sept. | 71.636 | 0.18 | 0.000 | \ | 0.000 | \ | 99.494 | 0.51 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 45.409 |
| Total | 875.25 7 | 2.00 | 14541.5 50 | 6.00 | 89.200 | 8.00 | 4976.9 92 | 4.00 | 24.010 | 10.00 | 48.000 | 15.00 | 252.02 0 | 14.00 | 3316.7 54 | 12.00 | 372.66 4 | 12.00 | 9279.027 |

Source: China Customs and CCM

Table 3.1-2 China's exports of clethodim by month, 2020

| Month | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------------|
| | 120g/L EC | | 240g/L EC | | 37% TKL | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| Jan. | 300.591 | 4.69 | 1554.282 | 7.09 | 946.400 | 7.40 | 42.000 | 18.14 | 0.000 | / | 245.200 | 16.84 | 0.000 | / | 131.000 |
| Feb. | 41.732 | 5.48 | 225.011 | 6.97 | 273.000 | 7.27 | 0.000 | / | 0.000 | / | 50.000 | 16.28 | 0.000 | / | 32.000 |
| March | 141.415 | 2.41 | 2713.501 | 6.91 | 635.610 | 7.43 | 87.020 | 14.19 | 0.000 | / | 277.750 | 16.62 | 0.000 | / | 174.000 |
| April | 70.775 | 4.74 | 2748.702 | 6.64 | 1063.730 | 7.31 | 0 | / | 0.000 | / | 96.000 | 17.02 | 0.000 | / | 166.000 |
| May | 0.808 | 6.30 | 2227.316 | 7.24 | 748.800 | 7.87 | 0.000 | / | 0.000 | / | 396.000 | 18.05 | 0.000 | / | 94.000 |
| June | 0.000 | / | 2222.244 | 7.35 | 566.000 | 7.74 | 0.000 | / | 48.000 | 18.35 | 660.400 | 17.92 | 12.000 | 19.95 | 93.000 |
| July | 30.348 | 4.21 | 1898.450 | 6.74 | 179.220 | 7.75 | 66.000 | 17.28 | 46.000 | 23.26 | 663.000 | 18.53 | 0.000 | / | 75.000 |
| Aug. | 0.000 | / | 1756.934 | 7.14 | 592.000 | 6.63 | 96.000 | 15.59 | 24.000 | 17.17 | 249.000 | 18.75 | 0.000 | / | 52.000 |
| Sept. | 0.000 | / | 1657.791 | 6.53 | 206.000 | 3.63 | 24.000 | 14.35 | 24.000 | 16.08 | 359.000 | 18.23 | 0.000 | / | 52.000 |
| Oct. | 1.028 | 3.19 | 1116.386 | 6.56 | 583.378 | 0.49 | 110.000 | 15.44 | 0.000 | / | 200.000 | 15.64 | 0.002 | 20.00 | 53.000 |
| Nov. | 2.749 | 4.65 | 623.232 | 3.02 | 608.954 | 0.44 | 84.000 | 12.58 | 25.000 | 13.00 | 172.800 | 17.60 | 0.000 | / | 58.000 |
| Dec. | 0.000 | / | 695.384 | 3.07 | 611.422 | 0.00 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 54.000 |
| Total | 589.447 | 4.18 | 19439.234 | 6.66 | 7014.514 | 5.47 | 509.020 | 15.19 | 167.000 | 18.40 | 3369.150 | 17.76 | 12.002 | 19.95 | 1034.000 |

Source:CCM & China Customs

Table 3.1-3 China's exports of clethodim by month, 2019

| Month | Formulation | | | | Technical | | | | | | | | | | | | Total (100% AI clethodim , tonne |
|--------------|---------------------|----------------------|------------------------|----------------------|-----------------------|----------------------|-------------------|----------------------|---------------------|----------------------|-------------------|----------------------|-----------------------|----------------------|-------------------|----------------------|---|
| | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| Jan. | 144.25 5 | 5.55 | 1,325.522 | 8.76 | 1,477.42 5 | 12.64 | 82.000 | 20.08 | 60.000 | 26.37 | 0.000 | / | 134.400 | 18.82 | 0.000 | / | 1,133.074 |
| Feb. | 1.410 | 6.88 | 1,181.932 | 9.29 | 921.820 | 11.81 | 32.000 | 15.67 | 7.000 | 27.15 | 0.000 | / | 67.600 | 22.23 | 0.000 | / | 728.970 |
| March | 67.960 | 5.00 | 1,350.532 | 9.21 | 1,168.02 0 | 10.05 | 0.000 | / | 0.000 | / | 0.000 | / | 140.800 | 20.80 | 0.000 | / | 910.308 |
| April | 4.650 | 5.50 | 1,247.790 | 9.03 | 1,403.27 7 | 9.91 | 0.000 | / | 0.000 | / | 0.000 | / | 115.400 | 21.98 | 0.000 | / | 940.194 |
| May | 0.000 | / | 3,229.784 | 8.04 | 1,046.00 0 | 9.74 | 0.000 | / | 0.000 | / | 0.000 | / | 104.800 | 22.57 | 0.000 | / | 1,292.978 |
| June | 8.604 | 5.31 | 3,038.788 | 7.91 | 500.640 | 9.86 | 0.000 | / | 0.000 | / | 0.000 | / | 157.990 | 23.36 | 0.000 | / | 1,094.477 |
| July | 0.940 | 5.00 | 3,360.765 | 8.04 | 432.000 | 9.67 | 0.000 | / | 12.000 | 23.16 | 0.000 | / | 119.000 | 22.98 | 37.000 | 21.74 | 1,157.954 |
| Aug. | 2.000 | 4.98 | 1,963.830 | 8.14 | 510.750 | 9.99 | 0.000 | / | 12.000 | 23.71 | 12.000 | 24.10 | 285.800 | 21.49 | 12.000 | 23.81 | 982.187 |
| Sept. | 13.730 | 5.45 | 1,697.698 | 8.29 | 153.434 | 10.41 | 0.000 | / | 101.00 0 | 23.27 | 0.000 | / | 266.000 | 20.00 | 19.400 | 22.36 | 842.213 |
| Oct. | 19.400 | 5.04 | 2,214.701 | 8.35 | 199.000 | 9.76 | 0.000 | / | 0.000 | / | 0.000 | / | 163.400 | 23.73 | 0.000 | / | 783.229 |
| Nov. | 10.000 | 4.74 | 814.763 | 9.13 | 1,048.00 0 | 9.80 | 0.000 | / | 43.400 | 18.49 | 56.000 | 20.19 | 503.000 | 17.89 | 10.000 | 21.39 | 1,166.111 |
| Dec. | 50.640 | 5.28 | 665.733 | 7.75 | 523.420 | 10.84 | 0.600 | 11.28 | 35.000 | 18.27 | 0.000 | / | 194.400 | 18.05 | 37.800 | 20.49 | 616.741 |
| Total | 323.58 9 | 5.32 | 22,091.83 8 | 8.35 | 9,383.78 6 | 10.56 | 114.600 | 18.80 | 270.40 0 | 22.66 | 68.000 | 20.88 | 2,252.59 0 | 20.48 | 116.200 | 21.62 | 11,648.436 |

