CDX Supports Cobalt and Mica

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Executive Summary

Global demand for cobalt and mica is rising significantly due to the new products introduced to the market. Cobalt is used in lithium-ion batteries for automobiles, smartphones, and electronics, where mica is a group of 37 types of minerals in layered structures and is used in cosmetic or paint applications. While these minerals have many benefits and much value, Cobalt and Mica are at risk of being sourced in conflict areas and their extraction results in health hazards and human rights violations, mostly of women and children.

This article describes the properties and uses of cobalt and mica, as well as legislative and regulatory requirements which have been set up to protect the environment and workers in the supply chain which the US and EU put in place since 2021 to ensure that minerals and metals used in products are sourced from responsible sources only. If your company relies on mica or cobalt – you need to avoid sourcing from conflict-affected or high-risk areas. It's more important than ever before to have trusted partners within the supply chain.

Responsible Minerals Declaration with CDX

The mission of CDX is to provide the most comprehensive solution for various business communities. Our service has been designed to support the cobalt and mica requirement in global supply chains. This functionality is available under the Responsible Minerals Declaration (RMD License) in CDX and supports the Responsible Minerals Initiative (RMI): Conflict Minerals Reporting Template (CMRT) and Extended Minerals Reporting Template (EMRT).

Our RMD solution helps organizations in improving their performance and better understand the potential impacts of their supply chains on human rights abuses, labor standards, compliance, and other value drivers. We’re here to help companies navigate the changing landscape of corporate visibility, to build trust with customers and society by combining ESG risk mitigation with transparency.

Why Cobalt?

Cobalt is difficult to produce, and a large amount of cobalt has been mined from the Democratic Republic of the Congo (DRC) since its discovery in 1909.

Cobalt (Co) is a hard, lustrous metal generally found only in the earth's crust. It is not found as a free metal but generally found in the form of ores. The main ores of cobalt are cobaltite, erythrite, glaucodot, and skutterudite. Cobalt is usually not mined alone but is produced as a by-product of nickel and copper mining activities.

Cobalt-based blue pigments (cobalt blue) have been used since ancient times for jewelry and paints. In modern times, cobalt is used in numerous diverse applications, including commercial, industrial, and military applications, a few of which are shown below:

On a global scale, the leading use of cobalt is in rechargeable lithium-ion batteries and battery electrodes. Lithium-ion batteries are an integral part of electric cars, mobile phones, laptop computers, as well as all other devices where such batteries are used, including where storage of renewable energy, for example, from solar panels and windmills is required.

In automobiles, cobalt is used to make airbags and steel-belted radial tires.

As a catalyst to accelerate chemical reactions for petroleum and chemical industries. For example, in support of climate change initiatives for the reduction of greenhouse gases, petrol or diesel for cars can only be sold after it has been refined with catalysts containing cobalt compounds, which reduce sulphur and nitrous oxide emissions.

Used in oil-drying agents for paints, varnishes, inks, dyes and pigments

One of three naturally ferromagnetic elements, cobalt is us ed in recording media. It can be Cobalt salt is used to impart blue and green colors in glass and ceramics.

Cobalt is used in alloys with corrosion/wear resistant uses, such as for aircraft engine parts.

Cobalt is known to be a bio-essential trace element for plants, animals, and humans. Vitamin B12 is the most common use of cobalt for humans.

As much as Cobalt benefits living organisms, it also affects human health due it being allergenic, causing asthma, and lung disease. Cobalt can harm the eyes, skin, heart, and lungs. Prolonged exposure to Cobalt dust can cause scarring of the lungs (fibrosis), even if no symptoms are noticed. Exposure to cobalt may cause cancer.

Cobalt Production and Reserves Worldwide

Despite the fact that Cobalt is in with a strong presence in the industrial and consumer electronics sectors, demand for cobalt is being driven predominantly by electric vehicles, personal electronic devices and energy storage batteries. The demand and use of cobalt is expected to grow tremendously, since the battery segment has become both the largest and potentially fastest growing end-use of cobalt.

