



百川盈孚  
BAINFO

BAINFO  
Lithium  
Battery  
Monthly

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## LiPF6

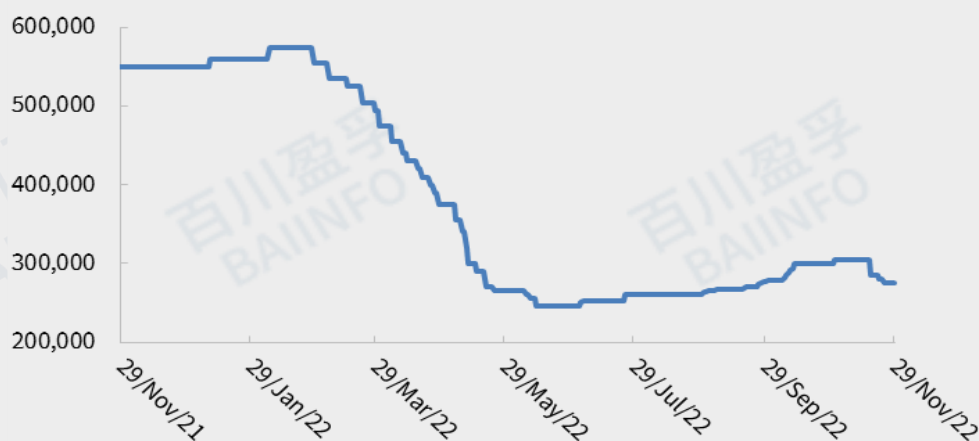
### Market Review

This month, LiPF6 market supply exceeded demand side. At the end of this month, mainstream market price of LiPF6 was around RMB 270,000-280,000/T, with domestic average market price dropping to RMB 275,000/T, down 8.33% MoM, up 5.77% QoQ and down 50% YTD.

**LiPF6 Market Price in Nov. (Unit: RMB/T)**

	Price	Average Price	Price (Last Month)	Average Price (Last Month)	MoM	QoQ	YTD
LiPF6	275,000	295,000	300,000	296,611	-8.33%	5.77%	-50%

**LiPF6 Average Market Price (Unit: RMB/T)**



### Supply

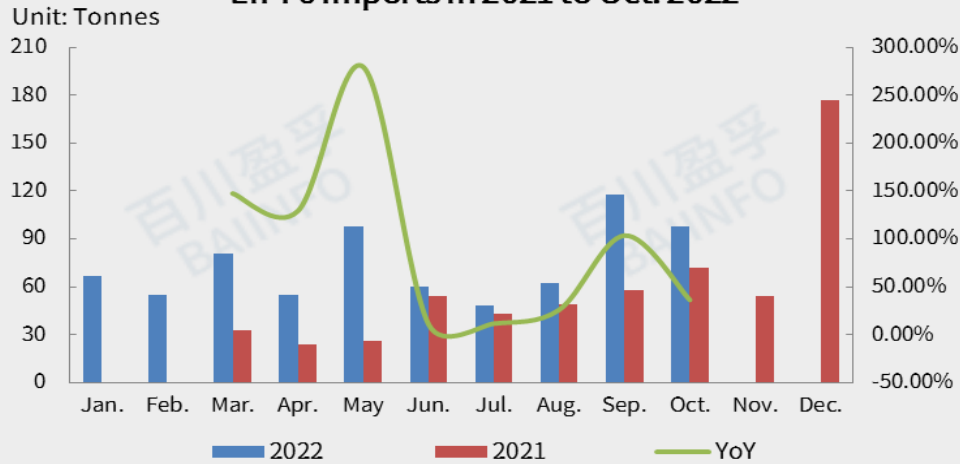
#### LiPF6 Imports

In Oct., China mainly imported LiPF6 from Japan and South Korea. In Jan.-Oct., Guangdong, Shanghai, Tianjin and Beijing mainly imported LiPF6.

**LiPF6 Imports in Oct. 2022 (Unit: Tonnes; USD; USD/T)**

Month	Import Volume	Import Value	Import Price	YoY
Oct. 2022	98	3,376,811	34,457.26	36.11%
Sep. 2022	118	4,044,480	34,275.25	103.53%

## LiPF6 Imports in 2021 to Oct. 2022



### LiPF6 Imports by Countries/Regions in Oct. 2022 (Unit: Tonnes; USD)

Countries/Regions	Import Volume	Import Value
Japan	84	2,914,800
South Korea	14	462,000
USA	0	11
India	0	0
Malaysia	0	0
Britain	0	0
Germany	0	0
Netherlands	0	0
Hungary	0	0
Poland	0	0
Canada	0	0
<b>Total</b>	<b>98</b>	<b>3,376,811</b>

## Demand

### LiPF6 Demand

LiPF6 was mainly used for producing lithium battery electrolyte. This month, market price of LFP electrolyte and NCM electrolyte slightly declined. Lithium battery plants strongly forced price down. Partial downstream electrolyte enterprises held sufficient inventories of raw materials, while some produced electrolyte with raw material inventory, and others purchased LiPF6 on need-to basis. Thus, overall demand for LiPF6 was reduced over that of last month.

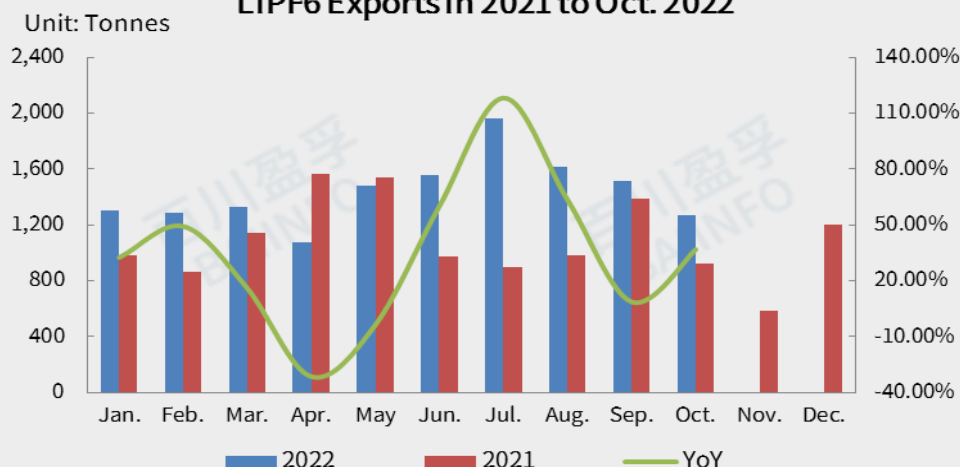
### LiPF6 Exports

In Oct., China mainly exported LiPF6 to South Korea, Germany, Hungary and the United States. Henan, Shanghai and Jiangsu mainly exported LiPF6.

