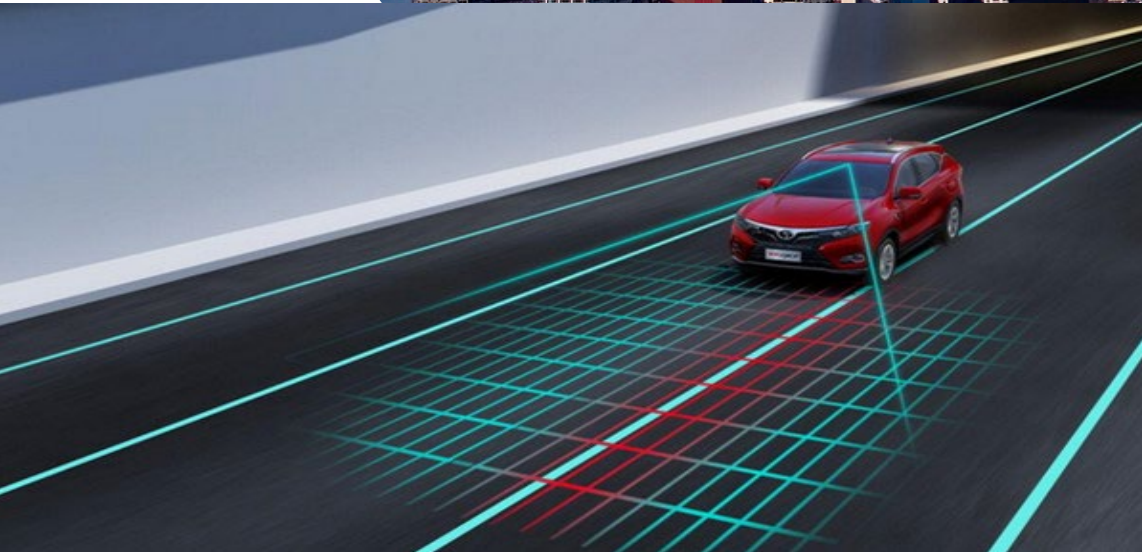




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# Global and China Cobalt Industry Report, 2021-2026

Mar.2022

As a very rare metal and an important strategic resource for a country, cobalt gets typically utilized in battery materials, super heat-resistant alloys, tool steels, cemented carbides, and magnetic materials. Spurred by the sales boom of new energy vehicles and a rise in electricity of each vehicle, the demand from power batteries for cobalt has been growing steadily, while that from consumer batteries has plunged due to the COVID-19, resulting in global cobalt consumption with a year-on-year decrease of 0.6 % to 137,500 tons in 2020.

Although power battery cathode materials tend to feature high nickel and zero cobalt in the future, the unit cobalt consumption will edge down. With the explosive production and sales of new energy vehicle globally and the electricity increase per car, the global cobalt use in new energy vehicles will continue a bullish trend with an expected CAGR at least 30% by 2025. Benefiting from new trends like remote work and online education, the cobalt use in 3C consumer electronics is expected to grow stably or slightly. Besides, the cobalt used by cemented carbides and high-temperature alloys is projected to keep a CAGR of 3% to 4% driven by the high-end manufacturing.

