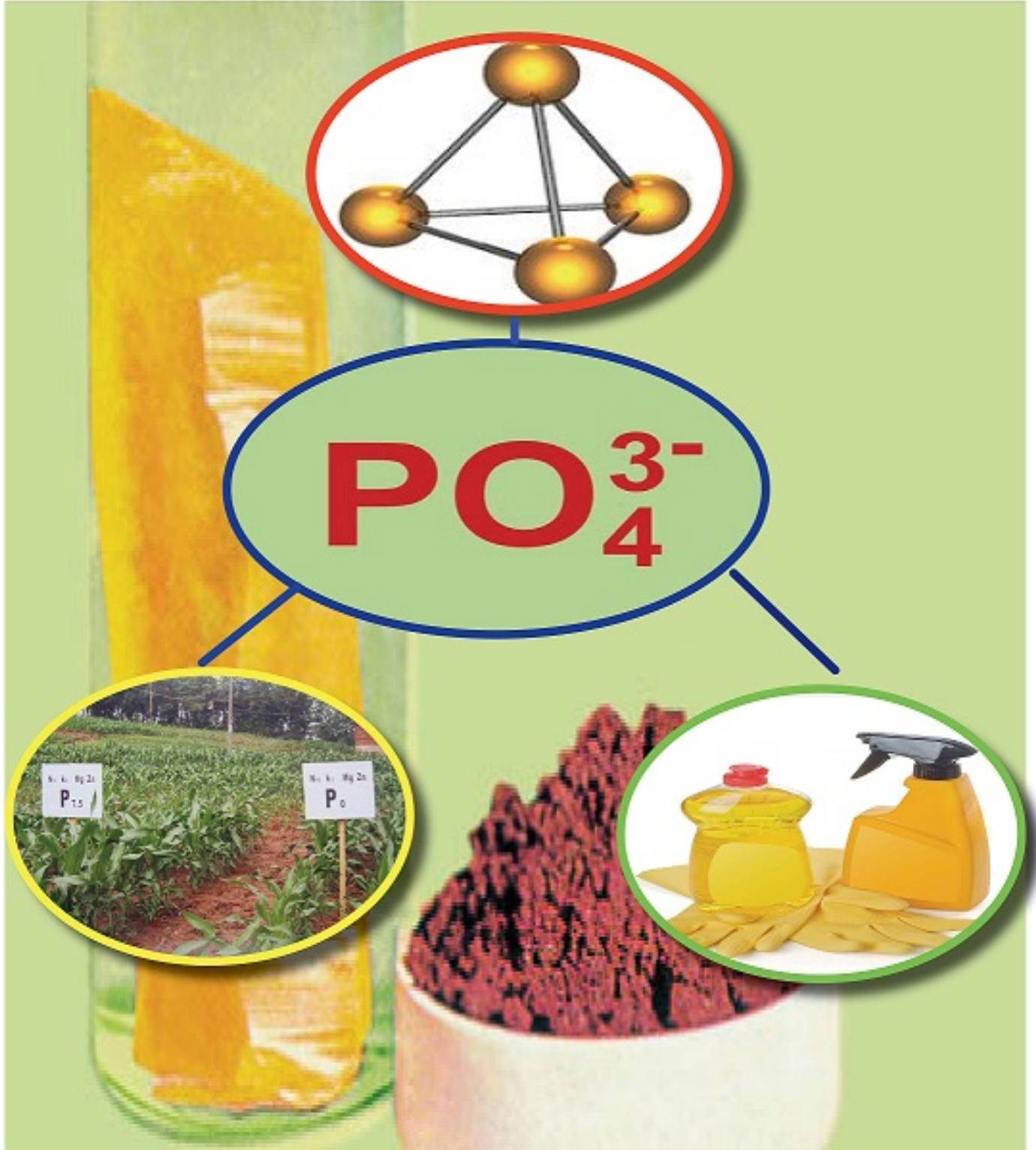


Phosphorus Industry China Monthly Report 202206

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Headline

In June 2022, prices of phosphate fertilisers stayed firm and prices are likely to continue to mount up; MAP and DAP prices are expected to rise.

The overall price of yellow phosphorus dropped in June 2022 compared with May and the prices are still likely to edge down in July.

In late June 2022, SD Lomon planned to acquire 100% shares of Tianrui Mining to ensure supply of phosphorus ore.

Yuegui Holdings' wholly-owned subsidiary, Yunliu Mining, intended to establish a new energy material industrial park project in Yunfu City together with the Government of Yunan District and Huiyun Titanium.

In mid-June 2022, the 50,000 t/a FePO₄ project of Xinyangfeng Agricultural's subsidiary, Hubei Fengli, has reached designed capacity.

In early June 2022, CNGR planned to raise capital of USD346.58 million (RMB2.31 billion) for its 200,000 t/a FePO₄ project.

SD Lomon's subsidiary, Nanzhang Lomon, planned to establish a project of 50,000 t/a FePO₄ and 400,000 t/a sulphur-burning sulphuric acid.

Many phosphate fertiliser manufacturers in Anhui Province encounter production restrictions or even face a suspension crisis due to phosphorus ore shortage.

In early June 2022, the Department of Industry and Information Technology of Guangdong Province introduced the Construction Standards and Implementation Measures for Chemical Industrial Parks in Guangdong Province (public opinion form).

Prices of thermal-process PA and wet-process PA went down in June 2022.







Editor's Note

MAP manufacturers mainly held high their prices as raw material prices are anticipated to pick up and DAP enterprises still faced large cost pressure and most of them did not accept new orders. Domestic MAP and DAP prices are expected to maintain an upward trend in the short term.

Yellow phosphorus prices are expected to decrease next month as demand may still remain limited.

Domestic phosphorus ore prices increased in June; China produced around 8.93 million tonnes of phosphorus ore (30% P_2O_5) in May 2022, edging down by 4.0% YoY.

In June 2022, the prices of thermal-process PA and wet-process PA went down.

Company dynamics of phosphorus chemicals in June 2022

On 24 June, 2022, Sichuan Development Lomon Co., Ltd. planned to buy 100% shares of Sichuan Development Tianrui Mining Co., Ltd. to make sure its phosphorus ore supply.

On 14 June, 2022, Xinyangfeng Agricultural Technology Co., Ltd. revealed that its 50,000 t/a $FePO_4$ project reached designed capacity.

On 11 June, 2022, CNGR Advanced Materials Co., Ltd. planned to raise capital of USD346.58 million (RMB2.31 billion) for its 200,000 t/a $FePO_4$ project.

On 21 June, 2022, Yuegui Holdings and Huiyun Titanium to build new energy material industrial park.

The USD/RMB exchange rate in this newsletter is USD1.00=RMB6.6651 on 1 June, 2022, sourced from the People's Bank of China.

All the prices mentioned in this newsletter will include the VAT, unless otherwise specified.

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Market Analysis

Ammonium phosphate prices may continue to grow

Summary: In June 2022, prices of phosphate fertilisers stayed firm and prices are likely to continue to mount up; MAP and DAP prices are expected to rise.

After mid-June 2022, China's fertiliser market began its traditional slack season as the three summer jobs (planting, harvesting and field management) came to an end (starting from late May and ended in mid-June). Nevertheless, domestic ammonium phosphate enterprises faced increasing cost pressure due to Russia-Ukraine Conflict and high-level global energy, commodity, and raw material prices. Consequently, operating rates of ammonium phosphate slipped and phosphate fertiliser prices remained firm and showed a tendency to climb. Phosphate fertiliser quotations increased slightly in early June. The specific analyses are shown as below:

Comprehensive costs of phosphate fertilisers edged up:

The price trend of phosphate fertilisers in peak and slack seasons is always clear in past years given the large domestic capacity of ammonium phosphate and export restrictions by customs statutory inspection policy. However, in recent two years, the market operation pattern has changed under the continuously rising costs of energy, raw materials and freight; phosphorus ore and sulphur prices surged, giving huge cost pressure on phosphate fertiliser and compound fertiliser enterprises without resource advantages and thus significantly shrinking their profits.

In terms of monoammonium phosphate (MAP), MAP manufacturers mainly held high their prices as raw material prices are anticipated to pick up. Downstream customers were less enthusiastic about purchasing as fertilising in summer came to an end. MAP prices are forecast to stay high and may also edge up in the short term. Most manufacturers stopped accepting orders owing to high raw material prices and they mainly deliver orders of earlier stage. Few new orders were made. Downstream customers were unwilling to accept high prices and they took wait-and-see attitudes.

In terms of diammonium phosphate (DAP), DAP enterprises still faced large cost pressure and most of them did not accept new orders. Spot products were in shortage in the market. Global customers continued to hold wait-and-see attitudes and only a few transactions were seen. DAP prices are predicted to mainly keep firm in the near future. In early June, DAP selling prices were lower than purchasing prices because of high raw material prices and tight supply of phosphorus ore; therefore, most manufacturers ceased order receiving and only a few orders were made, with transaction prices steadily mounting up.

Enterprises favoured exports and demand is expected to improve:

In early June 2022, demand and prices of global fertiliser market including ammonium phosphate declined. Mainstream export quotations of domestic 55% granulated MAP slipped to FOB USD810/t; export quotations of domestic 64% granulated DAP decreased to FOB USD980/t. Although export prices edged down, these prices were still higher than prices in domestic market, which encouraged ammonium phosphate enterprises to export. Meanwhile, different nations endeavoured to stock up on fertilisers and expand agricultural production capacity to avoid food crisis due to the influence of Russia-Ukraine Conflict. Rigid demand in global fertiliser autumn market





will increase to some extent and supply in some regions will be tight this year. Prices of phosphate fertilisers, as a major type in fertiliser autumn market, are estimated to rise.

CCM believes that domestic ammonium phosphate prices are likely to stay high in the short term considering high raw material costs and strong export demand; the prices may still go up after the autumn market starts.