### LiPF6 Exports in Oct. 2022 (Unit: Tonnes; USD; USD/T)

Month	Export Volume	Export Value	Export Price	YoY
Oct. 2022	1,265.845	28,349,631	22,395.82	36.79%
Sep. 2022	1,510.813	32,088,287	21,239.09	8.66%

### LiPF6 Exports in 2021 to Oct. 2022



### LiPF6 Exports by Countries/Regions in Oct. 2022 (Unit: Tonnes; USD)

Countries/Regions	Export Volume	Export Value
Japan	64.4	1,686,888
South Korea	498.75	10,394,278
USA	115.39	3,613,872
India	0	38
Malaysia	52	1,736,379
Britain	30	1,024,756
Germany	230	2,275,100
Netherlands	40.8	1,301,520
Hungary	180	4,844,536
Poland	54.4	1,466,118
Canada	0.1	6,146
<b>Total</b>	<b>1,265.845</b>	<b>28,349,631</b>

## Relevant Products

### Lithium Fluoride

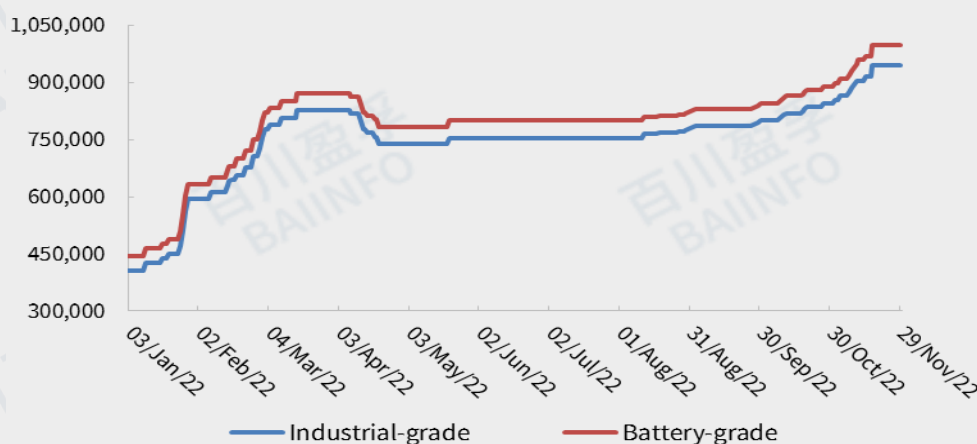
This month, lithium fluoride market supply fell short of demand. At the end of this month, mainstream market price of industrial-grade lithium fluoride were around RMB 940,000-951,000/T, with domestic average market price running up to RMB 945,500/T, up 11.83% MoM, up 22.08% QoQ and up 132.02% YTD. Mainstream price of battery-grade lithium fluoride was

around RMB 995,000-1,005,000/T, with domestic average market price rising to RMB 1,000,000/T, up 12.36% MoM, up 22.1% QoQ and up 125.23% YTD.

**Lithium Fluoride Market Price in Nov. (Unit: RMB/T)**

	Price	Average Price	Price (Last Month)	Average Price (Last Month)	MoM	QoQ	YTD
Industrial-grade	945,500	913,431	845,500	822,919	11.83%	22.08%	132.02%
Battery-grade	1,000,000	964,482	890,000	867,419	12.36%	22.1%	125.23%

**Lithium Fluoride Average Market Price (Unit: RMB/T)**



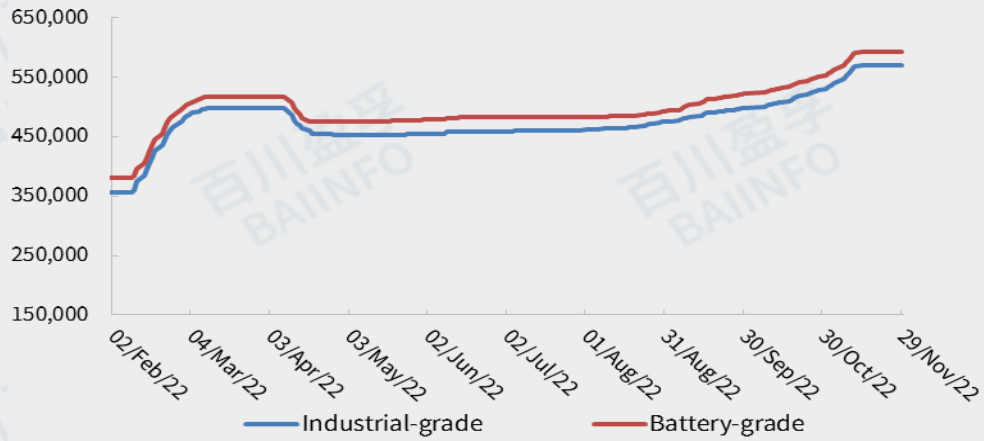
## LCE

This month, LCE market extended uptrend. Up to Nov. 29, mainstream market trading price of industrial-grade LCE (99.2%) was at RMB 568,000-573,000/T, and average price was at RMB 570,000/T, up 7.84% MoM and up 121.55% YTD. Trading price of immediate orders in spot market was at RMB 560,000-570,000/T. Mainstream price of battery-grade LCE (99.5%) was at RMB 587,000-597,000/T, and average price was at RMB 592,000/T, up 7.34% MoM and up 109.65% YTD. Trading price of immediate orders in spot market was at RMB 580,000-590,000/T. Overall, domestic LCE market price is expected to change within RMB 20,000-30,000/T next month.