Source: CCM & China Customs

Table 3.1-4 China's exports of clethodim by month, 2018

| Month | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|--------------|----------------|---------------|-------------------|---------------|-------------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|---------------|---------------|-------------------------------------|
| | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| Jan. | 62.736 | 5.25 | 1,629.196 | 8.80 | 1,435.400 | 10.17 | 91.000 | 18.58 | 67.600 | 25.80 | 75.000 | 26.32 | 0.000 | / | 1,140.965 |
| Feb. | 26.455 | 5.61 | 1,287.319 | 8.63 | 699.500 | 9.96 | 16.000 | 15.92 | 16.000 | 28.85 | 33.600 | 25.35 | 0.200 | 16.03 | 641.193 |
| March | 7.717 | 5.22 | 429.260 | 9.32 | 961.840 | 10.28 | 0.000 | / | 103.400 | 21.53 | 36.200 | 22.05 | 0.000 | / | 591.210 |
| April | 13.580 | 4.38 | 1,161.889 | 9.20 | 828.640 | 9.93 | 0.000 | / | 4.000 | 23.05 | 0.000 | / | 0.000 | / | 602.299 |
| May | 9.750 | 3.09 | 2,225.846 | 8.21 | 1,439.000 | 9.34 | 0.000 | / | 0.000 | / | 32.000 | 22.63 | 0.000 | / | 1,120.142 |
| June | 6.512 | 3.92 | 2,203.044 | 7.73 | 464.000 | 9.20 | 0.000 | / | 0.000 | / | 51.000 | 22.38 | 0.000 | / | 771.162 |
| July | 0.000 | / | 1,751.103 | 7.56 | 256.600 | 8.99 | 0.000 | / | 80.800 | 22.56 | 12.110 | 28.91 | 0.000 | / | 616.821 |
| Aug. | 5.452 | 5.09 | 1,945.825 | 7.65 | 126.000 | 9.39 | 0.000 | / | 75.200 | 25.26 | 0.000 | / | 0.100 | 25.99 | 601.506 |
| Sept. | 0.000 | / | 1,719.413 | 7.99 | 414.000 | 9.23 | 0.000 | / | 41.200 | 21.96 | 33.600 | 16.38 | 0.000 | / | 651.697 |
| Oct. | 4.650 | 4.80 | 1,140.440 | 8.18 | 893.500 | 11.41 | 0.000 | / | 24.000 | 24.61 | 92.000 | 16.52 | 0.000 | / | 724.343 |
| Nov. | 0.000 | / | 820.686 | 9.12 | 2,142.208 | 11.22 | 0.000 | / | 43.800 | 25.10 | 117.600 | 17.11 | 0.000 | / | 1,147.752 |
| Dec. | 4.650 | 5.49 | 972.103 | 8.72 | 1,347.200 | 11.80 | 64.000 | 15.66 | 56.000 | 25.81 | 68.600 | 19.49 | 19.000 | 25.38 | 919.782 |
| Total | 141.502 | 5.01 | 17,286.124 | 8.25 | 11,007.888 | 10.43 | 171.000 | 17.24 | 512.000 | 24.00 | 551.710 | 20.40 | 19.300 | 25.29 | 9,528.872 |

Source: CCM & China Customs

Table 3.1-5 China's exports of clethodim by month, 2017

| Month | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|--------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------------|
| | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| Jan. | 30.898 | 4.86 | 1,497.251 | 5.80 | 1,595.020 | 7.09 | 50.000 | 13.75 | 15.688 | 16.11 | 97.000 | 17.18 | 0.000 | / | 1,108.477 |
| Feb. | 6.203 | 3.73 | 842.337 | 5.82 | 642.400 | 6.88 | 37.500 | 13.73 | 10.400 | 17.45 | 22.000 | 15.97 | 19.800 | 14.05 | 524.117 |
| March | 23.855 | 4.36 | 1,288.855 | 5.80 | 1,162.680 | 6.74 | 25.000 | 14.41 | 23.600 | 15.97 | 0.000 | / | 0.000 | / | 794.008 |
| April | 27.327 | 3.92 | 1,696.882 | 6.04 | 517.000 | 6.89 | 0.000 | / | 11.600 | 13.87 | 0.000 | / | 16.500 | 14.12 | 644.905 |
| May | 44.121 | 4.38 | 1,429.848 | 5.88 | 534.000 | 6.86 | 0.000 | / | 26.000 | 15.52 | 18.200 | 13.30 | 28.600 | 14.13 | 628.015 |
| June | 15.175 | 3.55 | 1,423.584 | 5.82 | 226.400 | 6.91 | 0.000 | / | 26.000 | 15.48 | 0.000 | / | 0.000 | / | 464.885 |
| July | 1.146 | 5.04 | 2,225.851 | 5.84 | 88.000 | 6.43 | 0.000 | / | 26.000 | 15.48 | 43.800 | 15.92 | 0.000 | / | 653.732 |
| Aug. | 0.000 | / | 1,864.028 | 5.94 | 153.500 | 6.58 | 0.000 | / | 26.000 | 15.47 | 26.000 | 15.21 | 0.000 | / | 570.642 |
| Sept. | 6.760 | 4.65 | 1,174.385 | 5.90 | 566.000 | 7.10 | 0.000 | / | 14.000 | 15.40 | 104.200 | 15.40 | 0.000 | / | 614.375 |
| Oct. | 19.600 | 4.37 | 730.772 | 6.09 | 729.000 | 7.65 | 88.000 | 15.03 | 0.000 | / | 51.600 | 17.05 | 0.000 | / | 564.879 |
| Nov. | 29.749 | 5.19 | 811.571 | 7.52 | 1,121.300 | 7.91 | 0.000 | / | 18.000 | 20.48 | 67.205 | 24.99 | 3.000 | 18.50 | 703.566 |
| Dec. | 9.500 | 4.90 | 1,145.004 | 8.00 | 1,443.660 | 9.60 | 50.000 | 19.47 | 140.000 | 16.22 | 87.600 | 25.36 | 0.000 | / | 1,064.889 |
| Total | 214.334 | 4.46 | 16,130.368 | 6.12 | 8,778.960 | 7.55 | 250.500 | 15.40 | 337.288 | 16.12 | 517.605 | 18.81 | 67.900 | 14.30 | 8,336.490 |

Source:CCM & China Customs

Table 3.1-6 China's exports of clethodim by month, 2016

| Month | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------------|
| | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| Jan. | 56.481 | 5.08 | 729.147 | 6.38 | 1,515.000 | 8.54 | 94.400 | 16.30 | 17.900 | 22.22 | 34.000 | 18.77 | 17.600 | 20.76 | 880.485 |
| Feb. | 16.013 | 4.93 | 568.865 | 6.23 | 848.800 | 8.47 | 52.800 | 15.79 | 14.800 | 19.99 | 16.000 | 18.48 | 0.000 | / | 523.514 |
| March | 4.650 | 4.32 | 961.737 | 6.65 | 1,144.000 | 8.43 | 17.600 | 15.72 | 0.000 | / | 38.000 | 18.22 | 0.500 | 16.55 | 712.787 |
| April | 9.692 | 5.30 | 768.366 | 6.56 | 831.280 | 7.85 | 17.600 | 15.79 | 0.000 | / | 0.000 | / | 13.200 | 16.00 | 525.688 |
| May | 14.860 | 4.59 | 844.808 | 7.41 | 452.195 | 8.11 | 0.000 | / | 56.000 | 18.04 | 0.000 | / | 0.000 | / | 430.697 |
| June | 34.685 | 6.11 | 751.849 | 6.98 | 631.000 | 7.89 | 18.000 | 14.35 | 12.003 | 17.18 | 0.000 | / | 0.000 | / | 448.997 |
| July | 0.000 | / | 943.640 | 6.93 | 232.200 | 7.38 | 0.000 | / | 16.000 | 21.17 | 13.000 | 17.77 | 35.200 | 18.19 | 381.884 |
| Aug. | 0.000 | / | 707.252 | 6.58 | 76.000 | 6.86 | 0.000 | / | 20.000 | 16.57 | 55.800 | 16.73 | 0.000 | / | 275.385 |
| Sept. | 21.727 | 5.16 | 743.826 | 6.49 | 99.000 | 7.29 | 0.000 | / | 32.000 | 20.59 | 33.600 | 17.48 | 0.000 | / | 285.578 |
| Oct. | 17.012 | 5.28 | 398.233 | 6.31 | 402.480 | 7.21 | 123.200 | 13.65 | 2.000 | 15.03 | 67.200 | 17.48 | 0.000 | / | 401.725 |
| Nov. | 39.499 | 5.21 | 348.723 | 5.57 | 865.260 | 7.34 | 35.200 | 13.73 | 0.000 | / | 50.400 | 17.47 | 0.000 | / | 484.083 |
| Dec. | 225.379 | 4.12 | 384.986 | 6.27 | 1,415.600 | 7.04 | 50.000 | 13.75 | 1.200 | 16.60 | 0.000 | / | 0.000 | / | 683.144 |
| Total | 439.998 | 4.67 | 8,151.432 | 6.63 | 8,512.815 | 7.89 | 408.800 | 14.77 | 171.903 | 19.13 | 308.000 | 17.64 | 66.500 | 18.42 | 6,033.967 |