TABLE 1: DAP prices in different regions in early June 2022

Region	Grade (%)	Quotation, RMB/t	Note
Yunnan Province	64	4,500-4,600	Ex-works price
Hubei Province		4,700-5,000	Ex-works price
Guizhou Province		4,500-4,600	Ex-works price
Shandong Province		4,800-4,900	Arrival price
Heilongjiang Province		4,300-4,500	Arrival price
Xinjiang Uygur Autonomous Region		4,500-4,600	Arrival price
FOB		980-1,030	USD/t

Source:CCM

TABLE 2: MAP prices in different regions in early June 2022

Region	Grade (%)	Quotation, RMB/t	Note
Hubei Province	55 Powdered	4,500-4,700	Ex-works price
Henan Province		4,500-4,750	Ex-works price
Anhui Province		4,450-4,700	Ex-works price
Sichuan Province		4,300-4,500	Ex-works price
Yunnan Province		4,300-4,500	Ex-works price
FOB	55 Granulated	810-840	USD/t

Source:CCM

China's output of phosphorus ore drops YoY in May 2022

According to data from the National Bureau of Statistics, in May 2022, China produced around 8.93 million tonnes of phosphorus ore (30% P₂O₅), edging down by 4.0% YoY. In Jan.–May 2022, China altogether produced 40.77 million tonnes, up by 1.8% YoY.





Yellow phosphorus prices slip in fluctuation in June 2022

Summary: The overall price of yellow phosphorus dropped in June 2022 compared with May and the prices are still likely to edge down in July.

In June 2022, yellow phosphorus prices fluctuated while showing a tendency to decline.

- **Supply**—Operating rates of yellow phosphorus manufacturers increased slightly in June and market supply remained stable; most manufacturers said that they faced little overstock pressure. Market transactions of yellow phosphorus decreased and some manufacturers and traders said that downstream demand was sluggish and customers attempted to bargain, so they encountered selling difficulty. Operating rates of yellow phosphorus devices in Yunnan and Guizhou provinces grew while operating rates in Hubei Province scarcely changed; some yellow phosphorus factories in Sichuan Province suspended production, slightly lowering operating rates.
- **Demand**—In early June, downstream manufacturers and traders became more enthusiastic about purchasing yellow phosphorus. However, the downstream market was still depressed and manufacturers had difficulty selling their products; subsequently, operating rates of downstream manufacturers went down, decreasing yellow phosphorus consumption. Meanwhile, since the price trend of yellow phosphorus was unclear, downstream manufacturers mainly took wait-and-see attitudes after mid-June and they were cautious about purchasing yellow phosphorus.
- **Cost**—Although phosphorus ore prices edged up slightly, electricity costs of yellow phosphorus manufacturers descended due to the current wet season, thus shrinking the overall cost of yellow phosphorus manufacturers. As a result, yellow phosphorus prices fell under weakened cost support.

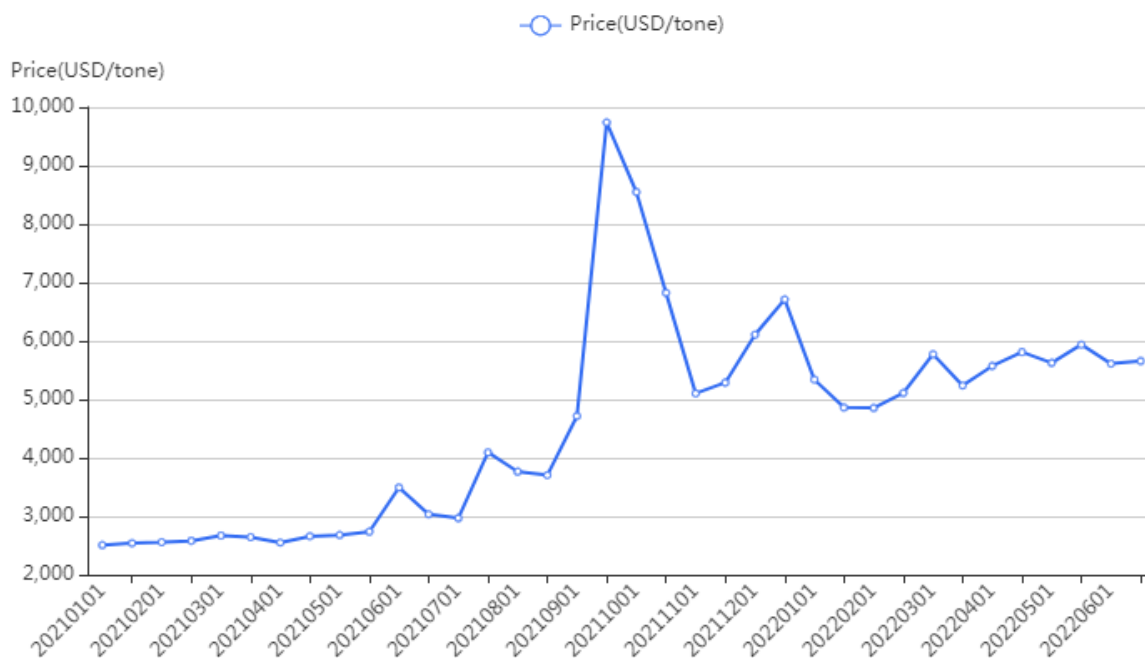
CCM predicts that yellow phosphorus prices will continue to decline within a narrow range in the coming month.

- **Supply**—Operating rates of yellow phosphorus manufacturers are estimated to stay stable and thus supply is likely to maintain stability.
- **Demand**—Downstream demand is expected to remain slack.
- **Cost**—Prices of phosphorus ore are anticipated to continue to mount up, giving stronger cost support to yellow phosphorus prices.



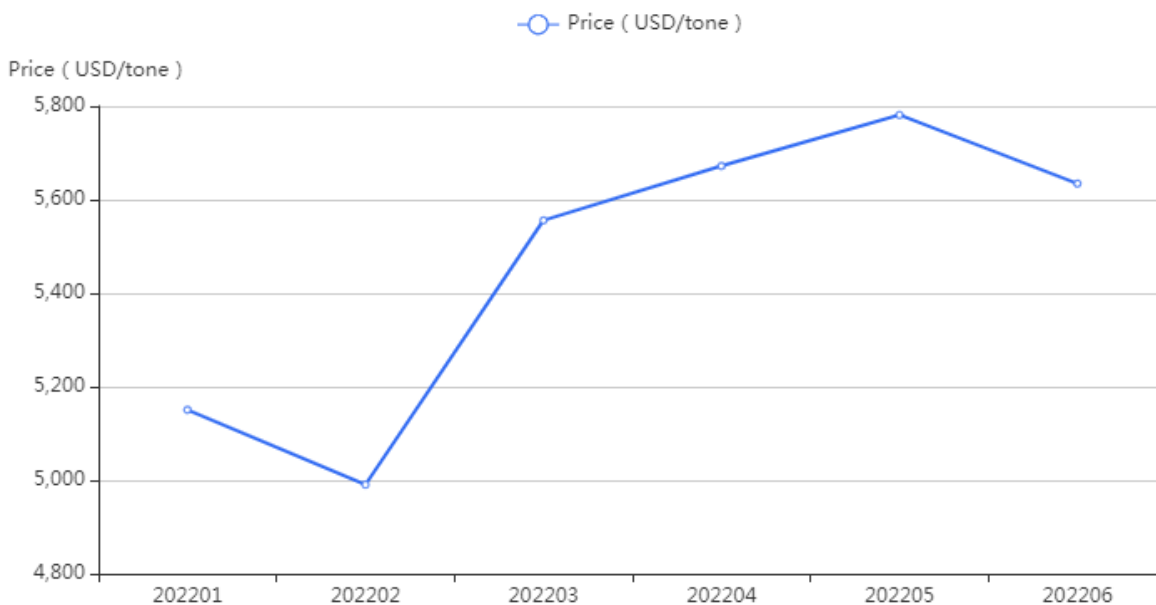


FIGURE 1: Semi-monthly ex-works price of yellow phosphorus till late June



Source:CCM

FIGURE 2: Monthly ex-works price of yellow phosphorus till June



Source:CCM





Company Dynamics

SD Lomon to purchase shares of Tianrui Mining

Summary: In late June 2022, SD Lomon planned to acquire 100% shares of Tianrui Mining to ensure supply of phosphorus ore.

On 24 June, 2022, Sichuan Development Lomon Co., Ltd. (SD Lomon) announced that it planned to purchase 80% shares and 20% shares of Sichuan Development Tianrui Mining Co., Ltd. (Tianrui Mining) held by Sichuan Advanced Materials Industrial Investment Group Co., Ltd. (Sichuan Advanced Materials) and Sichuan Salt Industry Corporation respectively at USD114.72 million (RMB764.60 million) and USD28.68 million (RMB191.15 million).

Tianrui Mining engages in mining, beneficiation, and sales of phosphorus ore and the company owns the mining right with the largest reserves in Mabian area of Sichuan. As of 30 Nov., 2021, the available reserves in the mining area reached 87.42 million tonnes and the production capacity was 2.50 million t/a, with capacity of beneficiation equipment hitting 2.00 million t/a. Tianrui Mining and Sichuan Lomon Phosphorus Chemistry Co., Ltd. (Lomon Phosphorus), a wholly-owned subsidiary of SD Lomon share a same industrial chain and Tianrui Mining has been a major phosphorus ore supplier of Lomon Phosphorus in recent years. Tianrui Mining's phosphorus ore facilitated the capacity improvement of the company's industrial grade monoammonium phosphate (MAP) in recent years thanks to short distance, low costs, stable output and low impurity of phosphorus ore.

SD Lomon said that the phosphorus ore of Tianrui Mining is scarce resources given the domestic supply situation and supply-demand relationship. Phosphorus chemical is the major business of SD Lomon and phosphorus ore is a critical raw material. At present, SD Lomon has production bases in Mianzhu City, Deyang City, Sichuan Province and in Xiangyang City, Hubei Province. Specifically, the company's phosphate capacity in Mianzhu base reaches 1.80 million t/a and it is a major production base of the company's fertilisers, compound fertilisers and industrial grade MAP. However, the company's phosphorus ore mine in Xiangyang base has been shut down because the phosphorus ore mining areas overlap with natural reserves; therefore, Mianzhu base needs to purchase all phosphorus ore from other places, and the figure is over two million tonnes per year. The shortage of phosphorus ore and the fluctuation of upstream raw material supply have an impact on the production and operation of the company to some extent.

