

Survey of Inorganic Fluoride in China

The Third Edition

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1. Introduction

This report is a value analysis of the inorganic fluoride industry in China, which covers the production, price, imports & exports, consumption of main inorganic fluoride products. Besides, a future forecast on the development trend for these products will be analysed in this report.

The key points of this report are listed as below:

- Production of inorganic fluoride in China
- Analysis on imports and exports of main inorganic fluoride products in China
- Consumption of inorganic fluoride in China
- Future forecast on development trend for inorganic fluoride in China

2. Approach for the report

The report is drafted by diverse methods as follows:

1) 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. A lot of work is done on the compilation and analysis of the obtained information. Where necessary, checks are made with all kinds of suppliers regarding market information such as key producers, key end-users, production, consumption, export, demand and so on.

2) Telephone interviews

CCM International has carried out extensive telephone interviews in order to track the actual market situation of the inorganic fluoride industry in China.

Interviewees cover:

- Major producers of inorganic fluoride
- Major producers of semi-finished products
- Major producers of finished products
- Major traders
- Associations

3) Network search

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

4) Data processing and presentation

The data collected and compiled is 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

- Information from the Internet

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

3. Executive summary

Fluorine chemical industry has been one of the fastest developing and most promising chemical industries in China. China has become one of the largest countries of fluorine chemical production and consumption. At present, great progress has been made in the research and development of inorganic fluoride in China. Inorganic fluoride has been widely used in chemical, mechanical, optical instrument, electronic and medical fields and has become an important chemical product in the national economy.

As the largest producer of anhydrous hydrogen fluoride (AHF) in the world, China witnessed rapid development of AHF in the past five year. But the large expansion of AHF capacity has led to the current overcapacity. In 2016, there were more than XXX AHF manufacturers in China, and the domestic capacity and output of AHF reached XXX t/a and XXX tonnes respectively. In addition, China's electronic grade hydrogen fluoride has also developed rapidly. There are about XXX producers of electronic grade hydrogen fluoride in China, and the domestic capacity and output of electronic grade hydrogen fluoride reached XXX t/a and XXX tonnes respectively.

China is also the largest producer of aluminum fluoride and cryolite in the world. In 2016, the domestic capacity of aluminum fluoride and cryolite were XXX t/a and XXX t/a respectively. At present, both aluminum fluoride and cryolite industries suffer from overcapacity. Meanwhile, production of lithium hexafluorophosphate developed fast in the past five years and its capacity reached XXX t/a in 2016. It's expected that the growth momentum will continue with the rapid development of new energy vehicles. The capacity of potassium fluoride was XXX t/a, and that of sodium fluoride was over XXX t/a in the same year.

4. What's in this report?

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2 Production and market situation of major products

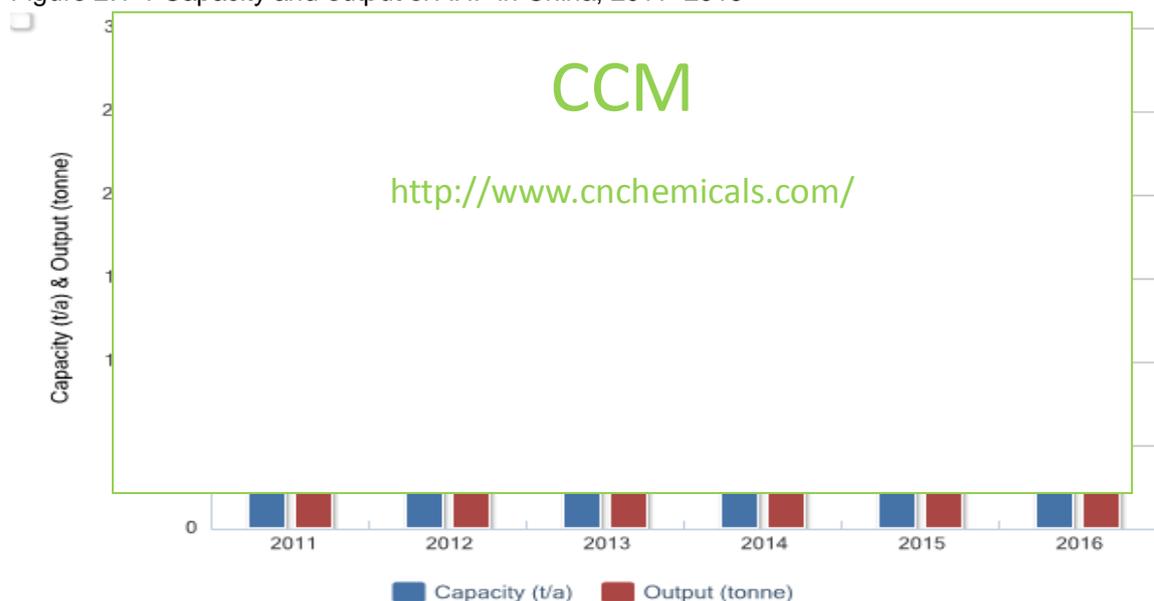
2.1 Anhydrous hydrogen fluoride (AHF)

