



**Global and China Cobalt Industry Report,
2016-2020**

May 2016

STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

Cobalt is an important strategic metal used in lithium battery manufacturing, hard alloy smelting and superalloy production, mainly available in Congo, Australia, Cuba and other countries.

In 2015, the global refined cobalt output was 98,000 tons, up 6.9% year on year; meanwhile, the demand jumped 9.9% year on year to 89,000 tons. The oversupply existed.

In future, the global cobalt demand growth will be much faster than the supply growth with the expected gap of around 1,000 tons in 2020, as the demand for new energy vehicle-use batteries escalates, Congo and other cobalt giants change policies as well as copper-nickel mines are shut down due to price pressures.

China is the world's largest producer of refined cobalt, and contributed 49.7% to the global output in 2015. But, China's cobalt mineral resources account for only 1% of the world and it depends on the import of cobalt concentrate. In 2015, China's import volume of cobalt concentrate rose 18.4% year on year to 227,700 tons.

China is the world's largest cobalt consumer as well. Its consumption grew 14.9% year on year to 43,500 tons in 2015, mainly thanks to the growth in the battery material consumption. By contrast, the demand for hard alloy, superalloy and magnetic materials remained relatively stable. In 2015, China consumed 33,500 tons of battery-use cobalt, accounting for 77.0% of the total cobalt consumption, far more than other industries. Conservatively, the proportion of Chinese battery-use cobalt is expected to reach 79% with 56,900 tons by 2020.

Chinese cobalt producers focus on cobalt smelting, represented by Huayou Cobalt, Jinchuan Group, Green Eco-manufacture Hi-tech, Jinling Mining, Huaze Nickel & Cobalt Metal and so on. In recent years, despite the low cobalt price and mining resource restrictions, the market of ternary materials and other new energy vehicle-use battery materials continues to heat up. In view of this, major manufacturers further expand the industrial chain and accelerate layout of downstream ternary materials and other emerging industries to enhance market competitiveness.

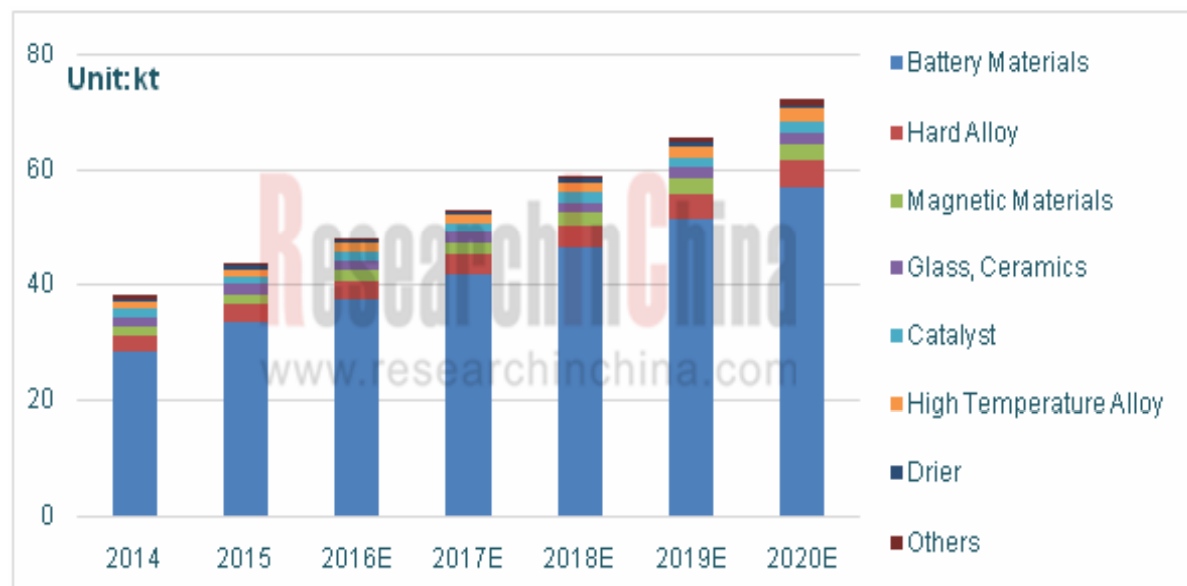
Huayou Cobalt has the cobalt smelting capacity of about 16,000 tons as China's largest cobalt supplier. In 2014, it began to develop ternary cathode materials and cooperated with a number of well-known cathode material manufacturers such as LG, POSCO and GS in certification. The company expects that its ternary precursor sales volume will reach 8,000-9,000 tons in 2016.

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Green Eco-manufacture Hi-tech, a leading Chinese enterprise in renewable resources, held about 15,000 tons of cobalt metal in 2015. In recent years, the company has actively deployed the ternary material industry. By the end of 2015, the company had been able to produce 5,000 tons of nickel, cobalt and manganese (NCM) ternary material precursors and 2,000 tons of spherical cobalt hydroxide annually.

China's major cobalt chloride supplier Huaze Nickel & Cobalt Metal had seized the cobalt chloride capacity of 300 tons by the end of 2015. In October 2015, the company announced to invest RMB7.169 billion in the construction of 800,000-ton corrosion-resistant new material project, alloy new material project and 20,000-ton new energy battery material project in order to further extend the industrial chain.

Cobalt Demand Structure in China, 2014-2020E



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The report highlights the followings:

- Supply and demand, regional distribution, prices, competition patterns and development trends of global cobalt ore resources, cobalt concentrate and refined cobalt;
- Supply and demand, prices, competition patterns and development trends of Chinese cobalt ore resources and cobalt;
- Import and export of cobalt concentrate, tricobaltpentoxide, cobalt carbonate, cobalt nitrate and other major cobalt products;
- Development of battery materials, superalloy, hard alloy, magnetic materials and other major cobalt downstream industries as well as their demand for cobalt;
- Operation and development in China of 4 global cobalt companies;
- Operation and development strategies of 10 key Chinese cobalt companies.

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