The acquisition of Tianrui Mining will allow SD Lomon to directly obtain quality phosphorus ore resources in Sichuan Province, improve its chemical industrial chain; it will also reduce dependence on purchased phosphorus, mitigate the negative influence on the company's earning capacity brought by fluctuations of phosphorus ore prices, and improve overall value of its phosphorus chemical industrial chain and core competitiveness, which is consistent with its own development strategy.

Yuegui Holdings and Huiyun Titanium to build new energy material industrial park

Summary: Yuegui Holdings' wholly-owned subsidiary, Yunliu Mining, intended to establish a new energy material industrial park project in Yunfu City together with the Government of Yunan District and Huiyun Titanium.

On 21 June, 2022, Guangxi Yuegui Guangye Holdings Co., Ltd. (Yuegui Holdings) announced that its wholly-owned subsidiary,





Guangdong Guangye Yunliu Mining Industry Co., Ltd. (Yunliu Mining), signed the *Project Investment Framework Agreement* with the People's Government of Yunan District, Yunfu City, Guangdong Province and Guangdong Huiyun Titanium Industry Co., Ltd. (Huiyun Titanium). They planned to jointly set up a new energy material industrial park project in Yunan District.

Huiyun Titanium and Yunliu Mining will give their resource advantages and industrial advantages to full play and invest or introduce new material and new energy enterprises in fields of "pyrite ore, titanium oxide, calcium oxide, phosphoric acid (PA), ferric phosphate (FePO_4), and lithium ferrous phosphate (LiFePO_4)". They planned to invest USD1.50 billion (RMB10.00 billion) in founding a new energy material industrial park and build an industrial and ecological chain of "sulphur-phosphorus-ferrotitanium-lithium-calcium" in Yunfu City. Huiyun Titanium will concentrate on projects of FePO_4 , LiFePO_4 and support products in the industrial chain, with investment hitting USD930.22 million (RMB6.20 billion); specific projects include 200,000 t/a new energy material FePO_4 , 400,000 t/a reactive calcium oxide, 100,000 t/a LiFePO_4 and supporting facilities. Yunliu Mining was going to invest around USD300.07 million (RMB2.00 billion) in building a 200,000 t/a refined wet-process PA project.

Notably, on 14 June, Huiyun Titanium announced to set up several subsidiaries. One of the subsidiaries, Yunfu Huiyun New Material Co., Ltd. (Huiyun New Material), mainly engages in production of FePO_4 with waste acid and ferrous sulphate (FeSO_4) as raw materials to enter FePO_4 sector. Huiyun New Material will take the lead in the construction of this 200,000 t/a new energy material FePO_4 project.

This cooperation will enable all sides to bring their advantages into full play and to implement the national strategic deployment of "carbon peaking and carbon neutrality". Besides, Yuegui Holdings and Huiyun Titanium can continuously improve their industrial chains and enhance market competitiveness.

Xinyangfeng Agricultural's 50,000 t/a FePO_4 project reaches designed capacity

Summary: In mid-June 2022, the 50,000 t/a FePO_4 project of Xinyangfeng Agricultural's subsidiary, Hubei Fengli, has reached designed capacity.

On 14 June, 2022, Xinyangfeng Agricultural Technology Co., Ltd. (Xinyangfeng Agricultural) showed on its official website that the 50,000 t/a ferric phosphate (FePO_4) production line of Hubei Fengli New Energy Technology Co., Ltd. (Hubei Fengli), the joint venture established by Xinyangfeng Agricultural and Changzhou Lithium Power New Energy Technology Co., Ltd. (Changzhou Lithium Power), has reached designed capacity recently.

Hubei Fengli's 50,000 t/a FePO_4 production line is close to Xinyangfeng Agricultural's Zhongxiang production base with the longest industrial chain and the most diversified products. Zhongxiang base not only provides raw materials like industrial grade monoammonium phosphate (MAP) for Hubei Fengli, but deliver phosphors ore directly to the workshop as the production base is not far from Lianhuashan mining areas.

Notably, this is the first new energy project of Xinyangfeng Agricultural. Xinyangfeng Agricultural, as a leading phosphate fertiliser





manufacturer in China, possesses a phosphorus ore mine with capacity of 900,000 t/a and its parent company, Yangfeng Group Co., Ltd., has nearly 500 million tonnes of phosphorus ore resources. Related phosphorus ore enterprises are about to go public successively in the future. Xinyangfeng Agricultural enjoys cost and industrial synergy advantages in advancing FePO_4 projects.

Hubei Fengli's 50,000 t/a FePO_4 project started construction in Sept. 2021 and began trial production in April 2022. Now quality indexes of FePO_4 products produced from this project meet requirements of downstream lithium ferrous phosphate (LiFePO_4) manufacturers.

The joint establishment of this project with Changzhou Lithium Power is of significance to Xinyangfeng Agricultural in terms of the following aspects:

- Xinyangfeng Agricultural is able to step into FePO_4 industry quickly;
- The completion of this project enables the company to exert its advantages in phosphorus chemical industry, enrich its product types, and seize the development opportunities of the new energy market to meet the growing demand for FePO_4 domestically and globally;
- Xinyangfeng Agricultural can expand its business scale of phosphorus chemical industrial chain, enhance market competitiveness, and consolidate its dominant position in phosphorus chemical industry.

CNGR to set up 200,000 t/a FePO_4 project

Summary: In early June 2022, CNGR planned to raise capital of USD346.58 million (RMB2.31 billion) for its 200,000 t/a FePO_4 project.

On 11 June, 2022, CNGR Advanced Materials Co., Ltd. (CNGR) announced that the company intended to issue shares to specific investors to raise capital for the 60,000 t/a nickel matte project in Indonesia base, the 80,000 t/a nickel sulphate project in the production base in western Guizhou Province, the 80,000 t/a nickel matte project in the production base in southern Guangxi Zhuang Autonomous Region, and the 200,000 t/a ferric phosphate (FePO_4) project in Kaiyang base of Guizhou Province and for working capital supplement.

CNGR is going to invest USD346.58 million (RMB2.31 billion) in the 200,000 t/a FePO_4 project. This project is located in Kaiyang County, Guiyang City, Guizhou Province and will be carried out by CNGR's holding subsidiary, Guizhou CNGR Xinyang Energy Storage Technology Co., Ltd. This project, with a construction period of 30 months, will construct ten FePO_4 production lines, workshops and supporting facilities. This project was granted recordation and the company has been undergoing relevant land use and environmental formalities.

CNGR said that the company, as a top enterprise in ternary precursor material field, expanded capacity of lithium ferrous phosphate (LiFePO_4) material lines because it needed to enrich its product types to meet the diversified needs of downstream customers. Demand for LiFePO_4 Cathode material is growing rapidly driven by the improvement of new energy power battery and energy storage; thus the company's layout in LiFePO_4 and upstream FePO_4 sectors will enable it to extend its industrial chain. At present, many li-ion battery companies start to enter LiFePO_4 material sector, so CNGR needs to accelerate its layout to maintain its own market competitiveness.

Notably, CNGR and the Government of Kaiyang County signed an investment agreement on a LiFePO_4 industrial park integration project in Dec. 2021. Base on the agreement, the People's Government of Kaiyang County will provide around 200 million tonnes of high grade





phosphorus ore resources for the company to ensure its phosphorus ore supply.

This project will expand the business scale of CNGR and enable the company to enhance its core competitiveness, consolidate its market position and increase earning capacity.

SD Lomon to build 50,000 t/a FePO₄ project

Summary: SD Lomon's subsidiary, Nanzhang Lomon, planned to establish a project of 50,000 t/a FePO₄ and 400,000 t/a sulphur-burning sulphuric acid.

On 27 May, 2022, Sichuan Development Lomon Co., Ltd. (SD Lomon) held a meeting and passed the proposal for investing in building a project of 50,000 t/a new energy material ferric phosphate (FePO₄). The company's wholly-owned sub-subsidiary, Nanzhang Lomon Phosphorus Product Co., Ltd. (Nanzhang Lomon) will set up this project in Xiangyang Circular Economy Industrial Park, Nanzhang County, Xiangyang City, Hubei Province and meanwhile it will build capacity of 400,000 t/a sulphur-burning sulphuric acid. This whole project, with an investment of USD73.5million (RMB490 million), is predicted to be completed and put into production within 12 months after obtaining the construction license.

FePO₄ is one of the downstream products of SD Lomon's monoammonium phosphate (MAP) and this project enables the company to extend its industrial chain and fully utilise its phosphorus resources.

In addition, this project enjoys the following advantages:

- Support of national and regional policies—FePO₄ is an important material for new energy vehicles and it is consistent with China's fostering of a green and low-carbon circular economic system; SD Lomon aims to realise resource maximisation through this project, which conforms to the development requirements of nation and local governments' call for the construction of green and low-carbon circular economic system.
- Strong market demand—FePO₄ has a promising market outlook given the rapid development of the new energy automotive industry and the energy storage industry.
- Industrial advantages—SD Lomon has developed in Xiangyang City for many years and the company is able to make full use of the policy advantages of Xiangyang Industrial Park and the phosphorus ore resource advantage in Baokang County, Xiangyang City to extend its industrial chain.

CCM believes that this project is of significance to SD Lomon's sustainable and sound development and its strategic layout of industrial chain.

Phosphate fertiliser manufacturers in Anhui face production restrictions

Summary: Many phosphate fertiliser manufacturers in Anhui Province encounter production restrictions or even face a suspension crisis due to phosphorus ore shortage.

The influence of China's food protectionism is expanding with the new round of global food price rise and the intensified national protectionism in some countries, which may further drive up the high-level food prices and continue to boost global fertiliser demand and





inventory replenishment.

The thriving fertiliser industry driven by improving global fertiliser demand enables domestic fertiliser enterprises to increase exports and make substantial revenues. However, many fertiliser enterprises may face suspension risks.

On 20 May, 2022, Anhui Chemical Industry Association showed that a number of phosphate fertiliser manufacturers in the province encountered severe shortage of phosphorus ore.