Source:CCM & China Customs

Table 3.1-7 China's exports of clethodim by destination, Q3 2021

| N o. | Country | Formulation | | | | | | Technical | | | | | | | | | | | | Total (100% AI clethodi m), tonne |
|---------|---------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|--|
| | | 120g/L EC | | 240g/L EC | | 36% EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volu me, tonne | Price , USD/ kg | Volume , tonne | Price , USD/ kg | Volu me, tonne | Price , USD/ kg | Volum e, tonne | Price , USD/ kg | Volu me, tonne | Price , USD/ kg | Volu me, tonne | Price , USD/ kg | Volu me, tonne | Price , USD/ kg | Volum e, tonne | Price , USD/ kg | Volu me, tonne | Price , USD/ kg | |
| 1 | Brazil | 286.0 00 | 5.20 | 11515.5 19 | 6.52 | 0.000 | / | 857.20 0 | 8.03 | 0.010 | 1.00 | 0.000 | / | 0.010 | 60.00 | 0.000 | / | 1.014 | 16.19 | 3149.22 9 |
| 2 | Argentina | 0.000 | / | 147.00 0 | 13.03 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 249.0 10 | 14.00 | 2566.8 04 | 15.17 | 147.4 00 | 28.62 | 2819.68 5 |
| 3 | United States | 481.1 72 | 0.00 | 1425.7 09 | 0.00 | 0.000 | / | 1920.6 88 | 0.00 | 0.000 | / | 0.000 | / | 0.000 | / | 605.93 8 | 0.00 | 208.2 50 | 0.00 | 1884.91 5 |
| 4 | Paraguay | 6.888 | 7.16 | 740.00 0 | 5.05 | 89.20 0 | 7.67 | 2172.0 80 | 6.12 | 24.00 0 | 9.91 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 1031.48 8 |
| 5 | Russia | 0.000 | / | 234.12 4 | 4.89 | 0.000 | / | 0.000 | / | 0.000 | / | 48.00 0 | 14.79 | 0.000 | / | 36.000 | 12.83 | 0.000 | / | 135.570 |
| 6 | India | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 92.000 | 15.09 | 0.000 | / | 86.480 |
| 7 | Mexico | 0.000 | / | 195.61 5 | 25.60 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.012 | 0.18 | 0.000 | / | 47.447 |
| 8 | Turkey | 0.000 | / | 0.206 | 12.48 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 3.000 | 23.75 | 16.000 | 15.35 | 16.00 0 | 14.90 | 33.079 |
| 9 | Uruguay | 0.000 | / | 91.200 | 5.70 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 21.888 |
| 10 | Ukraine | 37.44 0 | 3.76 | 45.442 | 8.78 | 0.000 | / | 8.120 | 9.00 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 18.858 |
| 11 | Kazakhstan | 0.000 | / | 57.220 | 7.13 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 14.090 |
| 12 | Peru | 17.98 8 | 5.73 | 25.840 | 5.65 | 0.000 | / | 8.480 | 6.38 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 11.567 |

| | | | | | | | | | | | | | | | | | | | | |
|----|--------------|---------------------|-------------|-----------------------|-------------|--------------------|-------------|----------------------|-------------|--------------------|-------------|--------------------|--------------|---------------------|--------------|----------------------|--------------|---------------------|--------------|----------------------|
| 13 | Chile | 0.000 | / | 38.956 | 9.57 | 0.000 | / | 3.000 | 7.00 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | 157.8 0 | 10.479 |
| 14 | Saudi Arabia | 0.000 | / | 20.690 | 0.00 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 4.966 |
| 15 | Australia | 0.000 | / | 17.090 | 0.00 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 4.102 |
| | Others | 45.76 9 | / | 52.476 | / | 0.000 | / | 7.424 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 20.914 |
| | Total | 875.2 57 | 2.22 | 14607. 087 | 6.09 | 89.20 0 | 7.67 | 4976.9 92 | 4.10 | 24.01 0 | 9.91 | 48.00 0 | 14.79 | 252.0 20 | 14.11 | 3316.7 54 | 12.37 | 372.6 64 | 12.00 | 9294.75 6 |

Source:CCM & China Customs

Table 3.1-8 China's exports of clethodim by destination,2020

| No. | Country | Formulation | | | | | | Technical | | | | | | | | Total (100% AI clethodim), tonne |
|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | Argentina | 0.000 | / | 2601.536 | 6.75 | 0.000 | / | 431.000 | 15.64 | 167.000 | 18.40 | 2959.200 | 17.94 | 12.000 | 19.95 | 3318.566 |
| 2 | Brazil | 52.800 | 4.69 | 9591.990 | 7.22 | 1648.820 | 7.35 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 2364.236 |
| 3 | United States | 93.240 | 1.41 | 2136.723 | 4.11 | 3296.254 | 3.10 | 0.000 | / | 0.000 | / | 22.400 | 14.00 | 0.000 | / | 923.800 |
| 4 | Paraguay | 0.000 | / | 1816.618 | 6.84 | 1053.400 | 7.77 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 712.661 |
| 5 | Uruguay | 0.000 | / | 816.484 | 6.31 | 164.000 | 7.71 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 137.173 |
| 6 | Russia | 21.168 | 5.44 | 654.038 | 6.29 | 192.000 | 8.49 | 78.000 | 12.70 | 0.000 | / | 152.800 | 16.65 | 0.000 | / | 111.315 |
| 7 | Kazakhstan | 0.000 | / | 124.284 | 7.84 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 13.735 |
| 8 | Ukraine | 102.145 | 4.45 | 157.392 | 7.60 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 11.642 |

| No. | Country | Formulation | | | | | | Technical | | | | | | | | Total (100% Al clethodim), tonne |
|-----|--------------|----------------|---------------|------------------|---------------|-----------------|---------------|----------------|---------------|----------------|---------------|-----------------|---------------|---------------|---------------|-------------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 9 | Peru | 9.153 | 4.59 | 36.156 | 6.93 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 7.037 |
| 10 | Saudi Arabia | 0.000 | / | 75.188 | 4.98 | 2.400 | 12.01 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 6.892 |
| 11 | Colombia | 0.000 | / | 30.329 | 7.86 | 8.000 | 7.09 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 5.931 |
| 12 | Vietnam | 35.864 | 3.98 | 14.994 | 5.80 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 4.699 |
| 13 | Chile | 0.000 | / | 86.605 | 7.93 | 36.000 | 7.60 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 3.019 |
| 14 | Australia | 154.000 | 5.33 | 836.512 | 6.48 | 401.620 | 7.28 | 0.000 | / | 0.000 | / | 216.000 | 16.52 | 0.000 | / | 2.289 |
| 15 | Ecuador | 0.000 | / | 18.946 | 10.27 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 1.505 |
| | Others | 121.077 | / | 441.439 | / | 212.020 | / | 0.020 | / | 0.000 | / | 18.750 | / | 0.002 | / | 2.582 |
| | Total | 589.447 | 4.18 | 19439.234 | 6.66 | 7014.514 | 5.47 | 509.020 | 15.19 | 167.000 | 18.40 | 3369.150 | 17.76 | 12.002 | 19.95 | 7627.084 |

Source: CCM & China Customs

Table 3.1-9 China's exports of clethodim by destination, 2019

| No | Country | Formulation | | | | Technical | | | | | | | | | | | | Total (100% AI clethodim), tonne |
|----|--------------|------------------|------------------|-----------------------|------------------|-----------------------|------------------|------------------|------------------|---------------------|------------------|------------------|------------------|-----------------------|------------------|------------------|------------------|---|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | Argentina | 0.000 | / | 7,702.92 ₃ | 8.03 | 514.000 | 10.53 | 0.000 | / | 191.40 ₀ | 23.39 | 68.000 | 20.88 | 899.990 | 23.46 | 89.000 | 21.89 | 3,281.951 |
| 2 | The US | 0.000 | / | 1,699.32 ₅ | 8.01 | 2,956.0 ₀₀ | 10.18 | 0.000 | / | 0.000 | / | 0.000 | / | 1,092.0 ₀₀ | 17.73 | 0.000 | / | 2,545.031 |
| 3 | Brazil | 0.000 | / | 7,161.42 ₇ | 7.56 | 1,184.0 ₁₉ | 9.75 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 2,228.444 |
| 4 | Paraguay | 0.000 | / | 971.934 | 8.44 | 1,429.0 ₅₁ | 9.57 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 771.732 |
| 5 | Israel | 0.000 | / | 0.000 | / | 1,864.0 ₂₀ | 10.23 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 689.687 |
| 6 | Australia | 0.000 | / | 655.428 | 9.09 | 184.000 | 10.20 | 50.000 | 22.28 | 0.000 | / | 0.000 | / | 144.000 | 21.56 | 0.000 | / | 402.297 |
| 7 | Uruguay | 4.650 | 5.00 | 1,304.20 ₄ | 8.38 | 123.600 | 9.32 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 372.341 |
| 8 | Colombia | 0.000 | / | 54.393 | 9.96 | 815.794 | 10.64 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 315.442 |
| 9 | Russia | 0.000 | / | 401.134 | 8.56 | 238.025 | 13.60 | 64.000 | 15.67 | 62.000 | 23.48 | 0.000 | / | 0.600 | 29.00 | 0.000 | / | 289.517 |
| 10 | Chile | 0.000 | / | 504.262 | 8.58 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 126.066 |
| 11 | Bolivia | 0.000 | / | 478.070 | 8.05 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 119.518 |
| 12 | South Africa | 0.000 | / | 163.856 | 8.41 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 36.400 | 17.53 | 0.000 | / | 75.180 |
| 13 | France | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 72.000 | 23.52 | 0.000 | / | 67.680 |