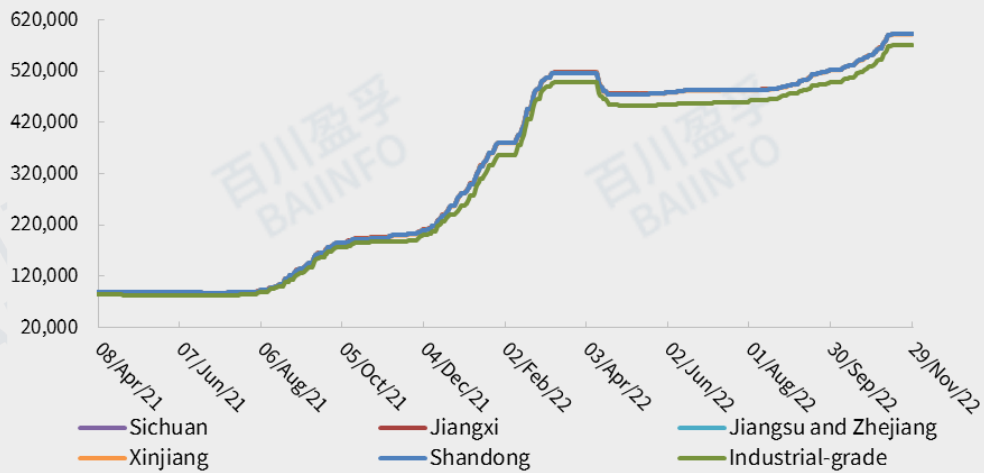
**China Battery-grade LCE (>99.5%) Market Price (Unit: RMB/T)**

Regions	Oct/27/2022	Nov/29/2022	Change	Remarks
Sichuan	549,500	592,000	7.7%	587,000-597,000
Jiangxi	549,500	592,000	7.7%	587,000-597,000
Jiangsu-Zhejiang	549,500	592,000	7.7%	587,000-597,000
Xinjiang	549,500	592,000	7.7%	587,000-597,000
Shandong	549,500	592,000	7.7%	587,000-597,000

LCE Average Market Price (Unit: RMB/T)

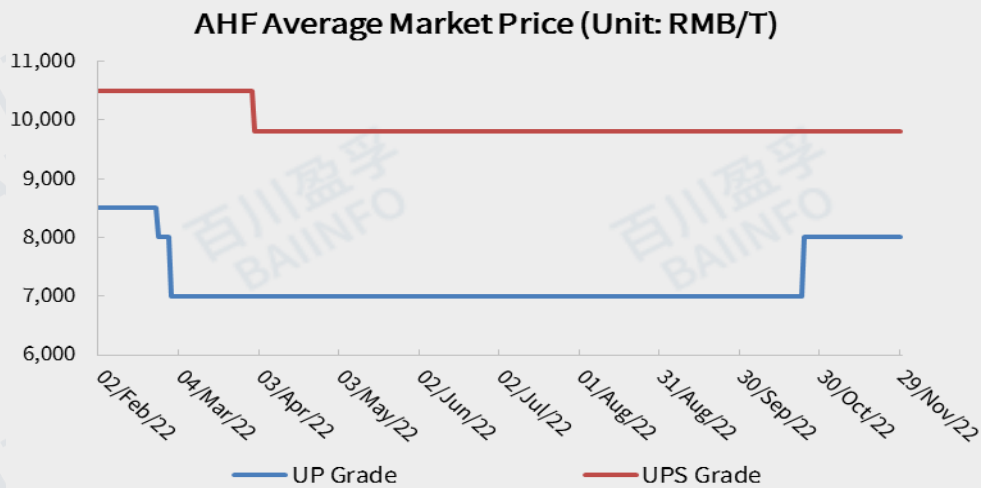


Domestic Battery-Grade LCE (> 99.5%) Price Change (Unit: RMB/T)



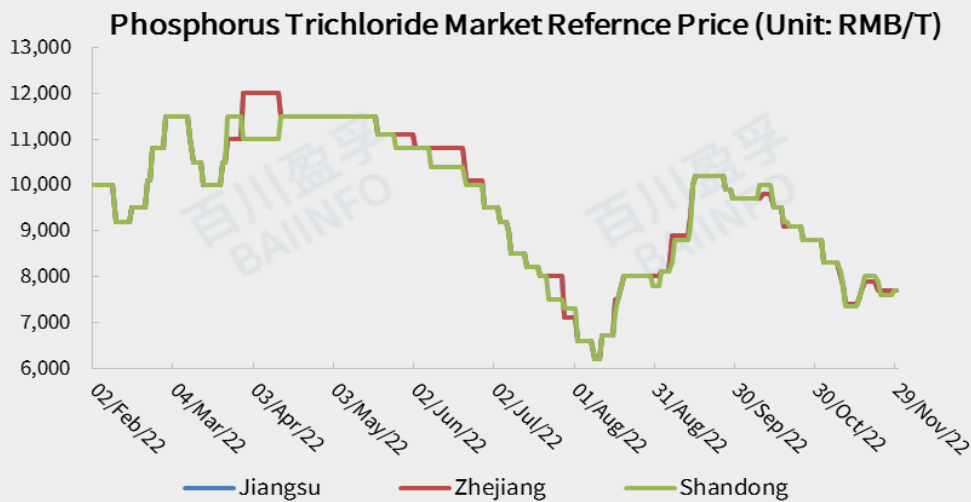
## AHF

This month, AHF market hit a new high. AHF average market reference price was at RMB 12,350/T, up 11.26% YTD. The price uptrend of AHF market was attributed to some factors: Firstly, fluorite market ramped up on the back of tight supply. Secondly, AHF producers held low operation load. Thirdly, downstream demand slightly improved.



## Phosphorus Trichloride

This month, phosphorus trichloride market nosedived then moved upward then edged down and finally nudged up. As of Nov. 29, market reference price of 99% phosphorus trichloride (non-packaged) was at RMB 7,700-7,900/T and RMB 7,700-8,000/T in Shandong and Jiangsu respectively. Trading price was reported at RMB 7,700/T around.