Anhui is a major agricultural province in China and it is also an important producing base of domestic phosphate fertilisers. However, China's phosphorus ore resources mainly concentrate in some regions. Phosphorus ore is a scarce resource in Anhui Province and manufacturers in the province basically purchase phosphorus ore from other provinces to produce phosphate fertilisers. The supply of domestic phosphorus ore has been tight since early April this year, directly affecting the production of local fertiliser manufacturers. Therefore, three listed fertiliser enterprises in Anhui, Anhui Liuguo Chemical Industry Co., Ltd. (Anhui Liuguo), Anhui Sierte Fertilizer Industry Co., Ltd. (Anhui Sierte), and Anhui Huilong Agricultural Means of Production Co., Ltd. (Huilong) reported the recent shortage of phosphorus ore to the Chemical Industry Association which is subordinated to Anhui Development and Reform Commission and hoped that related departments would solve this urgent problem.

Anhui Sierte and Huilong possess monoammonium phosphate (MAP) capacity of 850,000 t/a and 150,000 t/a respectively; Anhui Liuguo has MAP and diammonium phosphate (DAP) capacity totalling 940,000 t/a. Specifically, Anhui Liuguo purchases more than 1.00 million tonnes of phosphorus ore per year. Anhui Sierte needs 2.00 million tonnes of phosphorus ore each year and the company has phosphorus ore production bases in Guizhou Province, but its capacity only reaches 800,000 t/a, indicating 40% of self-supplied phosphorus ore. These three enterprises all disclosed that the current purchase volume of phosphorus ore could barely meet the 20% of the total demand and their inventories of phosphorus ore were low; thus they will face suspension when their inventories are consumed.

CGGC and Xinyangfeng Agricultural sign phosphorus chemical project agreement

On 27 June, 2022, China Gezhouba Group Cement Co., Ltd. (CGGC) and Xinyangfeng Agricultural Technology Co., Ltd. (Xinyangfeng Agricultural) signed a strategic cooperation agreement. The two sides intended to develop deep cooperation in comprehensive utilisation projects of phosphorus chemical solid wastes such as phosphogypsum, phosphorus ore tailings and organic slags from purification.

CGGC is an influential cement enterprise in the industry and this strategic cooperation between the two sides will enable Xinyangfeng Agricultural to improve its conversion and utilisation ability and promote research and breakthrough of solid waste comprehensive utilisation of other phosphorus chemicals.

Some projects of Guizhou Chanhen are ready for intended use

On 13 June, 2022, Guizhou Chanhen Chemical Corporation (Guizhou Chanhen) announced that its project of 1.50 million t/a low and medium grade phosphorus ore comprehensive utilisation beneficiation equipment and supporting facilities in Fuquan City, Guizhou





Province realised the hoped condition for use but it still takes some time to reach designed capacity. Guizhou Chanhen stated that the launching of this project will facilitated the implementation of the company's integrated strategy, promote the comprehensive utilisation of the company's low and medium grade phosphorus ore, and meanwhile guarantee the supply of phosphate concentrate for production needs.

Guizhou Chanhen's another 300,000 t/a pyrite-based sulphuric acid plant is still under construction.

Wintrure Holding's 350,000 t/a FePO₄ project starts construction

On 27 May, 2022, Chengdu Wintrure Holding Co., Ltd. (Wintrure Holding) announced that the company completed relevant approval procedures for its 350,000 t/a ferric phosphate (FePO₄) and supporting product project. This project is located in Songzi City, Jingzhou City, Hubei Province and it began construction recently. This project is estimated to be put into production in 2023 (see "*Wintrure Holding to build FePO₄ project*" in *Phosphorus Industry China Monthly Report 202109* for more details).





Technology

Progress of Hubei Xintianhong's phosphogypsum comprehensive utilisation project

As of 11 June, 2022, the 3.00 million t/a phosphogypsum comprehensive utilisation project of Hubei Xintianhong New Material Technology Co., Ltd. (Hubei Xintianhong) has been under smooth construction. This project is divided into two phases. Specifically, the first phase is predicted to possess 1.00 million tonnes of phosphogypsum per year and the product will be mainly used for producing gypsum powder, prefabricated modified gypsum lightweight board, gypsum block, and gypsum deep processing products. This project is conducive to increasing comprehensive utilisation rates of industrial solid wastes and reducing environmental pollution.

Hubei Xintianhong is an enterprise specialising in treatment of industrial solid wastes. This project will mainly use the phosphogypsum produced by Hubei Xiangyun (Group) Chemical Co., Ltd.

Fuling Mining's Xiaoba Phosphorus Mine mining right is changed

On 13 June, 2022, Guizhou Chanhen Chemical Corporation (Guizhou Chanhen) announced that the mining depth of Guizhou Fulin Mining Co., Ltd. (Fuling Mining)'s Xiaoba Phosphorus Mine mining right is increased by 300.00 metres. The available reserves of phosphorus ore resources within this expansion scope reached 17.66 million tonnes; the production capacity was ramped up to 800,000 t/a from 500,000 t/a.

Fuling Mining has completed relevant formalities of the mining right alteration and the term of validity of this alteration is from April 2022 to April 2041.





Political Factors

Guangdong issues measures for the construction and recognition of chemical parks

Summary: In early June 2022, the Department of Industry and Information Technology of Guangdong Province introduced the *Construction Standards and Implementation Measures for Chemical Industrial Parks in Guangdong Province (public opinion form)*.

To standardise the construction and recognition management of chemical industrial parks and improve safe and green development of chemical industrial parks, the Department of Industry and Information Technology of Guangdong Province publicised the Construction Standards and Implementation Measures for Chemical Industrial Parks in Guangdong Province (public opinion form) on 1 June, 2022.

The document mentioned 12 construction standards:

- 1. Chemical industrial parks should be established after undergoing complete formalities; environmental impact assessment and overall safety risk assessment should be carried out in accordance with the law.
- 2. Chemical industrial parks should be equipped with effective management capabilities in safety production, environmental protection, emergency rescue and other aspects required by the ecological environment, emergency management and other departments.
- 3. The site selection and layout of chemical industrial parks should comply with relevant laws, regulations, policies and relevant plans.
- 4. Chemical park management agencies should formulate overall plan and industrial plan.
- 5. Chemical industrial parks should have a reasonable layout and functional divisions—the administrative offices and living quarters should be separated from the production and storage areas of hazardous chemicals and the safety distance should meet the relevant standards of emergency management and other departments.
- 6. Chemical park management agencies should formulate a catalogue of "prohibited, restricted and controlled" hazardous chemicals that adapt to regional characteristics and local conditions, and meet the relevant requirements and standards of emergency management and other departments.
- 7. Chemical industrial parks should adopt close management.
- 8. Chemical industrial parks should have the ability to collect and store all the hazardous wastes generated, and build the hazardous waste utilisation and disposal capacity according to the production situation of hazardous wastes in the park and the utilisation and disposal capacity of hazardous wastes in the area.
- 9. Chemical industrial parks should be equipped with specialised and centralised treatment facilities for chemical production wastewater.
- 10. Chemical industrial parks should establish systems, plans, platforms and professional emergency rescue teams to meet the emergency response needs in the event of sudden production safety accidents and environmental emergencies.
- 11. Chemical industrial parks should establish complete monitoring and risk warning systems for safety production and ecological environment.
- 12. Management agencies of the chemical parks should conduct risk evaluation of the external transportation of dangerous goods from park zones in accordance with the relevant regulations of transportation and other departments.

The recognition of chemical industrial parks should also meet the construction standards and other detailed requirements. The document also points out those chemical parks failing to be certified will be disposed of:

- First, they should carry out rectification, improve supporting facilities and remove hidden safety and environmental dangers within a time limit in accordance with laws and regulations. New and expansion projects are not allowed to be built in chemical industrial parks during the rectification period; substandard chemical parks should be shut down after the rectification.
- Second, they should be closed and should no longer undertake chemical projects. Those chemical parks will be included in the key





supervision area, and relevant enterprises in the park zones will be regarded as key monitoring points; measures for safety risk management and control will be implemented, and the existing chemical enterprises in the parks will be properly disposed of.

Sichuan introduces ten natural resource measures

On 9 June, 2022, Sichuan Provincial Natural Resources Department put forward ten measures for strengthening natural resource management to safeguard stable economic growth. These measures mentioned that Sichuan Province, as a major manufacturing province, has an increasing demand for mineral resources in recent years; market demand has exceeded supply for a long time. Thus the province should accelerate the mining right assignment of lithium, iron, phosphorus, and sylvine, and promote investment in mining industry to ensure supply of mineral resources.

These ten natural resource measures, with a term of validity of one year, mainly concentrate on factor safeguard, resource utilisation, and government affairs services to improve natural resource management.

Yunnan promotes phosphogypsum comprehensive utilisation

On 9 June, 2022, the General Office of the People's Government of Yunnan Province publicised the *Yunnan Province Environmental Industry Development Plan during the 14th Five Year Plan (2021–2025)*. The document mentions the comprehensive utilisation of steel slag, fly ash, red mud, and particularly phosphogypsum when implementing resource circular utilisation projects. The province will cultivate large-scale comprehensive utilisation enterprises of phosphogypsum and tailings and make breakthroughs in comprehensive utilisation of sulphur, calcium, and fluorine resources of phosphogypsum.

Zhaotong City to build green phosphorus circular economic industrial chain

On 8 June, 2022, the People's Government of Zhaotong City, Yunnan Province issued the opinions on accelerating the industrial high-quality leapfrog development. Building a green phosphorus circular economic industrial chain is one of the major tasks, and details are shown as below:

- Zhaotong City will work harder to explore phosphorus ore resources in ZhenXiong County and promote coordinated investigation and evaluation of phosphorus ore.
- The city will establish a large-scale phosphorus-based green and low-carbon new material circular economic industrial park in Zhenxiong County and focus on developing new chemical industries including phosphoric acid and downstream sectors, fluorochemical, and hydrogen energy following the requirements of green and high-quality development and coupling the industrial chain of phosphorus ore mining, phosphorus chemical and new materials.
- It will step up endeavours to attract investment, introduce enterprises of the industry, and encourage them to exert their advantages to advance and utilise the phosphorus resource whole industrial chain and form green phosphorus circular economic industrial clusters. The city will strive to achieve annual industrial output value of USD0.75 billion (RMB5 billion) by 2025.