| No | Country | Formulation | | | | Technical | | | | | | | | | | | | Total (100% Al clethodim), tonne |
|--------------|------------|----------------|---------------|-------------------|---------------|------------------|---------------|----------------|---------------|----------------|---------------|---------------|---------------|------------------|---------------|----------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 14 | Turkey | 1.920 | 5.92 | 43.322 | 8.31 | 0.000 | / | 0.000 | / | 10.000 | 24.45 | 0.000 | / | 4.000 | 25.96 | 25.800 | 20.27 | 48.331 |
| 15 | Kazakhstan | 0.000 | / | 183.558 | 10.79 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 45.890 |
| Others | | 317.019 | 5.29 | 768.002 | 8.92 | 75.277 | 12.01 | 0.600 | 11.28 | 7.000 | 13.52 | 0.000 | / | 3.600 | 16.31 | 1.400 | 23.80 | 269.329 |
| Total | | 323.589 | 5.32 | 22,091.838 | 8.35 | 9,383.786 | 10.56 | 114.600 | 18.80 | 270.400 | 22.66 | 68.000 | 20.88 | 2,252.590 | 20.48 | 116.200 | 21.62 | 11,648.436 |

Source:CCM & China Customs

Table 3.1-10 China's exports of clethodim by destination, 2018

| No. | Country | Formulation | | | | Technical | | | | | | | | | | | Total (100% Al clethodim), tonne |
|-----|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | | |
| 1 | The US | 0.000 | / | 1,674.135 | 8.12 | 5,040.248 | 10.74 | 0.000 | / | 0.000 | / | 352.800 | 18.90 | 0.000 | / | 2,615.058 | |
| 2 | Argentina | 0.000 | / | 4,857.346 | 7.83 | 620.000 | 10.44 | 0.000 | / | 350.600 | 24.72 | 74.000 | 22.51 | 0.000 | / | 1,828.836 | |
| 3 | Brazil | 0.000 | / | 5,044.579 | 7.81 | 34.000 | 9.46 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 1,273.725 | |
| 4 | Israel | 0.000 | / | 0.000 | / | 3,084.000 | 9.52 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 1,141.080 | |
| 5 | Paraguay | 0.000 | / | 1,435.198 | 7.77 | 1,462.000 | 9.91 | 0.000 | / | 0.000 | / | 0.000 | / | 16.000 | 25.26 | 914.939 | |
| 6 | Australia | 0.000 | / | 1,098.842 | 9.15 | 312.840 | 10.56 | 75.000 | 19.47 | 79.200 | 22.15 | 18.000 | 23.79 | 0.000 | / | 531.161 | |

| No. | Country | Formulation | | | | Technical | | | | | | | | | | Total (100% Al clethodim), tonne |
|-----|--------------|----------------|---------------|-------------------|---------------|-------------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|---------------|---------------|-------------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 7 | Uruguay | 0.000 | / | 1,016.925 | 8.12 | 132.000 | 11.1 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 303.071 |
| 8 | Russia | 5.880 | 5.33 | 558.575 | 8.66 | 107.000 | 11.41 | 96.000 | 15.79 | 42.000 | 22.38 | 0.000 | / | 0.000 | / | 284.939 |
| 9 | Chile | 0.000 | / | 363.530 | 7.99 | 96.000 | 8.3 | 0.000 | / | 0.000 | / | 0.000 | / | 0.100 | 25.99 | 126.497 |
| 10 | South Africa | 0.000 | / | 147.686 | 7.97 | 14.000 | 9.54 | 0.000 | / | 0.000 | / | 54.600 | 18.83 | 0.000 | / | 93.426 |
| 11 | Saudi Arabia | 0.000 | / | 149.066 | 9.21 | 14.000 | 14.24 | 0.000 | / | 0.000 | / | 8.000 | 15.10 | 0.000 | / | 49.967 |
| 12 | Turkey | 0.000 | / | 41.145 | 7.96 | 3.000 | 16.42 | 0.000 | / | 35.000 | 25.59 | 5.400 | 30.14 | 0.000 | / | 47.972 |
| 13 | Thailand | 0.000 | / | 183.533 | 8.41 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 45.883 |
| 14 | France | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 36.000 | 25.37 | 0.000 | / | 33.840 |
| 15 | Malaysia | 0.000 | / | 100.898 | 8.02 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 25.225 |
| | Others | 135.622 | 4.79 | 614.666 | 8.92 | 88.800 | 13.66 | 0.000 | / | 5.200 | 17.43 | 2.910 | 31.39 | 3.200 | 21.01 | 213.253 |
| | Total | 141.502 | 5.01 | 17,286.124 | 8.25 | 11,007.888 | 10.43 | 171.000 | 17.24 | 512.000 | 24.00 | 551.710 | 20.40 | 19.300 | 25.29 | 9,528.872 |

Source: CCM & China Customs

Table 3.1-11 China's exports of clethodim by destination, 2017

| No. | Country | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|-----|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | The US | 0.000 | / | 1,971.027 | 6.57 | 4,108.980 | 7.97 | 88.000 | 15.03 | 0.000 | / | 218.400 | 20.97 | 0.000 | / | 2,279.975 |
| 2 | Argentina | 0.000 | / | 5,271.724 | 6.12 | 108.000 | 7.30 | 0.000 | / | 142.888 | 16.14 | 115.000 | 15.27 | 0.000 | / | 1,594.590 |
| 3 | Australia | 0.000 | / | 2,744.801 | 6.06 | 389.280 | 7.13 | 162.500 | 15.61 | 11.600 | 13.87 | 0.000 | / | 64.900 | 14.10 | 1,016.079 |
| 4 | Paraguay | 0.000 | / | 1,879.041 | 5.82 | 760.000 | 6.99 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 750.960 |
| 5 | Israel | 0.000 | / | 0.000 | / | 2,580.000 | 7.04 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 954.600 |
| 6 | Brazil | 0.000 | / | 1,680.927 | 6.06 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 420.232 |
| 7 | Russia | 0.000 | / | 525.288 | 5.87 | 214.000 | 9.27 | 0.000 | / | 156.000 | 16.35 | 0.000 | / | 0.000 | / | 350.902 |
| 8 | Chile | 0.000 | / | 718.524 | 5.90 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 179.631 |
| 9 | Colombia | 0.000 | / | 40.342 | 8.01 | 504.500 | 6.78 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 196.750 |
| 10 | Uruguay | 0.000 | / | 404.564 | 6.05 | 17.000 | 7.44 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 107.431 |
| 11 | Ukraine | 24.825 | 4.79 | 222.351 | 5.92 | 0.000 | / | 0.000 | / | 5.200 | 14.53 | 0.000 | / | 0.000 | / | 63.247 |
| 12 | Malaysia | 0.000 | / | 160.055 | 6.51 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 40.014 |
| 13 | France | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 147.000 | 19.79 | 0.000 | / | 138.180 |
| 14 | South Africa | 19.600 | 4.37 | 86.840 | 5.97 | 0.000 | / | 0.000 | / | 0.000 | / | 36.400 | 13.17 | 0.000 | / | 58.278 |
| 15 | Saudi Arabia | 15.040 | 3.69 | 68.823 | 6.93 | 17.400 | 9.25 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 25.449 |

| | | | | | | | | | | | | | | | |
|--------------|----------------|-------------|-------------------|-------------|------------------|-------------|----------------|--------------|----------------|--------------|----------------|--------------|---------------|--------------|------------------|
| Others | 154.869 | 4.49 | 356.061 | 6.44 | 79.800 | 9.64 | 0.000 | / | 21.600 | 16.01 | 0.805 | 16.02 | 3.000 | 18.50 | 160.172 |
| Total | 214.334 | 4.46 | 16,130.368 | 6.12 | 8,778.960 | 7.55 | 250.500 | 15.40 | 337.288 | 16.12 | 517.605 | 18.81 | 67.900 | 14.30 | 8,336.490 |