- Production of AHF in China

As the basic fluorine chemical product, AHF is mainly used to produce refrigerants, fluor resins, fluor rubbers, intermediates and fine chemicals, etc., which takes up the biggest output among all kinds of inorganic fluoride products.

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Figure 2.1-1 Capacity and output of AHF in China, 2011–2016



Source: CCM

In 2016, there were more than XXX AHF producers in China. Among them, XXX producers had a capacity of equal to or more than XXX t/a. In 2016, the total capacity and output of the top XXX AHF producers were XXX t/a and XXX tonnes respectively, which accounted for XXX% and XXX% of the total in AHF industry. And the average operating rate of the top XXX AHF producers was XXX%, which was higher than that of the other AHF producers. Most of the top producers can better consume their own production of AHF due to their wide product range.

Table 2.1-1 Capacity and output of major AHF producers in China, 2016

| No. | Producer | Capacity (t/a) | Output (tone) | Operating rate |
|--------------|----------|----------------|---------------|----------------|
| 1 | XXX | XXX | XXX | XXX |
| 2 | XXX | XXX | XXX | XXX |
| 3 | XXX | XXX | XXX | XXX |
| 4 | XXX | XXX | XXX | XXX |
| ... | ... | ... | ... | ... |
| Others | | ... | ... | ... |
| Total | | ... | ... | ... |

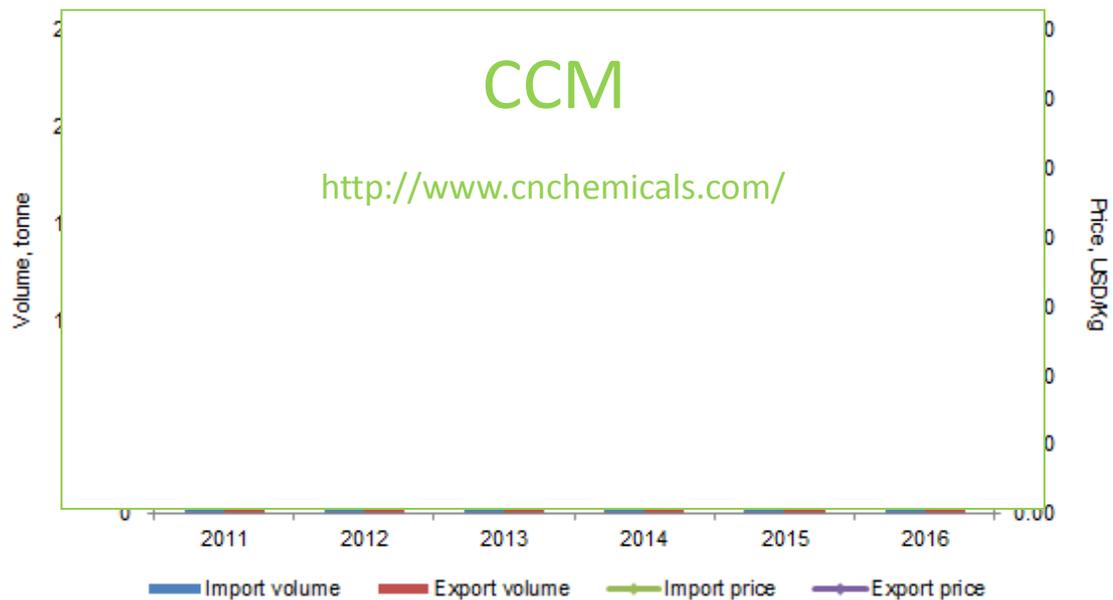
Source: CCM

- Imports and exports of China's AHF

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Compared with export volume, AHF's import volume was smaller in China, and the price of imported AHF was far higher than that of exported AHF, because most imported AHF were high purity hydrogen fluorides which were high-end products.

