



**CCM** Data & Business  
Intelligence

# **The Impact of Electricity Rationing on Phosphorus Chemicals and Market Outlook in China**

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## 1 Introduction

Affected by factors such as tight electricity supply and dual control policies on energy consumption & energy intensity, many provinces in China have adopted electricity rationing measures to suspend or restrict industrial production since September this year. According to incomplete statistics, at least 15 provinces have rolled out electricity rationing measures, and most of the rationing measures take aim at energy-intensive industries. Some provinces have encountered great interruptions to normal production and operation in enterprises there. As a result, output of some products has drastically reduced, leading to soaring prices.

Meanwhile, prices of coal, natural gas and other energy sources, as well as bulk chemicals such as methanol, caustic soda, acetic acid, and potassium chloride have hit record highs over and over again in China. Even though the government issued a notice on ensuring supply and stabilizing price, their prices have still stayed high.

In this context, this report is compiled, delving into the impacts on electricity rationing in China. Covering aspects are:

- Reasons for the electricity rationing
- The output and operating rate of phosphorus chemicals
- The capacity and output of major producers
- Price analysis
- Production costs analysis
- Market outlook

## 2. Approach for this report

The report is based on data sourced by diverse methods, which are listed as follows:

### - Desk research

Desk research includes access to published magazines, journals, government statistics, industry statistics, customs statistics, association seminars as well as information on the Internet. Much work has gone into the compilation and analysis of the information obtained. Where necessary, information has been checked and discussed internally related to market structure and performance characteristics as key producers, key end users, production levels, end-user demand and so on.

### - Interview

CCM has carried out extensive telephone interviews in order to survey the actual market situation of phosphorus chemicals in China. .

The interviewees included the following groups:

- Key producers
- Key end users
- Key traders
- Material suppliers
- Associations involved
- Industry experts

### - Network search

CCM employs a network to contact industry participants by using B2B websites and software.

### - Data processing and presentation

The data collected and compiled was variously sourced from:

- CCM's database
- Published articles from periodicals, magazines, journals and third party databases
- Statistics from governments and international institutes
- Telephone interviews with domestic producers, joint ventures, service suppliers and government agencies
- Third-party data providers
- Customs statistics
- Comments from industrial experts
- Professional databases
- Information from the Internet

The data has been combined and cross-checked to ensure that this report is as accurate and methodologically sound as possible. Throughout the process, a series of discussions were held within CCM to systematically analyse the data and draw appropriate conclusions.

### 3. Executive summary

Since September, due to the tight electricity supply and the sharp increase in the price of raw materials such as coal, many provinces in China have adopted electricity rationing measures. The phosphorous chemical industry has been severely impacted, and the output and operating rate of enterprises dropped significantly; prices of many phosphorous chemicals saw rapid increases in September and October.

The electricity rationing measures have a serious impact on the production of yellow phosphorus, an energy-intensive chemical product. The operating rate of yellow phosphorus industry slipped to a low level in September; the price of yellow phosphorus saw a sharp increase. It was difficult to ease the tight supply in the market in the short term. As of October this year, the output of yellow phosphorus was about XXX tonnes in China.

Affected by the shortage of yellow phosphorus and the price surge, as well as electricity rationing in the main production bases of its downstream products, some enterprises went through production reduction or even shutdown. Outputs of phosphoric acid, phosphorus trichloride and phosphorus oxychloride decreased, causing tight market supply and price rise.

The electricity supply crunch in China has been effectively alleviated with the recent efforts of all parties to ramp up the coal supply. The price of coal gradually declines, and enterprises gradually resume production. It is expected that in the next three months, the price of phosphoric acid, phosphorus trichloride and phosphorus oxychloride will fall, while prices of yellow phosphorus and phosphate fertilisers are still at a high level with limited room to decrease.