Source:CCM & China Customs

Table 3.1-12 China's exports of clethodim by destination, 2016

| No. | Country | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|-----|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | The US | 0.000 | / | 708.409 | 6.39 | 3,578.160 | 7.71 | 282.000 | 14.50 | 0.003 | 17.33 | 183.200 | 17.71 | 0.000 | / | 1,870.632 |
| 2 | Australia | 0.000 | / | 1,731.282 | 6.39 | 725.600 | 8.35 | 126.800 | 15.37 | 0.000 | / | 20.000 | 17.94 | 13.200 | 16.00 | 821.392 |
| 3 | Paraguay | 15.520 | 6.24 | 1,688.142 | 6.08 | 785.995 | 7.34 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 714.716 |
| 4 | Argentina | 0.000 | / | 1,855.900 | 7.90 | 125.000 | 7.72 | 0.000 | / | 152.000 | 19.12 | 53.800 | 17.68 | 52.800 | 19.05 | 747.757 |
| 5 | Israel | 0.000 | / | 0.000 | / | 1,864.400 | 8.05 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 689.828 |
| 6 | Colombia | 0.327 | 4.37 | 46.989 | 8.67 | 1,165.000 | 8.01 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 442.836 |
| 7 | Chile | 13.510 | 5.93 | 721.319 | 6.01 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 181.951 |
| 8 | Russia | 0.000 | / | 272.010 | 6.62 | 173.960 | 9.18 | 0.000 | / | 13.000 | 20.75 | 0.000 | / | 0.000 | / | 144.068 |
| 9 | Uruguay | 0.000 | / | 262.842 | 6.15 | 0.800 | 7.30 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 66.006 |
| 10 | Saudi Arabia | 6.656 | 4.94 | 168.805 | 6.65 | 12.400 | 10.30 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 47.588 |
| 11 | Malaysia | 0.000 | / | 175.218 | 5.33 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 43.804 |
| 12 | Ukraine | 75.720 | 4.49 | 71.509 | 6.05 | 3.200 | 11.25 | 0.000 | / | 1.800 | 14.50 | 0.000 | / | 0.000 | / | 29.768 |

| No. | Country | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne | | |
|--------------|--------------|----------------|---------------|------------------|---------------|------------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|---------------|---------------|----------------------------------|---------------|---------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | | Volume, tonne | Price, USD/kg |
| 13 | Montenegro | 132.850 | 3.96 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 15.942 |
| 14 | South Africa | 0.000 | / | 112.474 | 5.92 | 0.000 | / | 0.000 | / | 0.000 | / | 15.000 | 14.21 | 0.000 | / | 42.219 | | |
| 15 | Kazakhstan | 0.000 | / | 53.430 | 6.67 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 13.358 | | |
| Others | | 195.415 | 5.00 | 283.103 | 6.53 | 78.300 | 8.21 | 0.000 | / | 5.100 | 16.87 | 36.000 | 18.51 | 0.500 | 16.55 | 162.102 | | |
| Total | | 439.998 | 4.67 | 8,151.432 | 6.63 | 8,512.815 | 7.89 | 408.800 | 14.77 | 171.903 | 19.13 | 308.000 | 17.64 | 66.500 | 18.42 | 6,033.967 | | |

Source:CCM & China Customs

Table 3.1-13 China's exports of clethodim by exporter, Q3 2021

| No. | Exporter | Formulation | | | | | | Technical | | | | | | | | | | | | Total (100% AI clethodim), tonne |
|-----|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 36g/L EC | | 37% TK | | 70% TKL | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | Zhejiang Hengdian Imp. & Exp. Co., Ltd. | 110.000 | 5.20 | 5391.144 | 7.20 | 0.000 | \ | 110.000 | 7.21 | 0.000 | \ | 18.000 | 13.75 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 1389.087 |
| 2 | Shandong Cynda Chemical Co., Ltd. | 0.000 | \ | 0.068 | 4.80 | 0.000 | \ | 1410.628 | 5.05 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 521.949 |
| 3 | At Agro Co., Ltd. | 0.000 | \ | 110.000 | 7.90 | 0.000 | \ | 1044.000 | 5.76 | 24.000 | 9.91 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 429.480 |

| N o. | Exporter | Formulation | | | | | | Technical | | | | | | | | | | | | Total (100% Al clethodim), tonne |
|------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 36g/L EC | | 37% TK | | 70% TKL | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 4 | Jiangsu Yunfan Chemical Co., Ltd. | 120.960 | 0.00 | 713.730 | 0.00 | 0.000 | \ | 49.344 | 0.00 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 92.000 | 15.09 | 0.000 | \ | 293.118 |
| 5 | Qian Tang (Shenzhen) International Supply Chain Co., Ltd. | 0.000 | \ | 445.480 | 7.93 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 106.915 |
| 6 | Ningbo Tide Import and Export Co., Ltd. | 148.608 | 0.00 | 185.760 | 0.00 | 0.000 | \ | 68.480 | 0.00 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 89.611 |
| 7 | Freight Overseas Co., Ltd. | 0.000 | \ | 346.056 | 7.94 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 83.053 |
| 8 | Shandong Weifang Rainbow Chemical Co., Ltd. | 0.000 | \ | 182.454 | 13.61 | 43.200 | 8.17 | 37.144 | 8.78 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 73.123 |
| 9 | Hebei Lansheng Biotech Co., Ltd. | 0.000 | \ | 222.036 | 0.00 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 16.000 | 15.35 | 0.000 | \ | 69.344 |

| N o. | Exporter | Formulation | | | | | | Technical | | | | | | | | | | | | Total (100% Al clethodim), tonne |
|------|---|----------------|---------------|------------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|-----------------|---------------|----------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 36g/L EC | | 37% TK | | 70% TKL | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 10 | UPL Limited | 0.000 | \ | 84.600 | 4.93 | 0.000 | \ | 121.670 | 0.00 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 65.322 |
| 11 | RedEagle International LLC | 105.840 | 0.00 | 170.646 | 0.00 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 53.807 |
| 12 | Sino-Dg International Logistics Co., Ltd. | 0.000 | \ | 188.152 | 7.96 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 45.156 |
| 13 | Ningbo Agroskyrun Trading Co., Ltd. | 0.000 | \ | 169.600 | 4.66 | 0.000 | \ | 10.000 | 6.81 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 44.884 |
| 14 | Sinochem Agro Co., Ltd. | 0.000 | \ | 175.000 | 5.38 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 0.000 | \ | 42.000 |
| 15 | Jiangsu Trustchem Co., Ltd. | 0.000 | \ | 50.900 | 6.43 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 30.000 | 15.41 | 0.000 | \ | 0.000 | \ | 0.000 | \ | 39.574 |
| | Others | 389.849 | 52.71 | 6105.924 | 153.47 | 46.000 | 7.20 | 2125.726 | 69.86 | 0.010 | 1.00 | 0.000 | 0.00 | 252.020 | 37.75 | 3208.754 | 41.33 | 372.664 | 54.41 | 5932.603 |
| | Total | 875.257 | 2.22 | 14541.550 | 6.12 | 89.200 | 7.67 | 4976.992 | 4.10 | 24.010 | 9.91 | 48.000 | 14.79 | 252.020 | 14.11 | 3316.754 | 12.37 | 372.664 | 12.00 | 9279.027 |

Source: CCM & China Customs

Table 3.1-14 China's exports of clethodim by exporter, 2020

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|-----|---|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|------------------|----------------------|------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | |
| 1 | Jiangsu Yunfan Chemical Co., Ltd. | 0.000 | / | 1425.820 | 4.57 | 346.974 | 0.99 | 0.000 | / | 0.000 | / | 1458.40 0 | 17.47 | 0.000 | / | 1369.064 |
| 2 | Zhejiang Hengdian Imp. & Exp. Co., Ltd. | 0.000 | / | 1833.987 | 7.38 | 0.000 | / | 0.000 | / | 167.000 | 18.40 | 574.000 | 16.79 | 0.000 | / | 1023.321 |
| 3 | Jiangsu Anpon Electrochemical Co., Ltd. | 0.000 | / | 5588.000 | 7.79 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 1012.993 |
| 4 | Shandong Weifang Rainbow Chemical Co., Ltd. | 23.047 | 4.57 | 1395.209 | 8.34 | 117.220 | 9.29 | 0.000 | / | 0.000 | / | 730.950 | 18.69 | 0.000 | / | 610.136 |
| 5 | Shandong Cynda Chemical Co., Ltd. | 298.200 | 4.78 | 3196.400 | 5.75 | 1840.64 0 | 5.40 | 0.020 | 23.00 | 0.000 | / | 0.000 | / | 0.000 | / | 573.996 |
| 6 | Shanghai Psyche Chemicals Co., Ltd. | 0.000 | / | 338.688 | 6.06 | 839.600 | 7.54 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 371.662 |
| 7 | Sinochem Agro Co., Ltd. | 0.000 | / | 786.856 | 6.01 | 504.000 | 7.48 | 25.000 | 15.44 | 0.000 | / | 36.000 | 18.34 | 0.000 | / | 263.681 |
| 8 | Suzhou Greenlands Chemical Co., Ltd. | 0.000 | / | 0.000 | / | 1128.000 | 7.82 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 210.142 |
| 9 | Ningbo Tide | 0.000 | / | 424.053 | 6.26 | 205.440 | 0.00 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 94.983 |