## Phosphorus Pentachloride

This month, a majority of phosphorus pentachloride manufacturers suspended offers, and individual suppliers provided reference price at around RMB 8,000-10,000/T. The new plant of a manufacturer resumed production this month, while other manufacturers operated normally, driving up the supply to some extent. Currently, phosphorus pentachloride offers were still chaotic, which still needed some time to stabilize. Phosphorus pentachloride was mainly produced by domestic manufacturers, and only a few resources were for export. In Oct., the export volume of phosphorus pentachloride was 21.6 tonnes, with no import volume.

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## Market Forecast

In the short term, LiPF6 enterprises are expected to produce normally, which may increase the output and supply stably. Although feedstock price stabilizes recently, it still remains high. Hence, LiPF6 enterprises are likely to hold shrinking profits under cost pressure. Partial downstream electrolyte enterprises purchase LiPF6 on need-to basis, so demand for LiPF6 will keep stable. Next month, LiPF6 market is predicted to sustain stability, with price at around RMB 270,000-280,000/T.

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## Lib Cathode Materials Market Overview

### ➤ NCM

This month, NCM market climbed up. Currently, average market price of NCM 523, NCM 111, NCM 622 and NCM 811 were at RMB 351,500/T, RMB 362,500/T, RMB 375,500/T and RMB 400,500/T respectively, up RMB 8,000/T over last month respectively. Early this month, raw material lithium salt market kept going up and precursor market remained largely stable. With the Double Eleven, downstream enterprises showed strong willingness to replenish cargoes but the replenishment was not as good as expectations. On the whole, raw material market provides ordinary cost support for NCM market. Terminal automobile sales are not as good as expected. Many NCM enterprises expand production this year. Hence, NCM market is anticipated to move downward in the short term. It is predicted that price of NCM 523, NCM 111, NCM 622 and NCM 811 will be at RMB 350,000/T, RMB 360,000/T, RMB 370,000/T and RMB 398,000/T next month respectively.

### ➤ LFP

This month, LFP market went up further. Mainstream LFP market price was at RMB 175,000/T, up RMB 4,000/T over last month. Before mid of this month, raw material LCE market stood high and subsidies for new-energy automobiles would end at the year end, so downstream enterprises actively purchased cargoes. In mid-to-late of this month, terminal demand was not as good as expected. Besides, raw material LCE futures price slid down, and then traders in spot market showed strong willingness to cut price for sales. Downstream battery plants became cautious to procure cargoes and inclined to consume the inventory. On the whole, terminal enterprises intend to consume the inventory and downstream replenishment is not active. Thus, overall demand for LFP will drop. Raw material LCE market is likely to fall back. However, LFP enterprises continue to expand production, so oversupply will be seen in LFP market. As a result, LFP market is anticipated to edge down in the short term, with price at RMB 173,000/T next month.

### ➤ LCO

This month, LCO market slid down. LCO 4.35v average market price was at RMB 450,000/T, down RMB 5,000/T over last month. Before mid of this month, owing to rising LCE price, LCO enterprises constantly raised offers. Subsequently, raw material LCE market provided less cost support for LCO market, and then LCO market price moved down. Demand for LCO was still lackluster even with the Double Eleven. On the whole, terminal demand does not see significant improvement and downstream buying interests are not active. Raw material LCE market is likely to fall back. Therefore, LCO market is predicted to register stable-and-weak scenario in the short term, with price at RMB 450,000/T next month.

### ➤ LMO

This month, LMO market ramped up rapidly. Average market price of dynamical-type LMO and volumetric-type LMO was at

RMB 157,000/T and RMB 152,000/T respectively, up RMB 7,000/T and RMB 9,000/T over last month respectively. Early this month, raw material LCE market went up continuously, providing cost support for LMO market. After late of this month, raw material LCE market consolidated at high-end price level, which provided less cost support for LMO market. On the whole, raw material manganese market is likely to edge up and LCE market is quite possible to fall back later, so the cost pressure on LMO enterprises will be eased. Due to difficult procurement on raw materials, LMO enterprises will reduce production. Downstream demand is lackluster. Thus, LMO market is expected to slide down later, with dynamical-type LMO price at RMB 152,000/T next month.

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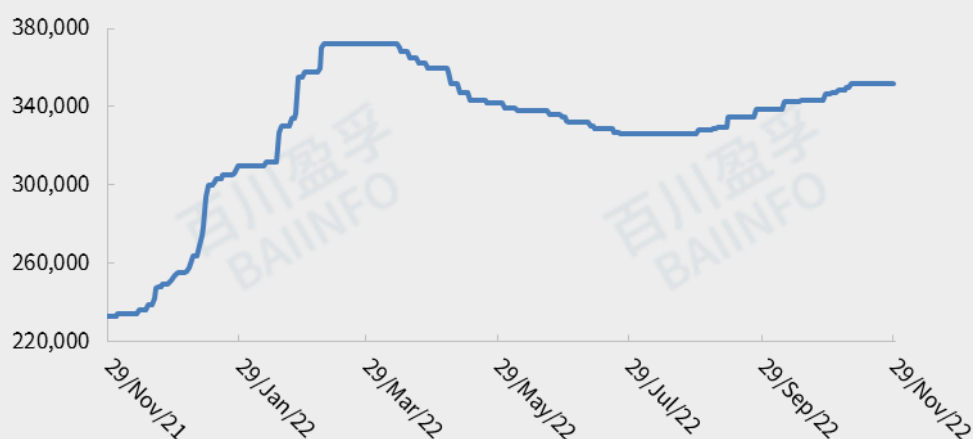
## Lib Cathode Materials Market Review

### Price

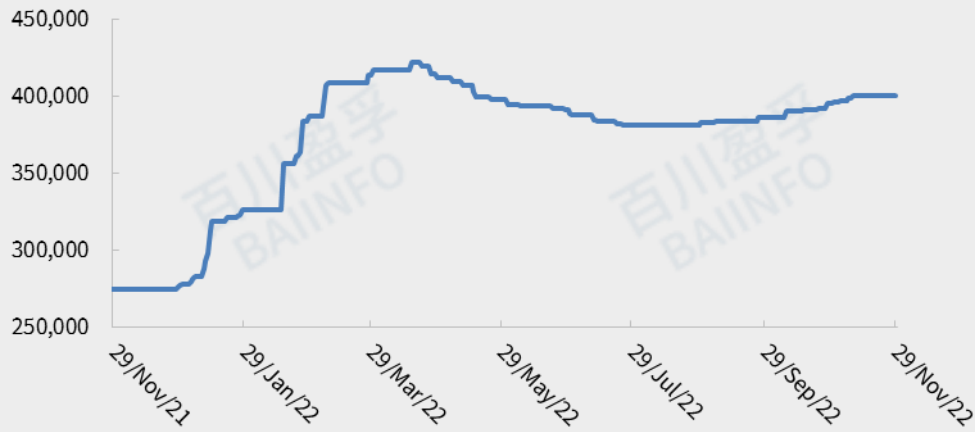
**Lib Cathode Materials Market Price in Nov. (Unit: RMB/T)**