#### 4. What's in this report?

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

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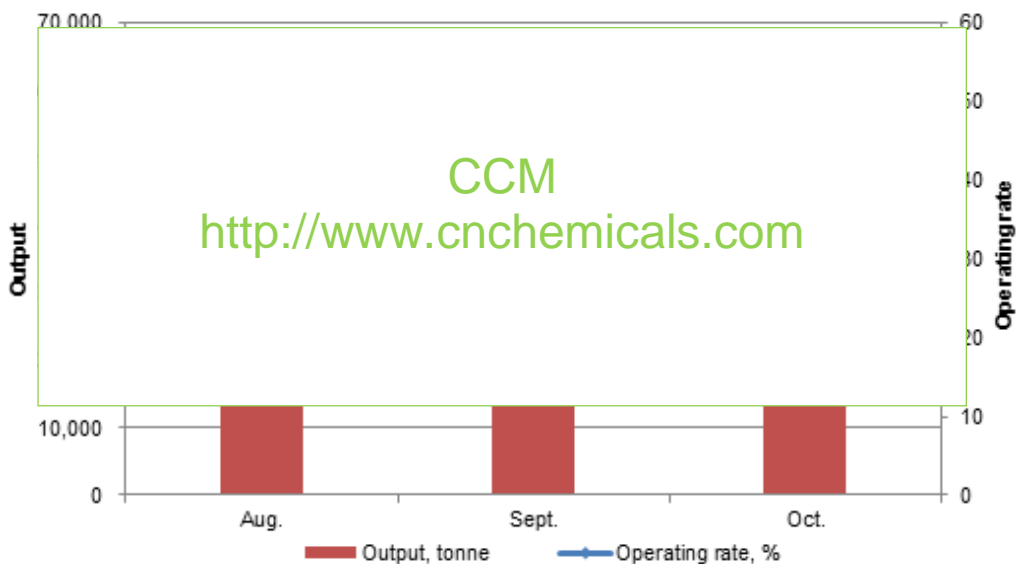
### 2.1 Yellow phosphorus

#### 2.1.1 Production situation

According to CCM investigation, China's yellow phosphorus capacity was XXX t/a in 2020, and the capacity is mainly concentrated in the Yunnan, Guizhou and Sichuan provinces, accounting for XXX, XXX and XXX of the national total respectively. It is reported that production of yellow phosphorus consumes a large amount of electricity: about XXX kWh is consumed to produce 1 tonne of yellow phosphorus. Therefore, electricity rationing has a great impact on yellow phosphorus production.

In Jan.–Oct. 2021, the output of yellow phosphorus in China was about XXX tonnes. With large-scale electricity rationing implemented, operating rate of yellow phosphorus enterprises declined, and the monthly output of yellow phosphorus was registered XXX tonnes in Sept. and XXX tonnes in Oct., down quite a lot from XXX tonnes in Aug.

Figure 4.1.1-1 Monthly output and operating rate of yellow phosphorus in China, Aug.–Oct. 2021



Source: CCM



### 2.1.2 Price analysis

The ex-works price of yellow phosphorus in China leaped from USDXXX/t in Aug. to USDXXX/t in Oct., pushed by supply contraction under electricity rationing.

Figure 2.1.2-1 Ex-works price of yellow phosphorus in China, Aug.–Oct. 2021



Source: CCM

Table 2.1.2-1 Estimated raw material and energy costs of yellow phosphorus production

| Raw material          | Phosphate rock (t)   | Coke/anthracite (t) | Silica (t) | Graphite electrode (t) | Electricity (kWh) | Total (USD/t) |
|-----------------------|----------------------|---------------------|------------|------------------------|-------------------|---------------|
| Unit consumption (/t) | XXX                  | XXX                 | XXX        | XXX                    | XXX               |               |
| <b>Province</b>       | <b>Price (USD/t)</b> |                     |            |                        |                   |               |
| Yunnan                | XXX                  | XXX                 | XXX        | XXX                    | XXX               | XXX           |
| Guizhou               | XXX                  | XXX                 | XXX        | XXX                    | XXX               | XXX           |
| Sichuan               | XXX                  | XXX                 | XXX        | XXX                    | XXX               | XXX           |

Note: 1. It is calculated on Sept. price. 2. Anthracite is used in Guizhou Province.

Source: CCM

Table 4.1.2-2 Proportion of costs of yellow phosphorus in China in September 2021

| Province | Share, %       |                 |        |                    |             |
|----------|----------------|-----------------|--------|--------------------|-------------|
|          | Phosphate rock | Coke/anthracite | Silica | Graphite electrode | Electricity |
| Yunnan   | XXX            | XXX             | XXX    | XXX                | XXX         |
| Guizhou  | XXX            | XXX             | XXX    | XXX                | XXX         |
| Sichuan  | XXX            | XXX             | XXX    | XXX                | XXX         |

Source: CCM

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