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|-----|---|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| | Import and Export Co., Ltd. | | | | | | | | | | | | | | | |
| 10 | Shenyang Sciencreat Chemicals Co., Ltd. | 0.000 | / | 574.148 | 7.21 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 94.670 |
| 11 | Zhangjiagang Free Trade Zone Kanode Imp & Exp Co., Ltd. | 0.000 | / | 0.000 | / | 365.256 | 2.99 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 78.374 |
| 12 | Ningbo Jiangdong Agroskyrun Trading Co., Ltd. | 0.000 | / | 405.650 | 5.65 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 72.787 |
| 13 | Shandong Kesai Eagrow Chemical Co., Ltd. | 0.000 | / | 0.000 | / | 0.000 | / | 15.000 | 15.96 | 0.000 | / | 69.000 | 15.34 | 0.000 | / | 64.878 |
| 14 | Nanjing Taikenuo International Trade Co., Ltd. | 0.000 | / | 31.040 | 6.68 | 334.000 | 7.84 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 64.798 |
| 15 | Liaoning Cynda Chemical Co., Ltd. | 0.000 | / | 0.000 | / | 0.000 | / | 82.000 | 18.85 | 0.000 | / | 0.000 | / | 0.000 | / | 54.022 |
| | Others | 268.200 | 89.14 | 3439.383 | 455.05 | 1333.384 | 109.29 | 387.000 | 84.93 | 0.000 | 0.00 | 500.800 | 54.03 | 12.002 | 39.95 | 1667.577 |
| | Total | 589.447 | 4.18 | 19439.23 | 6.66 | 7014.51 | 5.47 | 509.020 | 15.19 | 167.000 | 18.40 | 3369.15 | 17.76 | 12.002 | 19.95 | 7627.084 |

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|-----|----------|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| | | | | 4 | | 4 | | | | | | 0 | | | | |

Source:CCM & China Customs

Table 3.1-15 China's exports of clethodim by exporter, 2019

| No | Exporter | Formulation | | | | Technical | | | | | | | | | | | | Total (100% AI clethodim), tonne |
|----|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | Shandong Cynda Chemical Co., Ltd. | 69.910 | 5.47 | 5,457.20 7 | 7.84 | 3,214.0 20 | 9.67 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 2,561.878 |
| 2 | Shandong Weifang Rainbow Chemical Co., Ltd. | 0.000 | / | 4,293.66 4 | 9.61 | 2,167.2 25 | 11.70 | 0.000 | / | 0.000 | / | 0.000 | / | 289.600 | 25.17 | 0.000 | / | 2,147.513 |
| 3 | Jiangsu Yunfan Chemical Co., Ltd. | 0.000 | / | 1,726.16 0 | 7.93 | 317.000 | 9.55 | 0.000 | / | 0.000 | / | 0.000 | / | 1,638.4 00 | 19.12 | 0.000 | / | 2,088.926 |
| 4 | Zhejiang Hengdian Imp. & Exp. Co., Ltd. | 0.000 | / | 1,170.27 2 | 8.02 | 36.000 | 10.77 | 0.000 | / | 44.000 | 23.15 | 44.000 | 21.04 | 182.000 | 22.90 | 0.000 | / | 557.488 |
| 5 | Sinochem Agro Co., Ltd. | 48.880 | 5.44 | 1,909.80 1 | 8.04 | 0.000 | / | 50.000 | 22.28 | 41.000 | 23.86 | 0.000 | / | 0.000 | / | 0.000 | / | 555.216 |
| 6 | Suzhou Greenlands Chemical Co., Ltd. | 0.000 | / | 167.616 | 7.19 | 1,072.0 00 | 10.35 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 438.544 |
| 7 | Shanghai Psyche Chemicals Co., Ltd. | 0.000 | / | 1,045.90 7 | 7.23 | 256.019 | 7.68 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 356.204 |
| 8 | Shanghai Ouyi Chemical | 0.000 | / | 1,128.98 1 | 7.17 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 282.245 |

| No | Exporter | Formulation | | | | Technical | | | | | | | | | | | | Total (100% Al clethodi m), tonne |
|----|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| | Co., Ltd. | | | | | | | | | | | | | | | | | |
| 9 | Nanjing Taikenuo International Trade Co., Ltd. | 0.000 | / | 24.000 | 9.90 | 668.000 | 9.95 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 253.160 |
| 10 | Nanjing Bioagriland Crop Care Co., Ltd. | 0.000 | / | 604.187 | 7.35 | 17.640 | 9.30 | 0.000 | / | 20.000 | 22.85 | 12.000 | 19.63 | 0.000 | / | 30.000 | 21.96 | 215.234 |
| 11 | Ningbo Generic Chemical Co., Ltd. | 0.000 | / | 472.487 | 7.47 | 1.600 | 9.34 | 0.000 | / | 0.000 | / | 0.000 | / | 50.990 | 20.82 | 25.000 | 21.27 | 190.394 |
| 12 | Jinan Ruisibang International Trade Co., Ltd. | 0.000 | / | 23.990 | 7.49 | 337.000 | 12.77 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 130.688 |
| 13 | Zhangjiagan Rongjiayike Trade Co., Ltd. | 0.000 | / | 0.000 | / | 320.000 | 9.89 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 118.400 |
| 14 | Shenyang Sciencreat Chemicals Co., Ltd. | 0.000 | / | 388.724 | 7.89 | 36.000 | 9.63 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 110.501 |
| 15 | Shanghai Kj Import and Export | 0.000 | / | 224.076 | 8.11 | 108.000 | 9.41 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 95.979 |

| No | Exporter | Formulation | | | | Technical | | | | | | | | | | | | Total (100% Al clethodi m), tonne |
|----|--------------|---------------------|------------------|------------------------|------------------|-----------------------|------------------|---------------------|------------------|---------------------|------------------|------------------|------------------|-----------------------|------------------|---------------------|------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 93% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| | Co., Ltd. | | | | | | | | | | | | | | | | | |
| | Others | 204.79 9 | 5.18 | 3,454.76 6 | 8.44 | 833.282 | 10.57 | 64.600 | 15.63 | 165.40 0 | 22.69 | 12.000 | 24.10 | 91.600 | 24.12 | 61.200 | 21.60 | 1,546.066 |
| | Total | 323.58 9 | 5.32 | 22,091.8 38 | 8.35 | 9,383.7 86 | 10.56 | 114.60 0 | 18.80 | 270.40 0 | 22.66 | 68.000 | 20.88 | 2,252.5 90 | 20.48 | 116.20 0 | 21.62 | 11,648.43 6 |

Source:CCM & China Customs

Table 3.1-16 China's exports of clethodim by exporter, 2018

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|-----|---|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| 1 | Shandong Cynda Chemical Co., Ltd. | 64.037 | 5.20 | 4,574.841 | 7.66 | 3,461.040 | 10.02 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 2,431.979 |
| 2 | Shandong Weifang Rainbow Chemical Co., Ltd. | 0.000 | / | 3,063.439 | 9.38 | 859.600 | 11.20 | 0.000 | / | 148.000 | 23.50 | 0.000 | / | 0.000 | / | 1,217.112 |
| 3 | Nutrichem Co., Ltd. | 0.000 | / | 0.000 | / | 2,570.000 | 9.37 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 950.900 |
| 4 | Jiangsu Yunfan Chemical Co., Ltd. | 4.750 | 3.85 | 577.734 | 8.09 | 205.000 | 10.90 | 0.000 | / | 0.000 | / | 472.310 | 20.19 | 0.000 | / | 664.825 |
| 5 | Zhangjiagang Rongjiayike Trade Co., Ltd. | 0.000 | / | 0.000 | / | 832.000 | 12.62 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 307.840 |
| 6 | China Jiangsu International Economic Technical Cooperation Group Co., Ltd. | 0.000 | / | 148.185 | 8.42 | 684.000 | 10.19 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 290.126 |
| 7 | Shanghai Psyche Chemicals Co., Ltd. | 0.000 | / | 1,115.410 | 8.19 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 278.853 |