	Price	Average Price	Price (Last Month)	Average Price (Last Month)	MoM	QoQ	YTD
NCM 523	351,500	350,672	343,500	341,653	1.44%	7.82%	34.84%
NCM 811	400,500	399,672	392,500	389,653	1.26%	5.12%	44.06%
LCO	450,000	459,200	455,000	441,100	-1.1%	8.43%	5.14%
Precursor	110,000	110,000	110,000	109,307	0.92%	1.85%	-17.6%

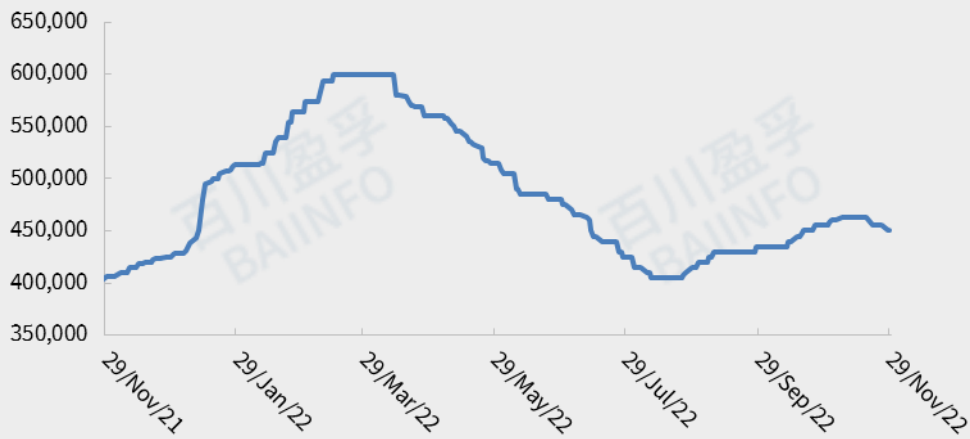
**NCM 523 Average Market Price (Unit: RMB/T)**



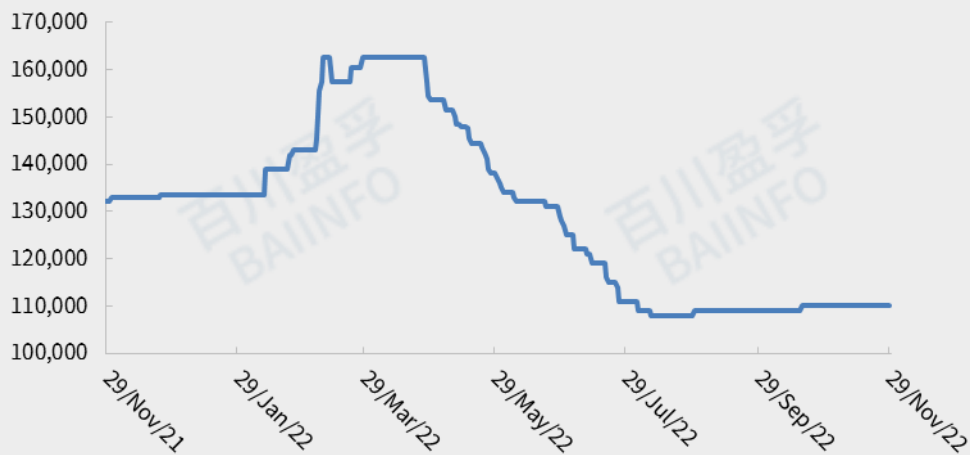
NCM 811 Average Market Price (Unit: RMB/T)



LCO 4.35v Average Market Price (Unit: RMB/T)



Precursor Average Price (Unit: RMB/T)



## Supply

### Lib Cathode Materials Imports

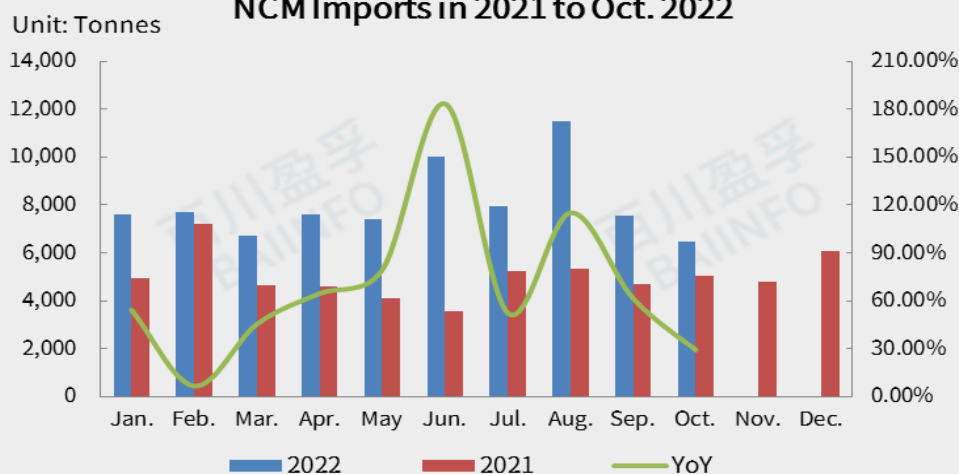
#### ➤ NCM

In Oct., the import volume of NCM was 6,480.136 tonnes. China mainly imported NCM from South Korea and Japan. NCM cargoes were mainly imported from Jiangsu and Shaanxi.