China's first local regulations on prevention and control of phosphogypsum pollution

On 26 May, 2022, the 31th meeting of the Standing Committee of the 13th People's Congress of Hubei Province passed the *Hubei Phosphogypsum Pollution Control Regulation*. This document will come into force as of 1 Sept., 2022. It will promote the prevention and control of phosphogypsum pollution and advance comprehensive utilisation of phosphogypsum (see "*Hubei Province submits draft for phosphogypsum governance*" in *Phosphorus Industry China Monthly Report 202206* for more details).







Market Data Analysis

PA prices decline in June 2022

Summary: Prices of thermal-process PA and wet-process PA went down in June 2022.

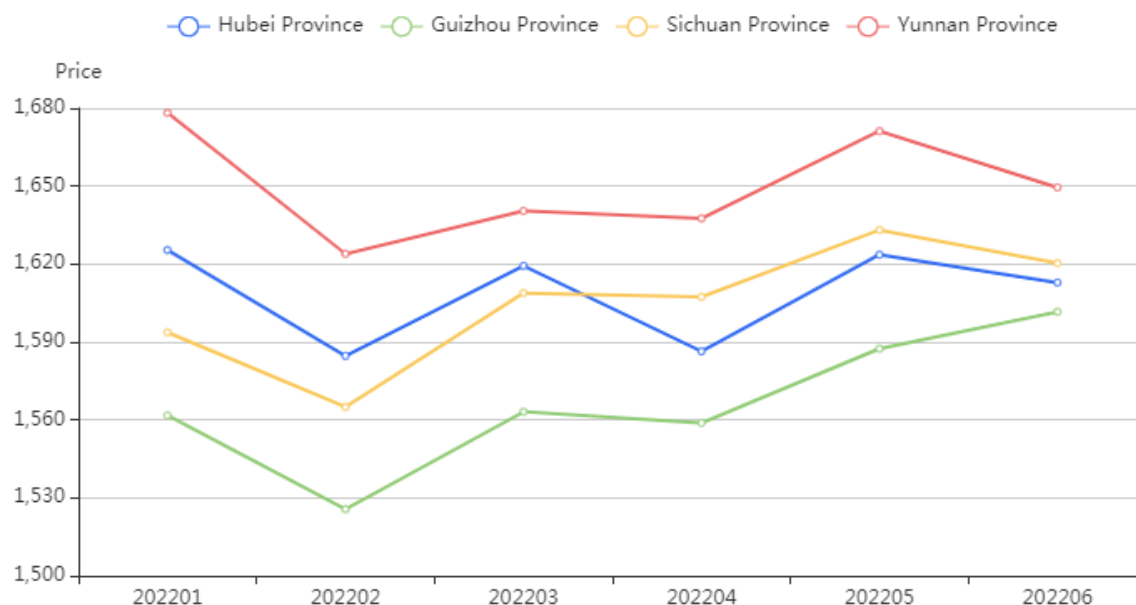
In June 2022, prices of thermal-process phosphoric acid (PA) fluctuated and showed a downward trend.

PA manufacturers in different regions maintained production at a low level. The overall market supply of PA kept normal and a few deals were made. In addition, Jiangsu Chengxing Phosph-Chemical Co., Ltd. (Jiangsu Chengxing) sold PA at low prices, causing PA enterprises in Jiangsu and Zhejiang provinces to reduce their prices. Consequently, sales in PA market became mixed and profits of PA manufactures contracted. Thus, small and medium PA enterprises faced increased pressure.

With respect to upstream industry, operating rates of yellow phosphorus manufacturers mounted up. Yellow phosphorus prices edged down in fluctuation and thus cost pressure of PA manufacturers decreased. Downstream enterprises and traders were cautious about purchasing yellow phosphorus and they mainly took wait-and-see attitudes or bought the product based on demand because the price trend of yellow phosphorus was uncertain. Additionally, profits of downstream phosphorus trichloride (PCl_3) and PA manufacturers were low and demand was sluggish, so they were unwilling to accept high prices of yellow phosphorus; downstream customers even attempted to bargain as they still had some inventories and therefore purchase demand shrank.

Yellow phosphorus prices are estimated to slip in the short run. Wet-process PA prices went as the thermal one. Prices of thermal-process PA and wet-process PA may continue to fall in the near future.

FIGURE 3: Regional prices of 85% industrial phosphoric acid

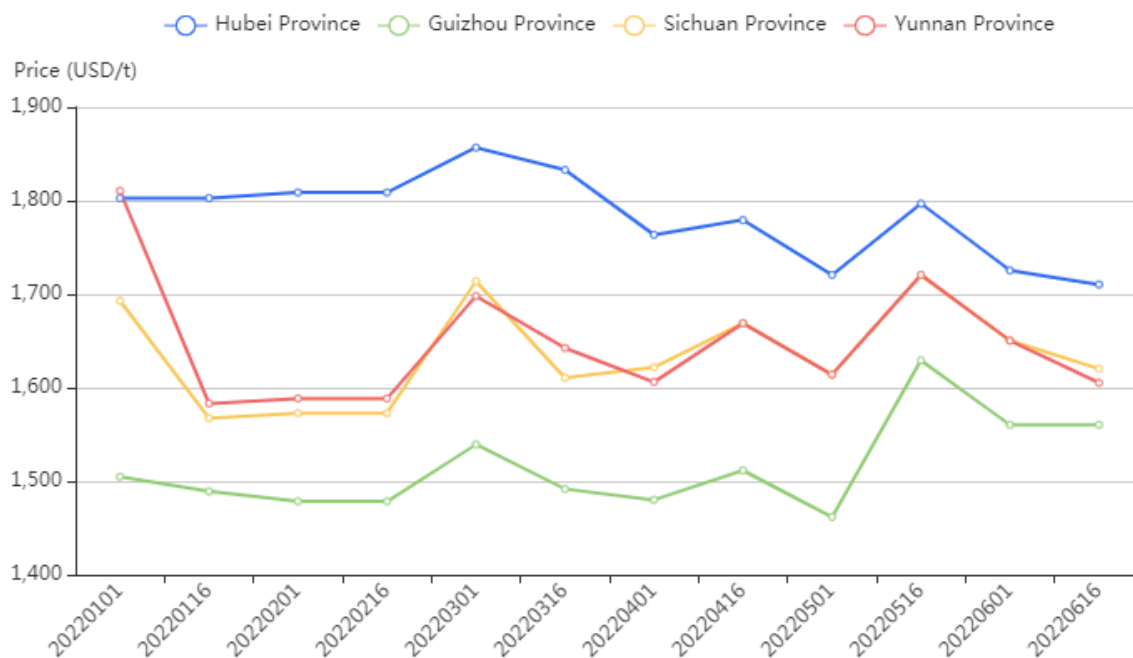


Source:CCM





FIGURE 4: Regional prices of food grade phosphoric acid



Note: Line Guizhou Province represents wet-process PA while the other three for the thermal-process PA.
Source: CCM



Import and Export

International trade of phosphate chemicals in May 2022

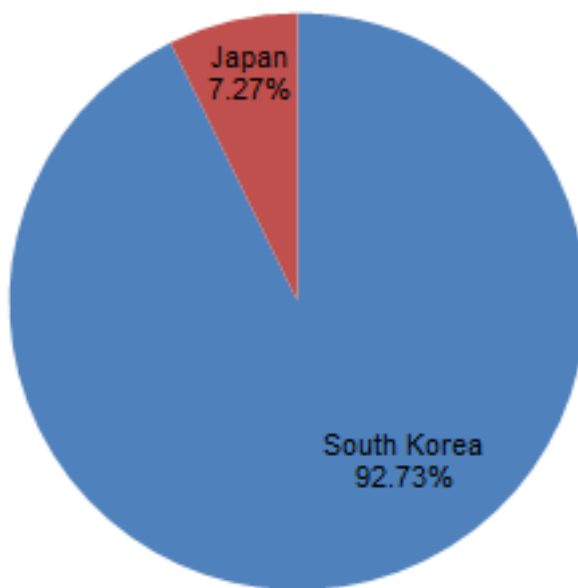
TABLE 3: China's exports of main phosphorus chemicals in May 2022

Product	Export volume in April 2022, tonne	Export volume in May 2022, tonne	Rate of Change	Export price in April 2022, USD/t	Export price in May 2022, USD/t	Rate of Change
Phosphorus ore	40,151.19	97,881.50	143.78%	149.62	186.48	24.63%
Yellow phosphorus	76.80	/	/	6,980.00	/	/
Food grade PA	43,110.51	55,544.28	28.84%	1,745.11	1,774.80	1.70%
TSP	95,024.00	57,327.10	-39.67%	523.12	538.19	2.88%
MAP	178,697.36	217,972.98	21.98%	736.97	849.32	15.24%
DAP	194,881.42	163,110.45	-16.30%	815.94	856.59	4.98%
P ₂ O ₅	1,023.90	1,645.47	60.71%	3,390.69	3,440.29	1.46%
POCl ₃	198.00	947.38	378.47%	2,517.55	2,936.98	16.66%
STPP	11,982.12	12,689.28	5.90%	1,053.67	1,069.06	1.46%