| No | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|----|--|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| 8 | Sinochem Agro Co., Ltd. | 0.000 | / | 276.504 | 8.95 | 245.000 | 11.67 | 75.000 | 19.47 | 44.000 | 23.96 | 0.000 | / | 0.000 | / | 251.876 |
| 9 | Nanjing Taikenuo International Trade Co., Ltd. | 0.000 | / | 0.000 | / | 666.000 | 9.04 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 246.420 |
| 10 | Suzhou Greenlands Chemical Co., Ltd. | 0.000 | / | 18.000 | 8.57 | 616.900 | 10.92 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 232.753 |
| 11 | Shanghai Ouyi Chemical Co., Ltd. | 0.000 | / | 703.780 | 7.53 | 2.000 | 9.18 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 176.685 |
| 12 | Zhejiang Hengdian Imp. & Exp. Co., Ltd. | 0.000 | / | 430.272 | 7.88 | 183.000 | 11.34 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 175.278 |
| 13 | Shenyang Sciencreat Chemicals Co., Ltd. | 0.000 | / | 660.956 | 7.55 | 23.000 | 9.59 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 173.749 |
| 14 | Ningbo Generic Chemical Co., Ltd. | 16.115 | 5.44 | 442.886 | 7.55 | 0.000 | / | 0.000 | / | 0.000 | / | 5.400 | 30.14 | 16.100 | 25.38 | 133.026 |
| 15 | Yifan Biotechnolog y Group Co., Ltd. | 0.000 | / | 480.356 | 6.95 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 120.089 |

| No | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|----|--------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| | Others | 56.600 | 4.93 | 4,793.761 | 8.45 | 660.348 | 11.48 | 96.000 | 15.79 | 320.000 | 24.94 | 74.000 | 22.60 | 3.200 | 21.01 | 1,877.361 |
| | Total | 141.502 | 5.01 | 17,286.124 | 8.25 | 11,007.888 | 10.43 | 171.000 | 17.24 | 512.000 | 24.00 | 551.710 | 20.40 | 19.300 | 25.29 | 9,528.872 |

Source: CCM & China Customs

Table 3.1-17 China's exports of clethodim by exporter, 2017

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|----------|---|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| 1 | Shandong Cynda Chemical Co., Ltd. | 0.000 | / | 4,743.890 | 5.90 | 1,708.240 | 7.32 | 0.000 | / | 130.088 | 15.47 | 0.000 | / | 0.000 | / | 1,935.100 |
| 2 | Shandong Weifang Rainbow Chemical Co., Ltd. | 0.000 | / | 4,197.032 | 6.11 | 521.420 | 8.75 | 0.000 | / | 149.600 | 15.46 | 0.000 | / | 0.000 | / | 1,376.823 |
| 3 | Nutrichem Co., Ltd. | 0.000 | / | 0.000 | / | 4,259.400 | 7.34 | 88.000 | 15.03 | 0.000 | / | 0.000 | / | 0.000 | / | 1,637.578 |
| 4 | Sinochem Agro Co., Ltd. | 0.000 | / | 778.107 | 6.46 | 32.000 | 10.01 | 162.500 | 15.61 | 12.000 | 25.38 | 0.000 | / | 0.000 | / | 330.917 |
| 5 | China Jiangsu International Economic | 43.888 | 4.57 | 160.220 | 5.82 | 522.000 | 6.88 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 238.462 |

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|-----|--|-------------------|----------------------|------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| | Technical Cooperation Group Co., Ltd. | | | | | | | | | | | | | | | |
| 6 | Jiangsu Yunfan Chemical Co., Ltd. | 4.715 | 3.88 | 5.541 | 6.04 | 241.200 | 8.12 | 0.000 | / | 0.000 | / | 419.805 | 19.68 | 0.000 | / | 485.812 |
| 7 | Ninghua Group Co., Ltd. | 4.560 | 4.18 | 618.782 | 6.77 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 155.243 |
| 8 | Jiangsu Sevencontinent Green Chemical Co., Ltd. | 0.000 | / | 558.864 | 5.79 | 0.000 | / | 0.000 | / | 8.800 | 15.10 | 0.000 | / | 0.000 | / | 147.636 |
| 9 | Shanghai Zijiang International Trading Co., Ltd. | 0.000 | / | 545.594 | 5.87 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 136.399 |
| 10 | Jiangsu Jinlikai Chemical Co., Ltd. | 0.000 | / | 453.006 | 5.74 | 8.000 | 9.15 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 116.211 |
| 11 | Hangzhou Leaflife Chemical Co., Ltd. | 0.000 | / | 1.500 | 5.20 | 444.600 | 6.96 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 164.877 |
| 12 | Ningbo Tide Import and Export Co., Ltd. | 0.000 | / | 270.262 | 7.93 | 128.000 | 7.72 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 114.925 |
| 13 | Nanjing | 0.000 | / | 239.904 | 5.81 | 48.000 | 6.78 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 77.736 |

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim) , tonne |
|-----|--|-------------------|----------------------|-------------------|----------------------|------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|--|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume , tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume, tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | Volume , tonne | Price, USD/k g | |
| | Redsun Group International Trade Co., Ltd. | | | | | | | | | | | | | | | |
| 14 | Shanghai E- tong Chemical Co., Ltd. | 22.279 | 5.13 | 221.916 | 5.91 | 15.800 | 9.70 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 63.998 |
| 15 | High Hope Zhongtian Corporation | 0.000 | / | 252.618 | 5.86 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 63.155 |
| | Others | 138.892 | 4.34 | 3,083.132 | 6.34 | 850.300 | 8.70 | 0.000 | / | 36.800 | 18.34 | 97.800 | 15.10 | 67.900 | 14.30 | 1,291.618 |
| | Total | 214.334 | 4.46 | 16,130.368 | 6.12 | 8,778.960 | 7.55 | 250.500 | 15.40 | 337.288 | 16.12 | 517.605 | 18.81 | 67.900 | 14.30 | 8,336.490 |

Source:CCM & China Customs

Table 3.1-18 China's exports of clethodim by exporter, 2016

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% AI clethodim), tonne |
|-----|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| 1 | Shandong Cynda Chemical Co., Ltd. | 136.650 | 3.97 | 1,497.498 | 6.01 | 2,540.200 | 8.05 | 0.000 | / | 55.000 | 17.23 | 0.000 | / | 0.000 | / | 1,380.147 |
| 2 | Shandong Weifang Rainbow Chemical Co., Ltd. | 0.000 | / | 1,942.374 | 7.34 | 1,139.760 | 7.60 | 0.000 | / | 20.000 | 19.43 | 0.000 | / | 0.000 | / | 925.305 |
| 3 | Nutrchem Co., Ltd. | 0.000 | / | 0.000 | / | 2,762.400 | 8.01 | 282.000 | 14.50 | 0.003 | 17.33 | 0.000 | / | 0.000 | / | 1,219.491 |
| 4 | Jiangsu Yunfan Chemical Co., Ltd. | 8.538 | 3.96 | 23.794 | 6.07 | 227.995 | 7.62 | 0.000 | / | 0.000 | / | 237.000 | 17.61 | 0.000 | / | 314.111 |
| 5 | Sinochem Agro Co., Ltd. | 0.000 | / | 361.200 | 6.82 | 0.000 | / | 126.800 | 15.37 | 0.000 | / | 0.000 | / | 0.000 | / | 179.060 |
| 6 | Jiangsu Rotam Chemistry Co., Ltd. | 0.000 | / | 394.033 | 8.10 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 98.508 |
| 7 | Jiangsu Jinlikai Chemical Co., Ltd. | 0.000 | / | 352.199 | 6.37 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 88.050 |
| 8 | China Jiangsu International Economic Technical Cooperation | 0.000 | / | 122.582 | 6.16 | 157.000 | 8.41 | 0.000 | / | 0.000 | / | 0.000 | / | 52.800 | 19.05 | 138.895 |