**NCM Imports in Oct. 2022 (Unit: Tonnes; USD; USD/T)**

Month	Import Volume	Import Value	Import Price	YoY
Oct. 2022	6,480.136	284,677,719	43,930.82	29.08%
Sep. 2022	7,555.4	335,648,887	44,425.03	61.29%

**NCM Imports in 2021 to Oct. 2022**



**NCM Imports by Countries/Regions in Oct. 2022 (Unit: Tonnes; USD)**

Countries/Regions	Import Volume	Import Value
Germany	0.01	129
South Korea	6,325.626	278,222,085
USA	0	1,071
Japan	142	6,001,734
China	9.5	423,212
Taiwan of China	3	29,488
Poland	0	0
France	0	0
Canada	0	0
Malaysia	0	0
Sweden	0	0
Turkey	0	0
Hungary	0	0

Israel	0	0
Indonesia	0	0
Hong Kong of China	0	0
<b>Total</b>	<b>6,480.136</b>	<b>284,677,719</b>

#### ➤ Precursor

In Oct., the import volume of precursor was 880.247 tonnes. China mainly imported NCM from Japan. NCM cargoes were imported from Jiangsu.

**Precursor Imports in Oct. 2022 (Unit: Tonnes; USD; USD/T)**

Month	Import Volume	Import Value	Import Price	YoY
Oct. 2022	880.247	17,666,184	20,069.58	6.06%
Sep. 2022	647.627	12,387,223	19,127.09	-1.83%



**Precursor Imports by Countries/Regions in Oct. 2022 (Unit: Tonnes; USD)**

Countries/Regions	Import Volume	Import Value
South Korea	40	666,152
Japan	680.047	14,107,678
China	160.2	2,892,354
Poland	0	0
USA	0	0
<b>Total</b>	<b>880.247</b>	<b>17,666,184</b>

#### Lib Cathode Materials Exports

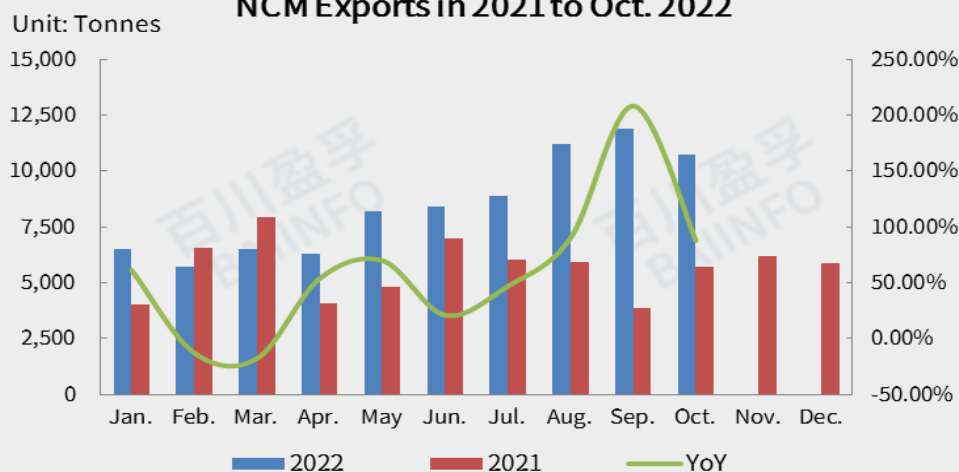
##### ➤ NCM

In Oct., the export volume of NCM was 10,748.602 tonnes. China mainly exported NCM to South Korea, Poland and Japan. NCM cargoes were mainly exported from Chongqing, Jiangsu and Sichuan.

### NCM Exports in Oct. 2022 (Unit: Tonnes; USD; USD/T)

Month	Export Volume	Export Value	Export Price	YoY
Oct. 2022	10,748.602	485,032,797	45,125.20	87.77%
Sep. 2022	11,885.955	56,5494,884	47,576.73	208.11%

### NCM Exports in 2021 to Oct. 2022



### NCM Exports by Countries/Regions in Oct. 2022 (Unit: Tonnes; USD)

Countries/Regions	Export Volume	Export Value
Germany	5.175	582,329
South Korea	7,220.269	298,740,099
USA	5.828	355,533
Japan	1,070.656	49,978,098
China	0	0
Taiwan of China	5.751	291,419
Poland	1,963.3	108,722,924
France	33.974	2,096,194
Canada	0.13	13,080
Malaysia	59.35	1,778,262
Sweden	230.011	14,592,500
Turkey	10.004	536,930
Hungary	144.015	7,337,364
Israel	0.02	1,800
Indonesia	0.039	273
Hong Kong of China	0.08	5,992
<b>Total</b>	<b>10,748.602</b>	<b>485,032,797</b>

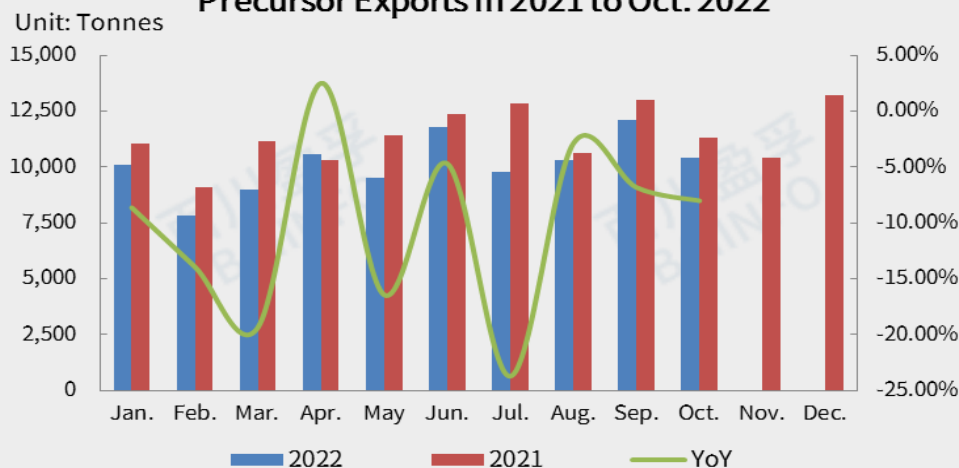
#### ➤ Precursor

In Oct., the export volume of precursor was 10,417.095 tonnes. China mainly exported precursor to South Korea and Poland. Precursor cargoes were mainly exported from Zhejiang and Hunan.