Figure 2.1-3 China's imports and exports of AHF, 2011–2016



Source: China Customs & CCM

Table 2.1-3 Imports and exports of AHF in China, 2011–2016

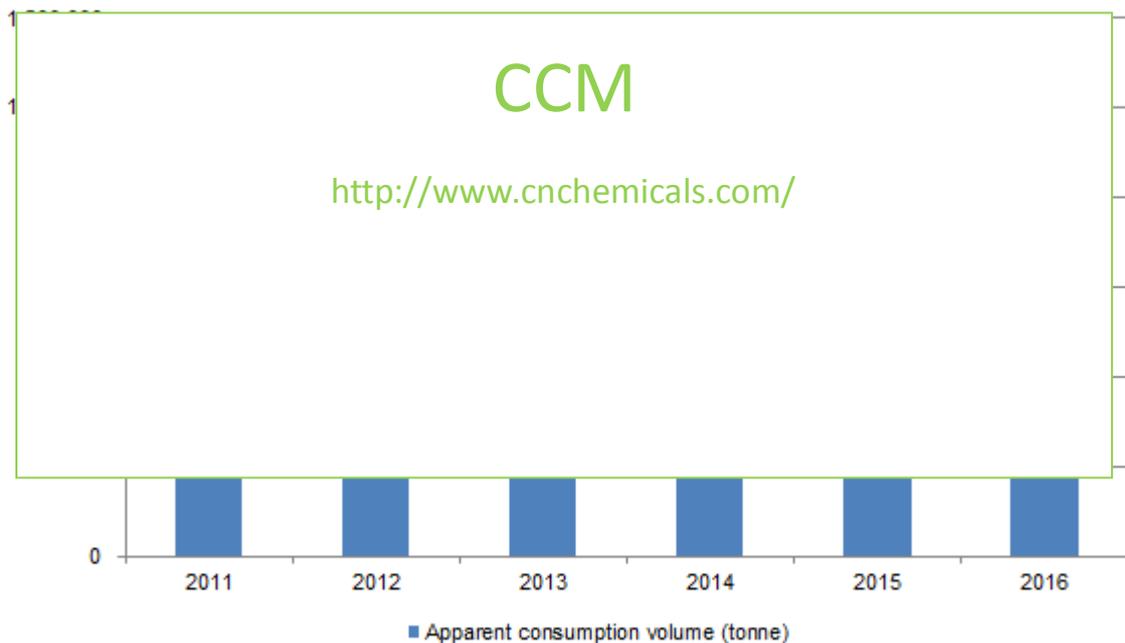
| Year | Import | | | Export | | |
|------|---------------|------------|---------------|---------------|------------|---------------|
| | Volume, tonne | Value, USD | Price, USD/kg | Volume, tonne | Value, USD | Price, USD/kg |
| 2011 | XXX | XXX | XXX | XXX | XXX | XXX |
| 2012 | XXX | XXX | XXX | XXX | XXX | XXX |
| 2013 | XXX | XXX | XXX | XXX | XXX | XXX |
| 2014 | XXX | XXX | XXX | XXX | XXX | XXX |
| 2015 | XXX | XXX | XXX | XXX | XXX | XXX |
| 2016 | XXX | XXX | XXX | XXX | XXX | XXX |

Source: China Customs & CCM

- Consumption of AHF in China

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Figure 2.1-5 Apparent consumption of AHF in China, 2011–2016



Note: Apparent consumption=Output+Import-Export, rounded to hundred

Source: China Customs & CCM

- Price of AHF in China

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Figure 2.1-6 Monthly ex-works price of 99.95% AHF in China, Jan. 2013–Oct. 2017



Source: CCM

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