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% Al clethodim), tonne |
|-----|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| | Group Co., Ltd. | | | | | | | | | | | | | | | |
| 9 | Shanghai Agrohao International Trade Co., Ltd. | 0.000 | / | 299.179 | 5.45 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 74.795 |
| 10 | Shanghai Zijiang International Trading Co., Ltd. | 0.000 | / | 293.865 | 6.11 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 73.466 |
| 11 | Jiangsu Institute of Ecomones Co., Ltd. | 0.000 | / | 0.000 | / | 264.000 | 7.68 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 97.680 |
| 12 | Suzhou Greenlands Chemical Co., Ltd. | 0.000 | / | 0.000 | / | 239.400 | 7.16 | 0.000 | / | 0.000 | / | 20.000 | 17.94 | 0.000 | / | 107.378 |
| 13 | Zhejiang Chemicals Import & Export Corporation | 0.000 | / | 156.228 | 7.19 | 86.600 | 9.94 | 0.000 | / | 1.200 | 16.60 | 0.000 | / | 0.000 | / | 72.179 |
| 14 | Nanjing Taikenuo International Trade Co., Ltd. | 0.000 | / | 0.000 | / | 237.000 | 7.35 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 87.690 |
| 15 | Zhejiang Hengdian Imp. & Exp. | 0.000 | / | 211.680 | 6.22 | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 0.000 | / | 52.920 |

| No. | Exporter | Formulation | | | | Technical | | | | | | | | | | Total (100% Al clethodim), tonne |
|-----|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------------|
| | | 120g/L EC | | 240g/L EC | | 37% TK | | 70% TK | | 90% Tech. | | 94% Tech. | | 95% Tech. | | |
| | | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | Volume, tonne | Price, USD/kg | |
| | Co., Ltd. | | | | | | | | | | | | | | | |
| | Others | 294.810 | 5.01 | 2,496.800 | 6.45 | 858.460 | 7.56 | 0.000 | / | 95.700 | 20.19 | 51.000 | 17.66 | 13.700 | 16.02 | 1,124.292 |
| | Total | 439.998 | 4.67 | 8,151.432 | 6.63 | 8,512.815 | 7.89 | 408.800 | 14.77 | 171.903 | 19.13 | 308.000 | 17.64 | 66.500 | 18.42 | 6,033.967 |

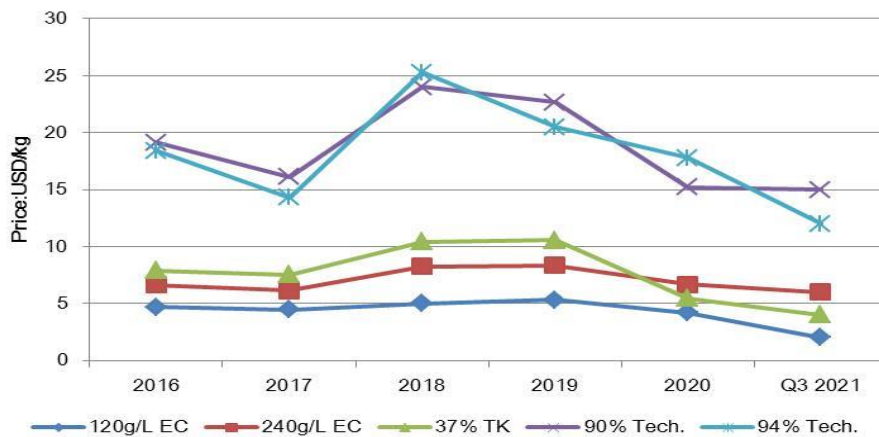
Source:CCM & China Customs

3.2 Export price

Export prices of clethodim formulations saw slight fluctuations. They decreased slowly during 2016-2017 and gradually rose up during 2017-2019. Then they showed the tendency declining from 2019 to Q3 2021, which meant the highest annual export price was in 2019.

As to clethodim technicals, it had the same trends as clethodim formulations, but more drastic. For example, the annual export price of 94% clethodim in 2018 was USD25.29/kg, the highest during 2016-Q3 2021, and it took large declines in 2018—Q3 2021.

Figure 3.2-1 Annual export price of clethodim formulation and technical in China, 2016-Q3 2021



Source: China Customs and CCM

4 Current problem

Although China's clethodim industry has developed quickly in recent years, and China has become a competitive clethodim producer in the world, it still faces some problems.

- Excessive expansion of companies may lead to overcapacity

In recent years, seeing increasing demand for clethodim at home and abroad, several domestic clethodim companies have expanded their production capacity since 2019, and some planned to continue to expand further. It's worth noting that the competition will intensify and may lead to overcapacity in the future as domestic capacity continues to increase.

- Limited varieties of clethodim formulation products

As of early 2022, only three types of clethodim formulations—EC, OD and ME—were registered.

- Weak brand influence of clethodim products

In 2020, there were 13 enterprises producing clethodim, yet their product brands were not prominent. Clethodim had its debut in the global market in 1987. However, production in China first came in 2003. China's clethodim doesn't have a strong international influence and its export only relies on the lower price.

- The impact of genetically modified (GM) crop

The herbicide-resistant GM soybean, cotton and rapeseed have been widely planted, which is also unfavorable to the development of clethodim.

The popularity of herbicide-resistant GM crops brings a great impact to post-emergence selective herbicides including clethodim. Herbicide-resistant GM crops usually have resistance to one or several herbicides including glyphosate, glufosinate-ammonium, 2,4-D and dicamba, which makes them strong competitors to post-emergence selective herbicides. The low price of 2,4-D and glyphosate and broad weed control spectrum of these four herbicides are unfavorable to the development of post-emergence selective herbicides.

Therefore, the clethodim producers should expand the use range of clethodim and focus on exporting clethodim to the regions having relatively small acreage of GM crops.

5 Conclusion and opportunity

At present, oversupply caused by excessive clethodim technical production capacity has become serious in China. And the competition of clethodim technical supply has intensified in China in recent years. On one hand, production capacity have increased significantly during 2021. Liaoning Cynda's additional 2,000 t/a clethodim technical production line is in the trial production stage. On the other hand, some producers have to suspend production. Thus, CCM suggests that producers should better not expand their production blindly but produce in accordance with the actual demand.

In 2021-2021, problems concerning environmental protection and production safety have drawn people's attention in China. In addition, some clethodim technical production bases at home and abroad have occurred workplace accidents like explosion in the production of clethodim technical. Therefore, it's necessary for clethodim producers to improve their workplace safety.

Clethodim has the advantages of high effectiveness, low residue and relatively lower price. Owing to the higher requirements on environmental protection at home and abroad in recent years, clethodim, as an effective and environment-friendly herbicide, gradually replaced some herbicide varieties with high residue and heavy toxicity, witnessing a rapid increase in sales.

The applicable crops of clethodim have further increased. Currently, clethodim is mainly applied to soybean field. At the same time, its use continues to expand to broad-leaved crops such as rape, sugar beet, sunflower, cotton and vegetables and non-arable land. In particular, in raising rape, sugar beet and sunflower, clethodim has been playing an important role.

Compared with other selective post-emergence herbicides such as fluzifop-P-butyl, haloxyfop-P-methyl and quizalofop-P-ethyl, other competing products in soybean application, clethodim is superior in costs of production and application. What's more, there is a great potential for glyphosate and clethodim mixed formulations in glyphosate-tolerant crops. These also open up a good market prospect for clethodim, which is one of the reasons for the rapid development of clethodim in recent years.

6 Contact information of major producers in China

Table 6-1 Contact information of major clethodim producers in China

| No. | Producer | Tel. | Address |
|-----|---|------------------|--|
| 1 | Shandong Cynda Chemical Co., Ltd. | 86 0543-2320028 | 6F Yinhe Building D, No. 2008 Xinluo Road, Hi-tech Development Zone, Jinan City, Shandong Province, P. R. China |
| 2 | Yifan Biotechnology Group Co., Ltd. | 86 0577-86637855 | No. 555 Chang'an Road, Yaoxi Street, Longwan District, Wenzhou City, Zhejiang Province, P. R. China |
| 3 | Cangzhou Green Chemical Co., Ltd. | 86 0317-4852028 | Xingji Town, Cangxian County, Cangzhou City, Hebei Province, P. R. China |
| 4 | Shenyang Sciencreat Chemicals Co., Ltd. | 86 024-25850856 | No. 17 Xihe 9th North Street, Economic and Technological Development Zone, Shenyang City, Liaoning Province, P. R. China |
| 5 | Hebei Wuqiao Pesticide Co., Ltd. | 86 0317-7238181 | Songmen Industrial Park, Economic Development Zone, Wuqiao County, Cangzhou City, Hebei Province, P. R. China |
| 6 | Hebei Lansheng Biotech Co., Ltd. | 86 0311-84498010 | Mayu Village, Jinzhou City, Shijiazhuang City, Hebei Province, P. R. China |
| 7 | Jiangsu Sevencontinent Green Chemical Co., Ltd. | 86-512-58609901 | Dongsha Chemical Zone, Zhangjiagang City, Suzhou City, Jiangsu Province, P. R. China |

Source:CCM

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