Source: CCM & China Customs

Phosphorus ore

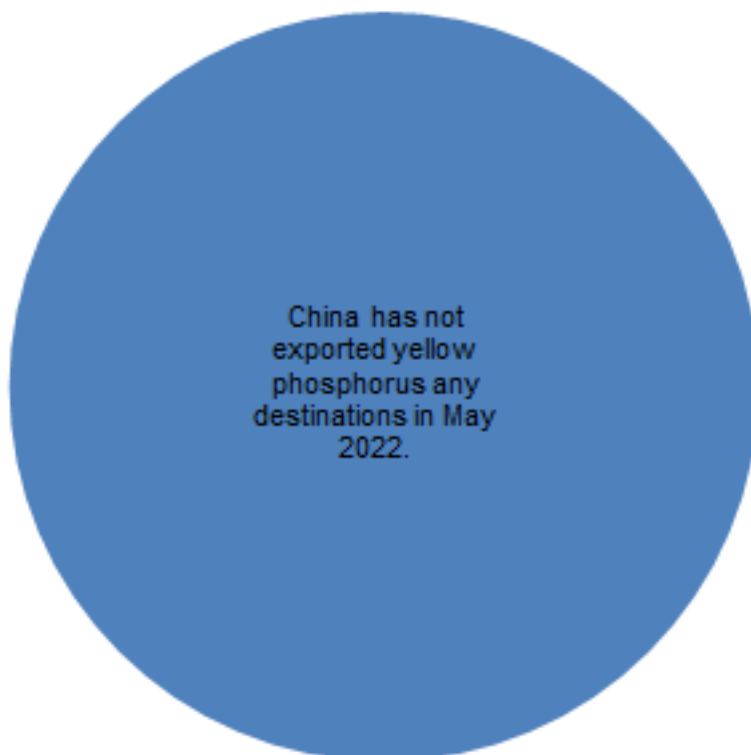
PICTURE 1: China's export destinations of phosphorus ore in May 2022



Source:CCM & China Customs

Yellow phosphorus

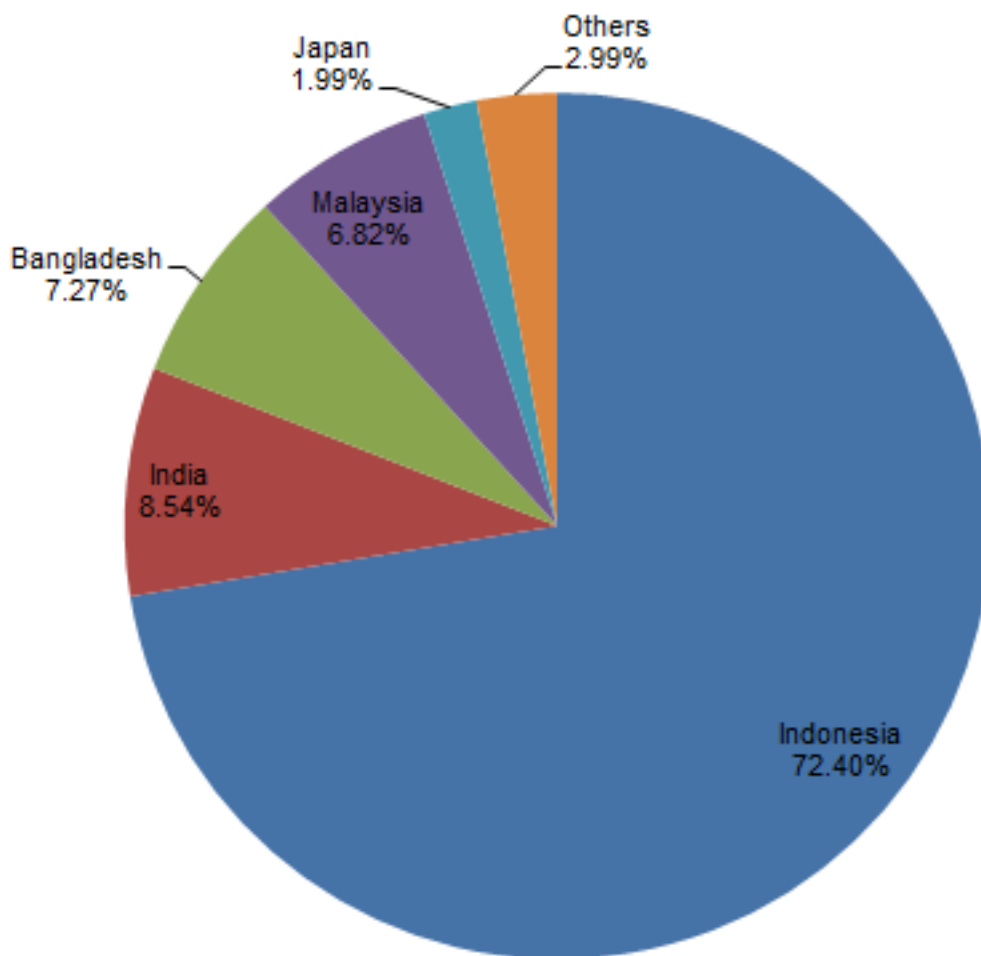
PICTURE 2: China's export destinations of yellow phosphorus in May 2022



Source:CCM & China Customs

Food grade phosphoric acid

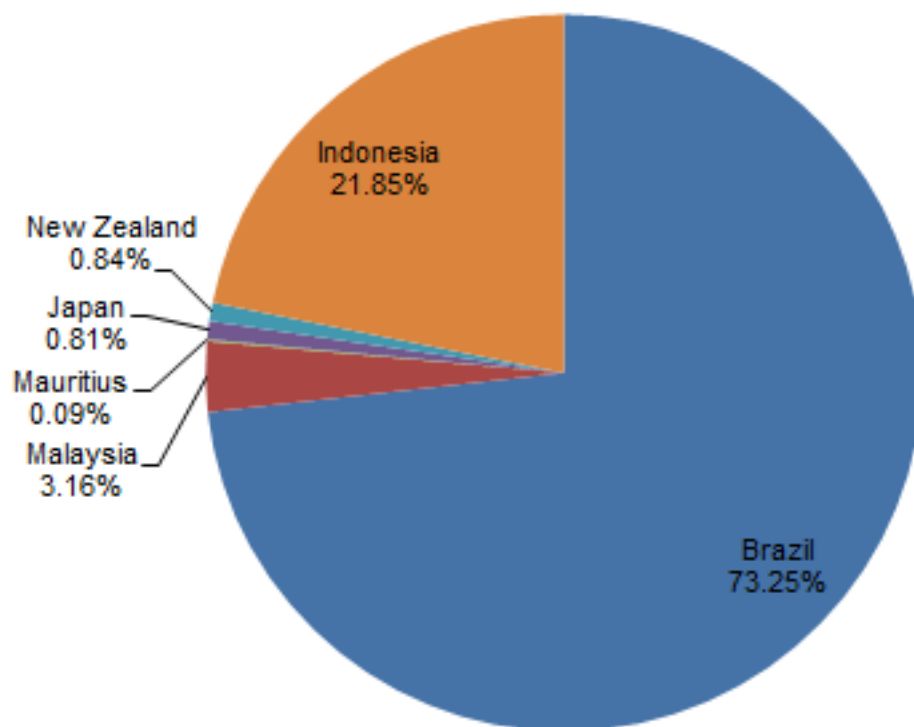
PICTURE 3: China's export destinations of food grade phosphoric acid in May 2022



Source: CCM & China Customs

TSP

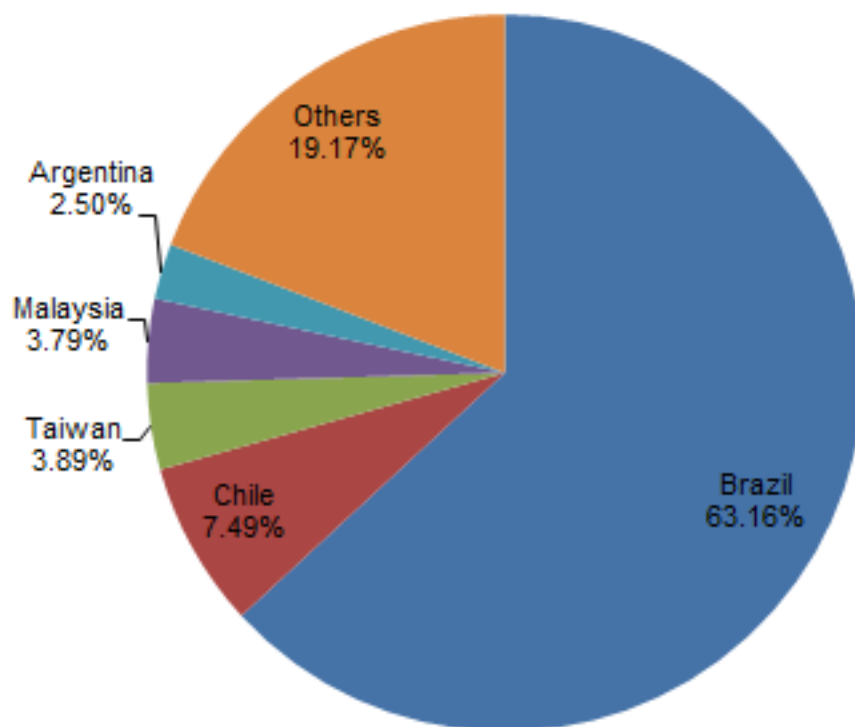
PICTURE 4: China's export destinations of TSP in May 2022



Source: CCM & China Customs

MAP

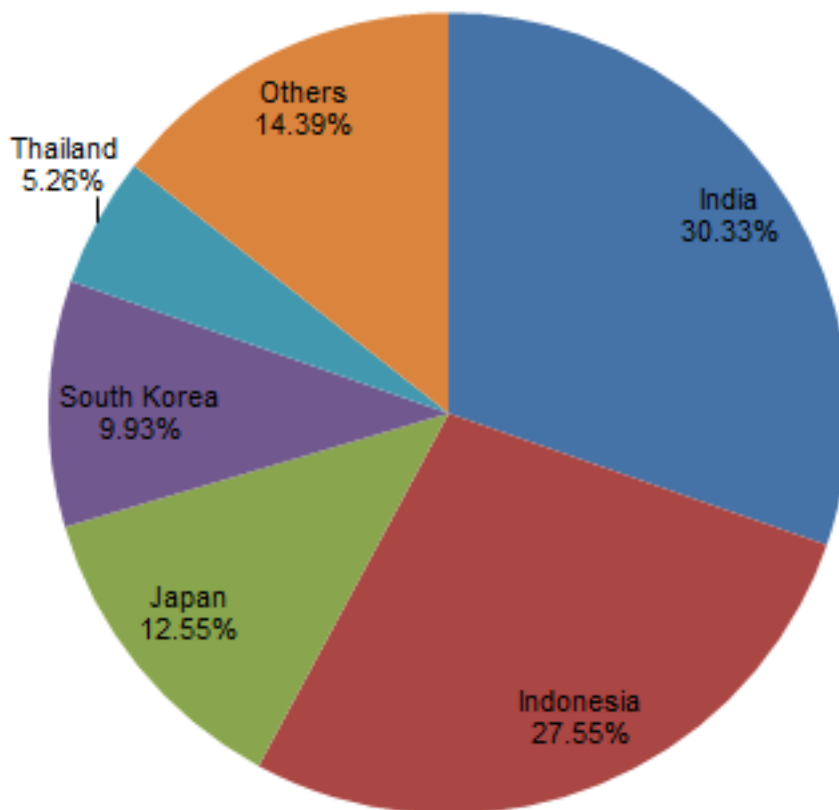
PICTURE 5: China's export destinations of MAP in May 2022