**Precursor Exports in Oct. 2022 (Unit: Tonnes; USD; USD/T)**

Month	Export Volume	Export Value	Export Price	YoY
Oct. 2022	10,417.095	183,207,764	17,587.22	-8.02%
Sep. 2022	12,088.709	209,945,995	17,367.11	-6.83%

**Precursor Exports in 2021 to Oct. 2022**



**Precursor Exports by Countries/Regions in Oct. 2022 (Unit: Tonnes; USD)**

Countries/Regions	Export Volume	Export Value
South Korea	10,205.406	179,102,305
Japan	1	19,105
China	0	0
Poland	208.089	4,028,713
USA	2.6	57,641
<b>Total</b>	<b>10,417.095</b>	<b>183,207,764</b>

## Lib Cathode Materials Cost & Profit

### Cost

#### ➤ NCM

This month, the cost of NCM kept rising owing to falling precursor price and rapidly growing LiOH price.

#### ➤ LCO

This month, the cost of LCO continued to rise because of high LCE price and dropping cobaltic oxide price.

#### ➤ Precursor

This month, the cost of precursor declined due to falling price of raw material cobalt salt and nickel sulfate.

## Profit

### ➤ NCM

This month, the profit of NCM kept rising because of falling cost and relatively sufficient orders.

### ➤ LCO

This month, the profit of LCO slightly decreased because LCO enterprises suffered shipment pressure caused by terminal demand and downstream enterprises' bidding-down approach.

### ➤ Precursor

This month, the profit of precursor continued rising owing to many orders and falling raw material price.

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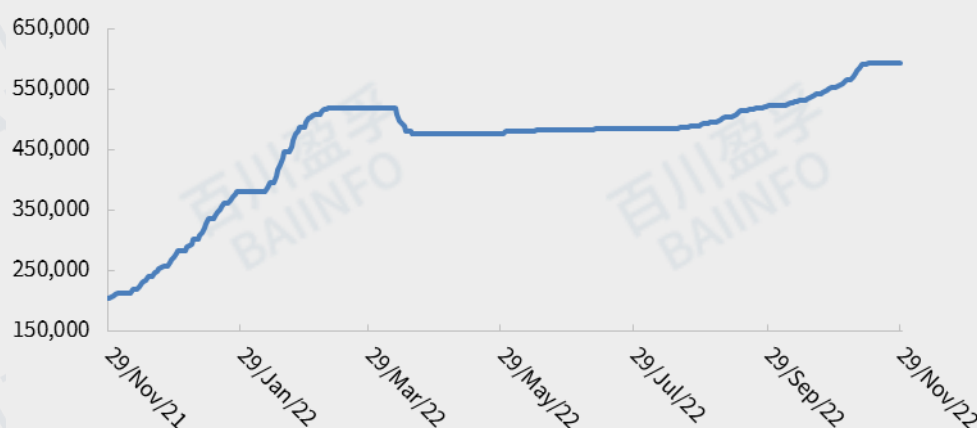
## Upstream Markets

### Lithium

#### ➤ LCE

This month, LCE market extended uptrend. Up to Nov. 29, mainstream market trading price of industrial-grade LCE (99.2%) was at RMB 568,000-573,000/T, and average price was at RMB 570,000/T, up 7.84% MoM and up 121.55% YTD. Trading price of immediate orders in spot market was at RMB 560,000-570,000/T. Mainstream price of battery-grade LCE (99.5%) was at RMB 587,000-597,000/T, and average price was at RMB 592,000/T, up 7.34% MoM and up 109.65% YTD. Trading price of immediate orders in spot market was at RMB 580,000-590,000/T. Overall, domestic LCE market price is expected to change within RMB 20,000-30,000/T next month.

LCE Market Price (Unit: RMB/T)

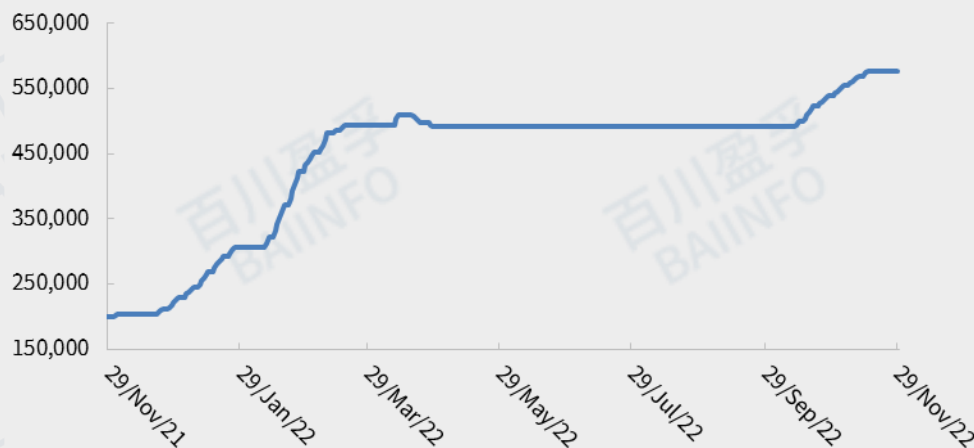


#### ➤ LiOH

This month, LiOH market price surged up. Up to the end of this month, mainstream trading price of battery-grade LiOH

(granular) and battery-grade LiOH (micro-powder) was at RMB 568,000-577,000/T and RMB 576,000-583,000/T respectively, and average price was at RMB 572,000/T and RMB 579,800/T respectively. Raw material spodumene and industrial-grade LCE markets grew slowly, still exerting cost pressure on battery-grade LiOH enterprises. Domestic demand was not as good as overseas demand but replenishment became active near the year end. Mainstream trading price of industrial-grade LiOH was at RMB 556,000-562,000/T, and average price was at RMB 558,500/T. Traders had a few spot cargoes in hand. Downstream lithium base grease enterprises mainly took cargoes on rigid demand. Overall, LiOH market is anticipated to register stable-to-up scenario within RMB 10,000-50,000/T next month.

