

The Economics of Cobalt

Eleventh Edition, 2007

Read the definitive report on the global cobalt industry, its markets and its future

What this report gives you:

- Independent, in-depth research and analysis
- Essential market intelligence for successful business planning
- Detailed survey of production and processing in 35 countries
- Up-to-date profiles of the activities of over 90 current and potential cobalt producing and processing companies, including OM Group, Jinchuan Non-ferrous Metals, CVRD Inco Ltd. and ZCCM
- Forecasts for end-use consumption & world supply & demand

A valuable resource for:

- Chief executives
- Market researchers
- Information centres
- Strategic planners
- Financial analysts
- Product developers

Optimistic short-term outlook for cobalt prices

World production of cobalt has increased steadily year-on-year, and has almost trebled from around 20,000t in 1995 to an estimated 54,000t in 2005, an average rate of growth of over 12%py. Since 2002, the strongest growth in production of cobalt has come in China, where output grew at over 60%py to 12,700 in 2005, as a result of expansions by domestic producers. Other recent increases have also come from new projects including Voisey's Bay in Canada (Inco), Coral Bay in the Philippines (Sumitomo) and Sally Malay in Australia (Sally Malay and Sumitomo). Estimates put world demand for cobalt at around 56,000t in 2006, up from around 54,000t in 2005 due to continuing demand from Asia. The major end-use for cobalt continues to be in superalloys, which, after a recovery in the aerospace industry since 2002, represented 22% of total consumption in 2006. However, growth in the secondary battery market, particularly lithium-ion products, has caused demand in that sector to rise from 11% in 2003 to almost 22% in 2006. The short-term outlook for cobalt prices seems optimistic as demand for cobalt is expected to continue to grow strongly in 2007 and 2008, while supply may struggle to keep up, as most of the major projects in development are not due on-stream until 2008.

The key trends, issues and developments in the market are analysed in this major new report from Roskill. It provides a clear insight into the industry and its trends, and an authoritative analysis of the prospects for the future.

Report Highlights

Growth in future production of cobalt is increasingly dependent on nickel and copper projects, which are themselves dependent on demand for the primary metals produced. The potential additional capacity for 2007 is around 5,500t with the Ravensthorpe and Browns nickel-cobalt projects in Australia almost certainly coming into production. However, the timing of these projects may mean that output from these projects will not enter the market until 2008.

Global demand for cobalt was split fairly evenly in 2001, with Europe leading the way, accounting for around 30% of consumption, followed by the Americas (29%) and Japan (20%), while the rest of the world represented less than 20% of demand. By 2006, the breakdown of world cobalt consumption had changed significantly, principally due to rapid growth in demand in emerging Asian economies. China's share of world consumption of cobalt increased from 3% in 1997 to 20% in 2006.

Demand for cobalt in catalysts has exhibited significant growth in recent years on the back of strong demand for cleaner fuels, particularly low-sulphur diesel, polyester fibre and PET production, and in the gas-to-liquid conversion process.

While the developed economies in North America and Europe are forecast to show lower rates of growth in demand for cobalt pigments, the developing economies in Asia and other regions have a much greater potential for growth. Overall, growth in these markets will probably be around 4%py worldwide, adding around 1,000tpy to cobalt demand in pigments by 2011.

The medium-term outlook for demand for cobalt appears to be optimistic, although there could be some factors that slow any growth. While high oil prices could affect world economic growth, there may also be a desire on the part of the Chinese government to control any further development in order to prevent the economy overheating.

Sources and Methodology

This report is the result of an extensive programme of research by Roskill analysts. They have conducted a close appraisal of information from a wide variety of sources, including governments, trade associations, company sources, official organisations, trade journals and technical literature.

Information gathering is only the first step in preparing a report. The data is then extensively analysed so that the finished report provides a comprehensive insight into the industry today, as well as top-level analysis of the long-term prospects.

Authoritative research in this report can help you:

- Explore commercial opportunities
- Gather intelligence on your competitors
- Strengthen your business capabilities
- Plan your materials buying & sourcing
- Assess key trends and growth areas
- Establish sales targets for your products
- Analyse company market share
- Save time searching for specialist information
- And improve your results

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3 World production of cobalt

Historical perspective on world production of cobalt; Outlook for world production of cobalt;

4 Review of cobalt producing countries and companies

Details of resources, production, processing and potential projects for cobalt in each of the following countries, where applicable:

Albania; Australia; Belgium; Botswana; Brazil; Burkina Faso; Burundi; Cameroon; Canada; China; Congo (Democratic Republic); Cuba; Finland; France; Guatemala; India; Indonesia; Ivory Coast; Japan; Madagascar; Mexico; Morocco; New Caledonia; Norway; Papua New Guinea; Philippines; Russia; South Africa; Tanzania; Turkey; Uganda; UK; USA; Zambia; Zimbabwe;

Profiles of over xxx former, current and potential cobalt producing and processing companies, including:

BHP Billiton; Sally Malay Mining Ltd; Xstrata plc (formerly Falconbridge); CVRD (formerly Inco); Jinchuan Non-ferrous Metals Corp.; Umicore; La Générale des Carrières et des Mines du Zaire (Gécamines); Central African Mining and Exploration Company; OM Group Inc.; Goro; Coral Bay; Mining & Metallurgical Company (MMC) Norilsk Nickel; Formation Capital Corp.; Zambia Consolidated Copper Mines Ltd.; **And more...**

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Cobalt soaps: Cobalt soaps in paint driers; Cobalt soaps in tyre adhesives; Consumption and outlook for cobalt in cobalt soaps;

Cobalt in magnets: Use of cobalt in magnets; Production and markets for permanent magnets; Magnetic recording media; Consumption and outlook for cobalt in magnets;

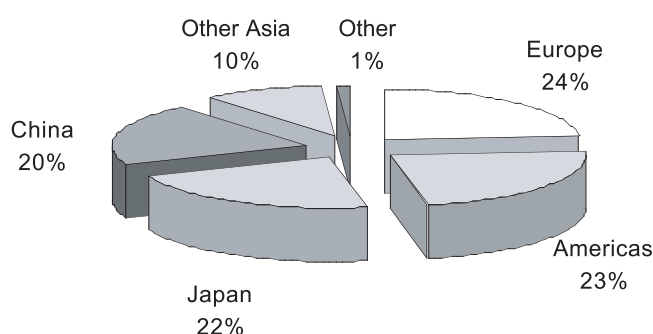
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Prices for cobalt metal; Prices for cobalt compounds; Outlook for cobalt prices;

Figure 5: World: Consumption of cobalt by country/region, 2006 (%)



Source: Roskill estimates, Table 1

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LIST OF TABLES

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A full list of tables and figures can be found at www.roskill.co.uk