Source: CCM & China Customs

DAP

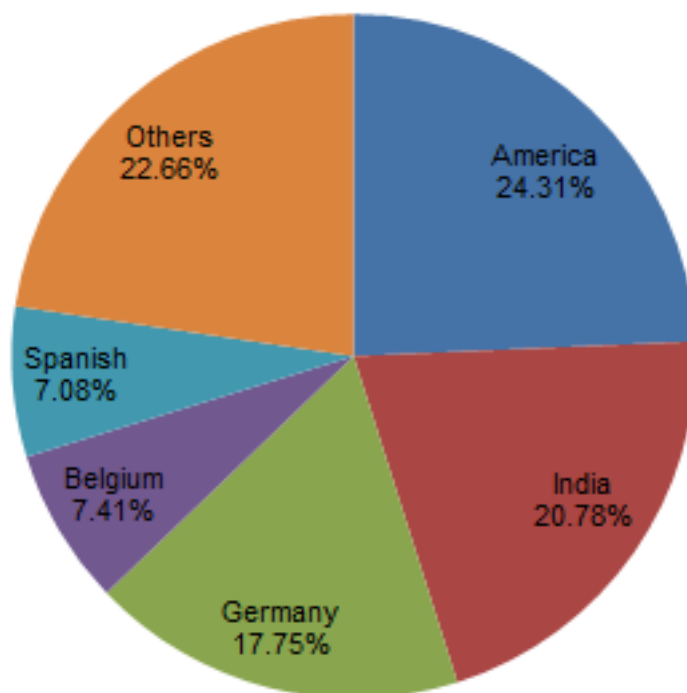
PICTURE 6: China's export destinations of DAP in May 2022



Source: CCM & China Customs

P₂O₅

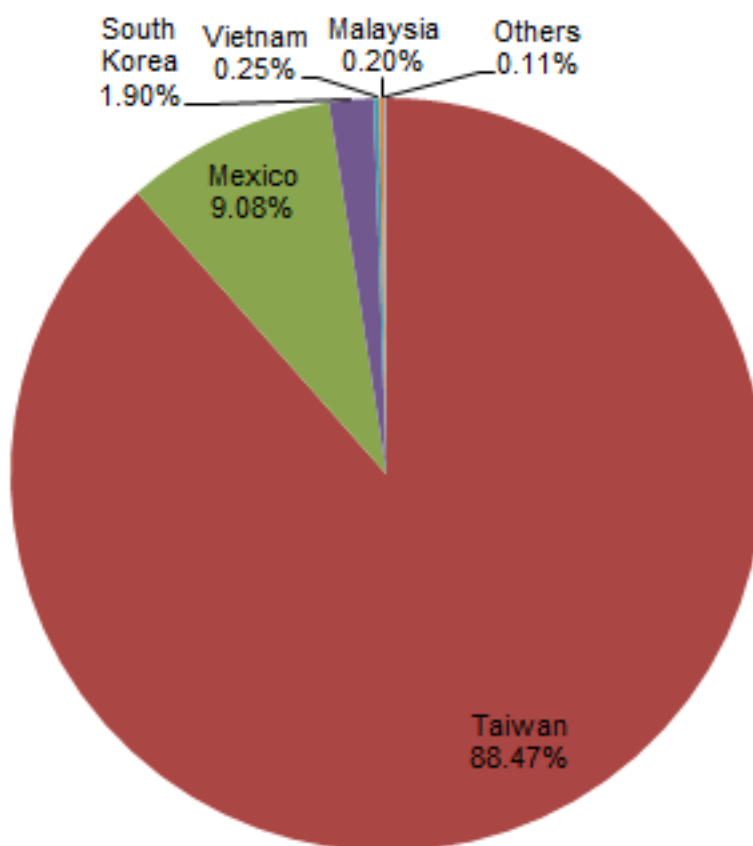
PICTURE 7: China's export destinations of P2O5 in May 2022



Source:CCM & China Customs

POCl₃

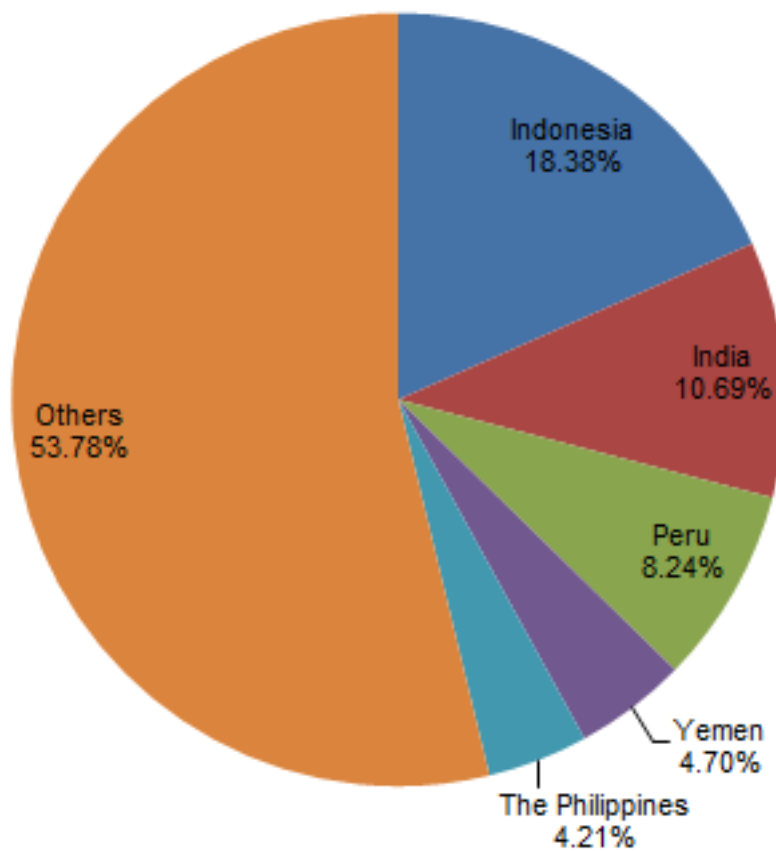
PICTURE 8: China's export destinations of POCl₃ in May 2022