### Global Cobalt Demand and Growth Rate, 2016-2026E



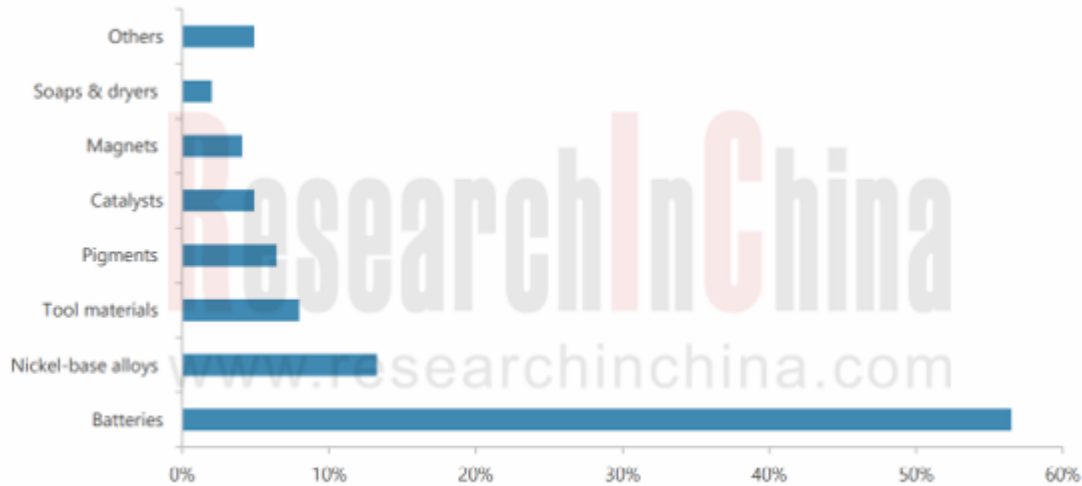
Source: ResearchInChina



# Cobalt Demand

Batteries are the largest consumer of cobalt with a share of about 57%, followed by nickel-based alloys with 14%.

**Demand Structure of Global Cobalt Application Market, 2020**

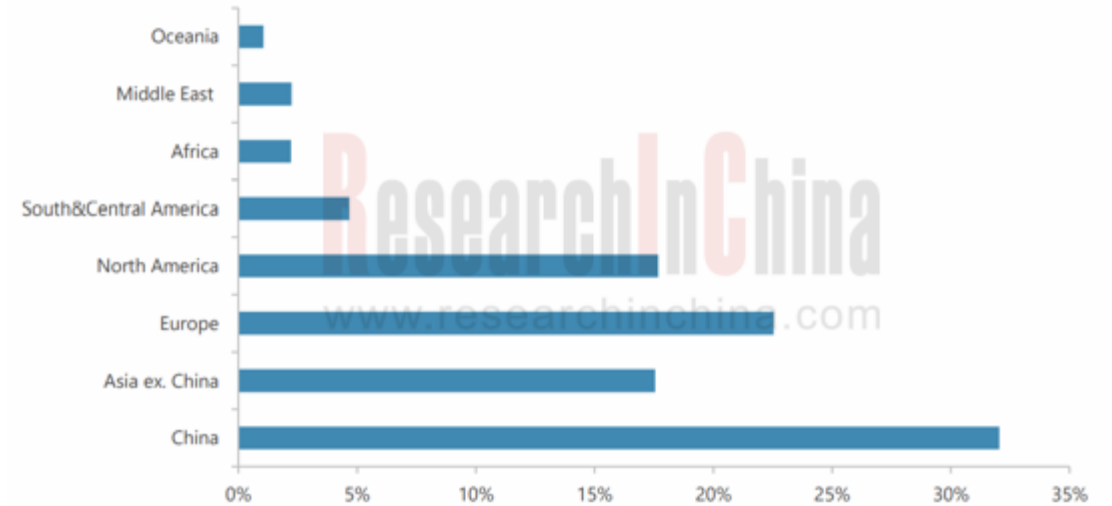


Source: CI; ResearchInChina

# Cobalt Demand

On a regional basis, China is the largest and fastest-growing cobalt consumer, sweeping approximately 32% of global consumption in 2020 when the second-ranked Europe seized about 23% and the No.3 United States 18%.

**Global Cobalt Demand Structure by Region, 2020**



Source: CI; ResearchInChina

# Cobalt Reserve

The global cobalt resource reserves are roughly 7.1 million tons, as is revealed by the data from USGS. Congo-Kinshasa boasts the most abundant resources, with 3.6 million tons of cobalt reserves (nearly a half of the world's total); the follower Australia has 1.4 million tons of cobalt resources as a percentage of about 20%; China holds about 80,000 tons of cobalt resources, sharing only 1.12% of the world's total, and has to rely heavily on imports to meet its own demand annually.