**LiOH Market Price (Unit: RMB/T)**



## Cobalt

### ➤ Cobaltic Oxide

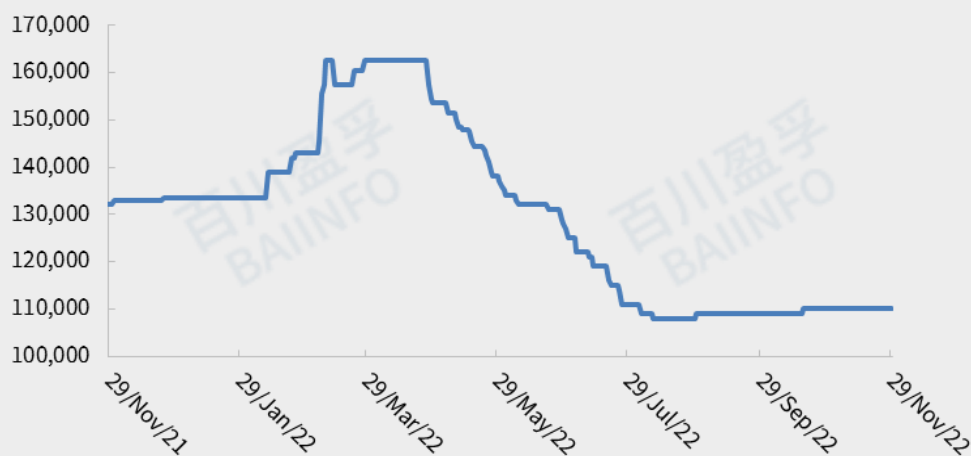
This month, cobaltic oxide market slid down. Market price was at RMB 222,000-227,000/T, and average market price was at RMB 224,500/T, down RMB 20,000/T MoM. Early this month, raw material market moved downward, providing weak cost support for cobaltic oxide market. Then cobaltic oxide enterprises cut offers. In mid-to-late of this month, terminal demand remained soft and downstream enterprises took cargoes on rigid demand. Thus, cobaltic oxide enterprises suffered shipment pressure. At present, terminal demand does not see significant improvement. Downstream enterprises are less willing to replenish cargoes. Therefore, cobaltic oxide market is expected to run stably in the short term, with market price at RMB 222,000-227,000/T.

## Precursor

This month, precursor market ran stably. Average market price of precursor NCM 523, precursor NCM 622 and precursor NCM 811 was at RMB 110,000/T, RMB 121,000/T and RMB 135,200/T respectively, keeping flat with last month respectively. Since national subsidies were cancelled and manufacturing costs of batteries increased, some new-energy automobile enterprises raised price. Recently, terminal demand decreased from new-energy automobile and digital markets. As the subsidy policy for new-energy automobiles is about to be finished, orders for precursor enterprises will not be ample in Dec. Raw material cobalt salt market will change a little and nickel salt market will fall back. Thus, precursor market is possible to slide down in the short term. It is predicted that market price of precursor NCM 523, precursor 622 and precursor NCM 811 will be at RMB

108,000/T, RMB 118,000/T and RMB 130,000/T next week respectively.

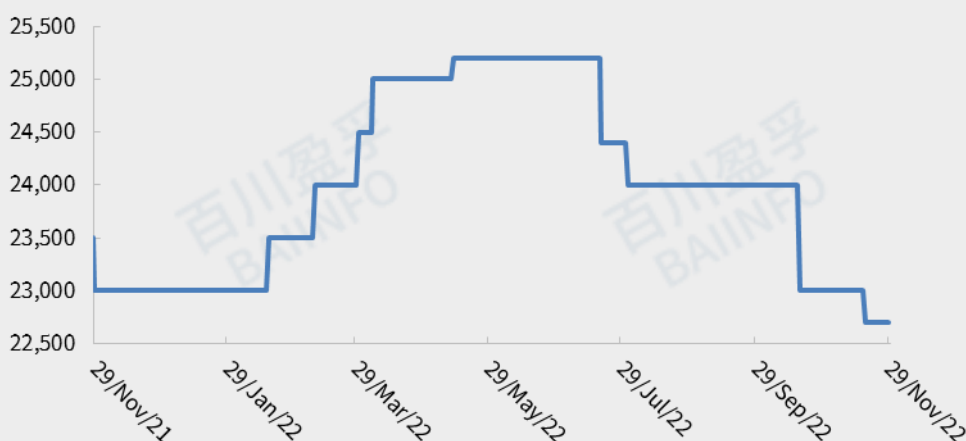
**Precursor NCM 523 Market Price (Unit: RMB/T)**



## Iron Phosphate

This month, iron phosphate market witnessed further decline. Iron phosphate average market price was at RMB 22,700/T, down RMB 300/T MoM. Raw material phosphoric acid market provided less cost support for iron phosphate market. Many iron phosphate enterprises actively expanded production, but short-term effective supply grew slowly. As the replenishment during the Double Eleven gradually becomes inactive and new-energy automobile enterprises will complete raising sales at the year end, battery plants slow down procurement. Then demand for iron phosphate may decrease. Besides, some iron phosphate enterprises are on trial production, and then new capacity will increase. Moreover, raw material yellow phosphorus market may edge up and phosphoric acid market is quite likely to move up later, thus the cost of iron phosphate will rise next month. Hence, iron phosphate market is predicted to inch down in the short term, with market price at RMB 22,500/T next month.

**Iron Phosphate Market Price (Unit: RMB/T)**



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## Lib Cathode Materials Market Forecast

It is predicted that market price of NCM 523, NCM 111, NCM 622 and NCM 811 will be at RMB 350,000/T, RMB 360,000/T, RMB 370,000/T and RMB 398,000/T next month respectively. LCO market price is forecasted to be at RMB 450,000/T next month. It is estimated that market price of precursor NCM 523, precursor NCM 622 and precursor NCM 811 will be at RMB 108,000/T, RMB 118,000/T and RMB 130,000/T next month respectively.

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## Downstream Markets

### New-energy Automobile

According to statistics analysis of China Association of Automobile Manufacturers, in Oct. 2022, production and sales of automobiles continued to grow. Affected by the pandemic, terminal production slightly declined. However, owing to the vehicle purchase tax reduction policy, production and sales of automobiles kept rising, compared with the same period of last year.

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