Source: CCM & China Customs

STPP

PICTURE 9: China's export destinations of STPP in May 2022

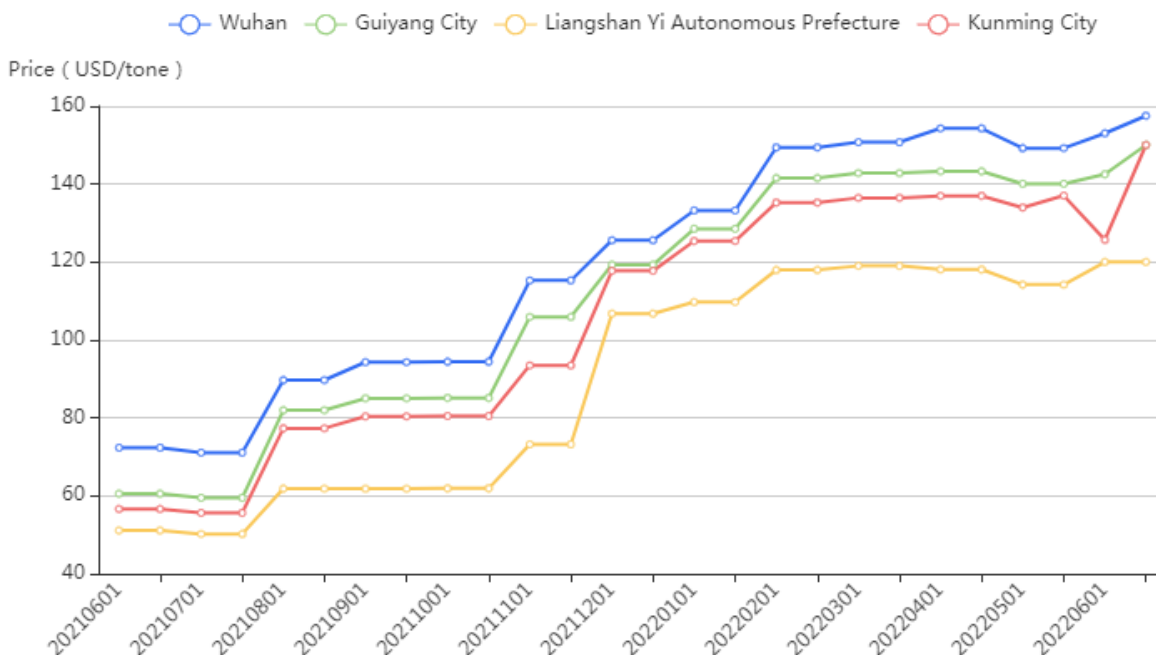


Source: CCM & China Customs

Price Update

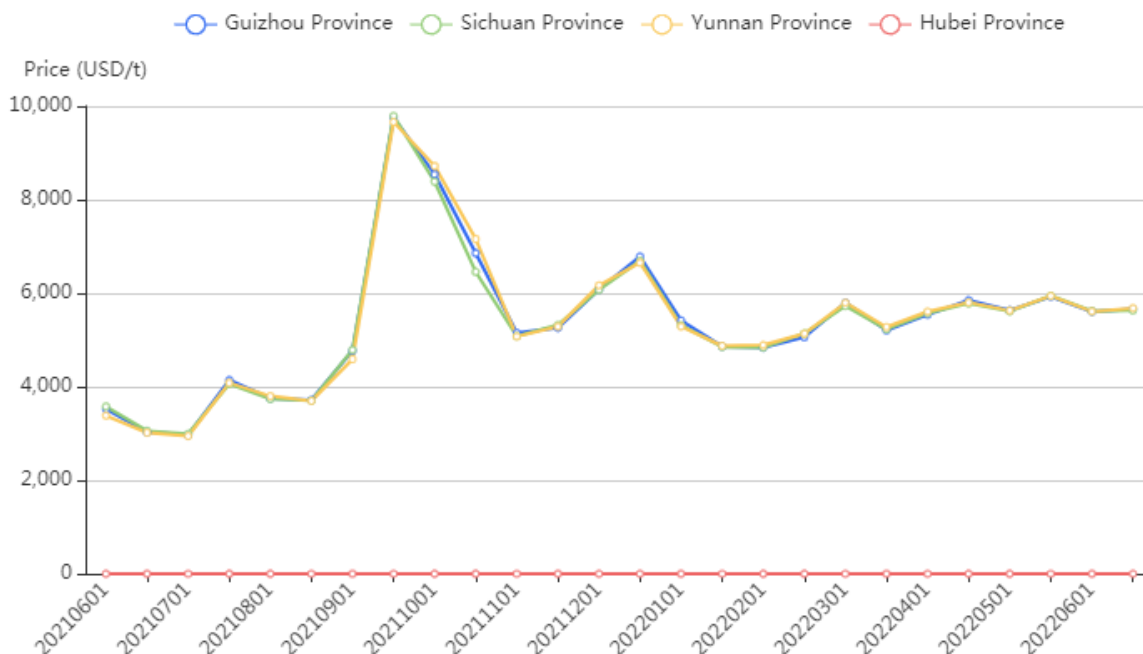
Price monitoring of phosphate chemicals in June 2022

FIGURE 5: Ex-works price of phosphorus ore in China, June 2021–June 2022



Source:CCM

FIGURE 6: Ex-works price of yellow phosphorus in China, June 2021–June 2022

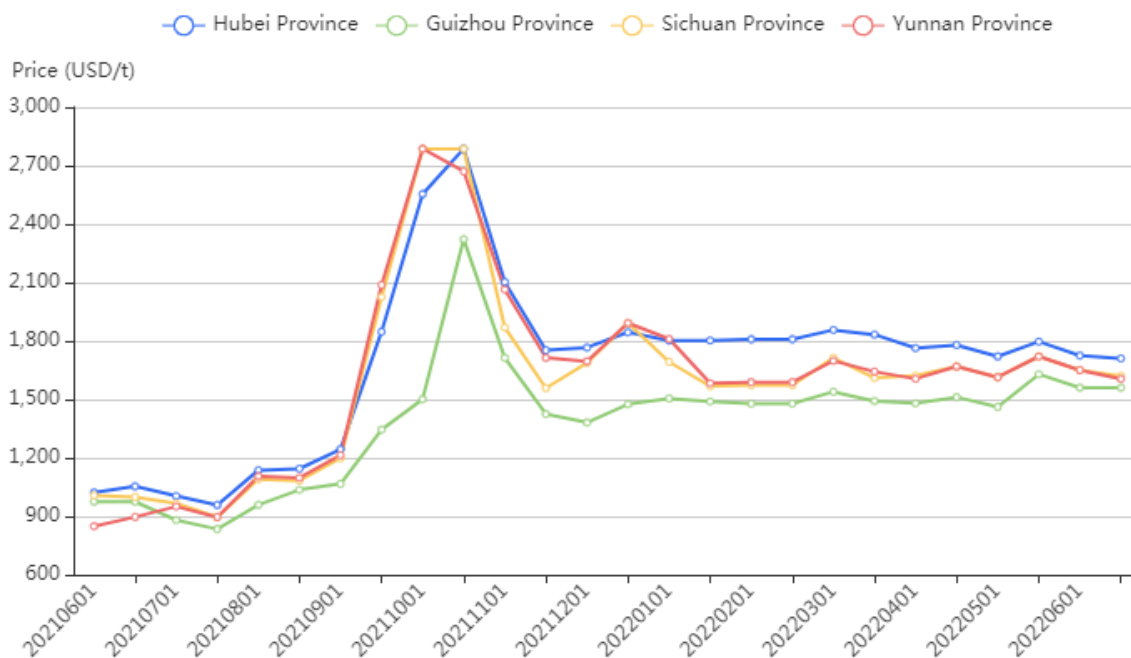


Note: Here in the graph a USD0/t means no quotations were seen in that area during that period of time.

Source:CCM

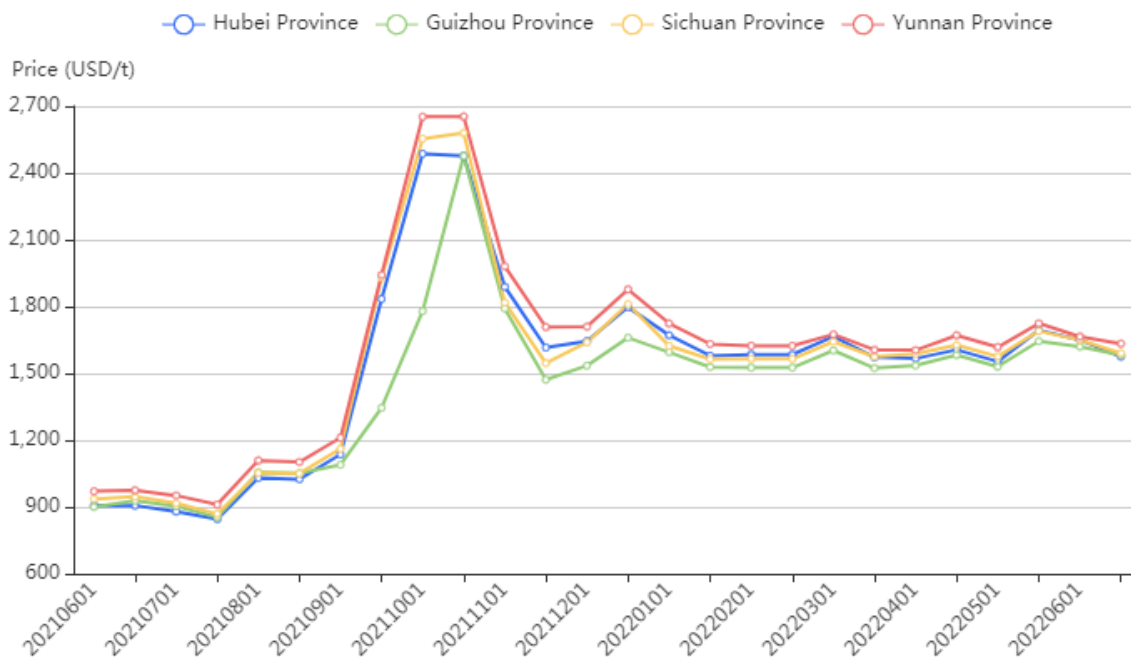


FIGURE 7: Ex-works price of food grade phosphoric acid in China, June 2021–June 2022



Source:CCM

FIGURE 8: Ex-works price of 85% industrial grade phosphoric acid in China, June 2021–June 2022

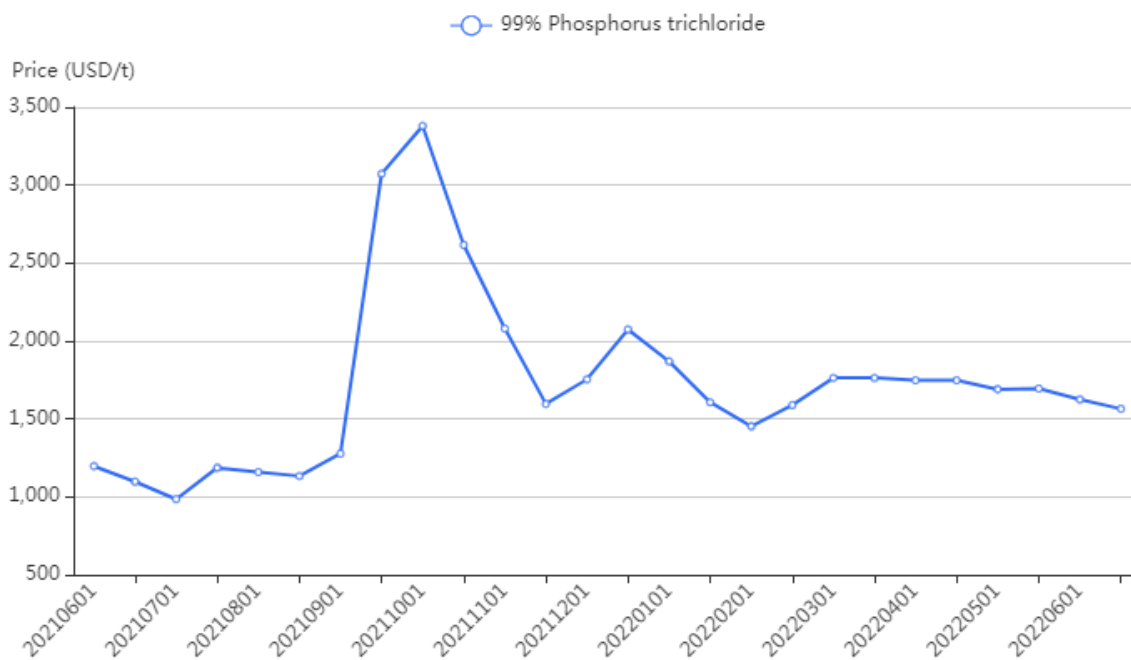


Source:CCM





FIGURE 9: Ex-works price of 99% phosphorus trichloride in China, June 2021–June 2022



Source:CCM



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