**Cobalt Reserves of Major Countries in the World, 2020**

Country	Reserves
Australia	1,400,000
Canada	220,000
China	80,000
Cuba	500,000
DRC	3,600,000
Madagascar	100,000
Morocco	14,000
Papua New Guinea	51,000
Philippines	260,000
Russia	250,000
South Africa	40,000
USA	53,000
Others	560,000
<b>Total</b>	<b>7,100,000</b>

Source: USGS, ResearchInChina



# Cobalt output

Concerning output, the global cobalt metal output fell 6% year-on-year to about 145,000 tons in 2020, mainly because Mutanda, the world's largest cobalt mine, was closed at the end of 2019. By country, Congo-Kinshasa took a lion's share 66% of the global total with the output about 96,000 tons, while other countries had small shares like Australia 5%, Russia 4%, the Philippines 4%, Cuba 3%, Canada 3%, etc.

Notably, Glencore became the world's largest cobalt ore manufacturer in 2020 by 31,800 tons as a percentage of 23.7% of the world's total, followed by China Molybdenum Co., Ltd. ("CMOC") (which acquired cobalt ore resources from Freeport-McMoRan in 2017) 11.2% and Vale 3

Glencore, headquartered in Baar, Switzerland, is the world's largest commodity trader, dedicates itself to the production and marketing of metals & minerals, energy products and agricultural products. Its metals & minerals mainly include copper, zinc, cobalt, lead, nickel, ferrochrome, gold, silver, etc., among which zinc, cobalt and copper are the fields where Glencore remains superior. Glencore owns the Mutanda Mine and Katanga Mining as its core cobalt assets. The Mutanda Mine is an open-pit copper mine in the Katanga Province of the Democratic Republic of the Congo. Katanga Mining operates a major mine complex in the Congo's Katanga Province, producing refined copper and cobalt. The Mutanda Mine ceased production in late 2019. Katanga Mining resumed production in early 2018. Also, Glencore possesses INO (Integrated Nickel Operations) in Canada and Murrin Murrin (100%) in Australia.

Headquartered in Luoyang city, China, CMOC is devoted to the mining, smelting, deep processing, trade and scientific research of rare and noble metals such as molybdenum, tungsten and gold.

In 2016, CMOC acquired an 80% stake in Tenke Fungurume Mining (TFM), a copper-cobalt mine owned by Freeport-McMoRan in the United States for US\$2.65 billion. The mine's cobalt output was about 15,000 tons in 2020.

On December 31, 2020, CMOC acquired a 95% indirect interest in the Kisanfu copper-cobalt mine in Congo-Kinshasa from Freeport-McMoRan for US\$550 million; the Congo-Kinshasa government holds the rest 5% in the mine.

In April 2021, CMOC signed a "Strategic Cooperation Agreement" with Brunp Times, an indirect holding company of CATL, allowing Brunp Times to acquire a 25% stake in KFM at a total consideration of US\$137.5 million through its wholly-owned subsidiary Hongkong Brunp and CATL Co., Limited. As yet, the mine has not been put into production. According to the latest estimates, the average grade of cobalt in the mine is about 0.85%, and the amount of cobalt-containing metals hits about 3.1 million tons.

Global and China Cobalt Industry Report, 2018-2023 highlights the following:

- The cobalt industry (definition, classifications, development trends, industry policies, etc.);
- Global cobalt industry (reserves, output, demand, and competitive landscape, etc.);
- China's cobalt industry (output, demand, import and export, competitive landscape, etc.);
- Output, sales volume, import and export, etc. of global and Chinese cobalt segments;
- The cobalt application market, covering lithium batteries, high temperature metals, hard metals, magnetic materials, etc.;
- 18 cobalt-related manufacturers in the world and China, including Glencore, Umicore, Vale, Freeport, CMOC, Huayou Cobalt, GEM, Jinchuan, etc. (profiles, financials, output, sales volume, hit products, production base distribution and the latest dynamics).

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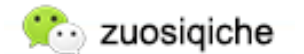
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