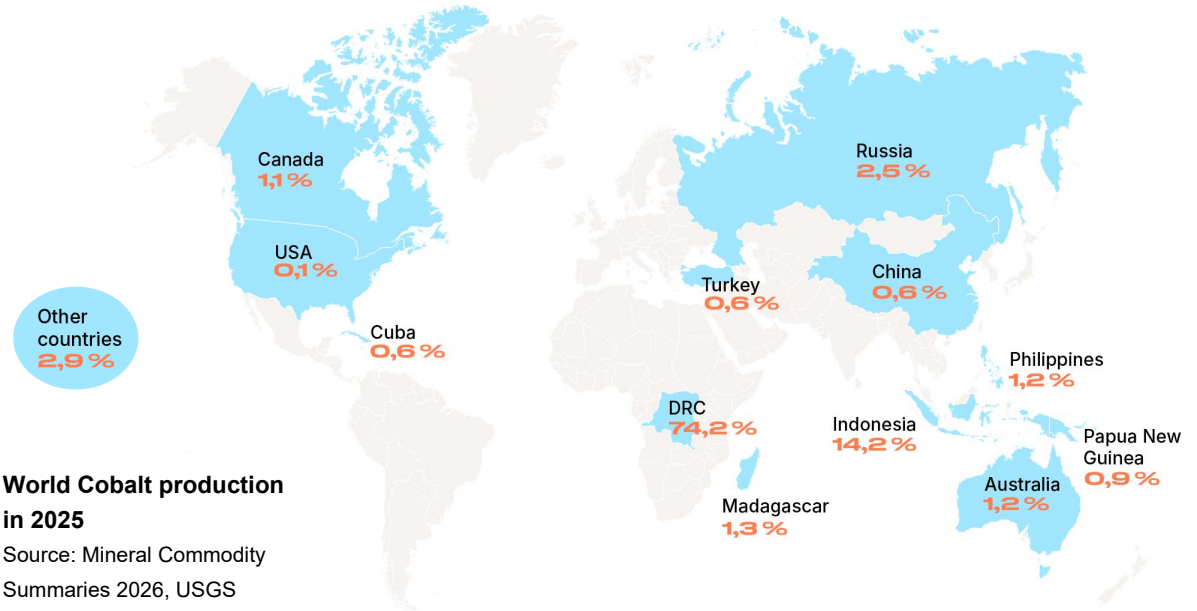
According to the U.S. Department of the Interior U.S. Geological Survey, global cobalt mine and refinery production were forecast to increase to record high levels in 2021, as mines increased their production, driven by rising demand for rechargeable batteries and the surging electric vehicle market.

Democratic Republic of Congo (DRC) remained the world's leading cobalt producer, with three-quarters of global supplies coming from the country. With the exception of production in Morocco and artisanally mined cobalt in DCK, most cobalt is mined as a by-product of copper or nickel.

The largest reserve of cobalt is the Democratic Republic of Congo (DRC), accounting for about 46 % of the global reserve. Australia is next and is known to have about 18 % of the global reserve. Other countries with cobalt deposits include mainland China, Indonesia, Cuba and Russia. The European Union has classified cobalt as a critical raw material due to it being sourced from DRC; therefore, it's important for companies to follow due diligence procedures with regards to responsible sourcing.

Cobalt's various properties have led to a sharp increase in the importance of Cobalt, which is now emerging as one of the fastest-growing metals on spot markets.

With a high potential for growth, cobalt demand is projected to double from 145,000t in 2020 to 290,000t by 2030 according to forecasts from the International Nickel Study Group (INSG) and the United States Geological Survey (USGS).



World Cobalt production in 2025

Source: Mineral Commodity Summaries 2026, USGS

The Evolving Cobalt Regulatory Landscape

To balance the hazards resulting from exposure to cobalt and the use of cobalt in a variety of industries, a wide range of regulations and policies have been developed, covering human and environmental health, trade and energy, as well as specific regulations related to the industry sectors where cobalt is most heavily used, such as in the production of batteries and medical devices.

Environmental benefits of Circular Economy approach to use of cobalt

The European Union, under the EU Green Deal, calls for the creation of sustainable batteries for a circular economy. In addition, climate neutral initiatives require that batteries placed on the EU market should become sustainable, high-performing, and safe throughout their entire life cycle.

Manufacturers and suppliers of industrial and electric vehicle batteries must provide carbon footprint declarations from 1 July 2024 and, effective January 2026, must label their products in accordance with carbon intensity performance categories, with maximum carbon footprint thresholds to be introduced by 1 July 2027. Effective January 2030, a minimum recycled content will be set at 12% for cobalt, 85% for lead, 4% for lithium, and 4% for nickel. These amounts will further increase to 20% for cobalt and 10% lithium from the beginning of 2035 and onwards.

EU Green Deal as the policy driver

2024: Carbon footprint declarations mandatory

2026: Carbon intensity labeling required

2027: Maximum carbon footprint thresholds apply

2030: Minimum recycled content

Cobalt: 12 % **Lead: 85 %**

Lithium: 4 % **Nickel: 4%**

2035: **Higher recycled content targets (Co, Li)**

Cobalt: 20 % **Lead: 85 %**

Lithium: 10 % **Nickel: 4%**

Cobalt in Responsible Mineral Programs

The Responsible Minerals Initiative (RMI) added cobalt as a focus area since 2017 to monitor the cobalt extraction process and to provide tools and resources for companies to conduct due diligence on cobalt supply chains in accordance with the internationally recognized frameworks of the Organization for Economic Co-operation and Development (OECD) Due Diligence Guidance and the UN Guiding Principles for Business and Human Rights.

An examination and review by RMI of the cobalt extraction process and operations at cobalt mines has brought to the surface concerns over social and environmental impacts of cobalt extraction, including child labour and unsafe working conditions in artisanal cobalt mining. The negative human and environmental consequences of cobalt mining are also well documented.

The Cobalt Reporting Template (CRT) was created by Responsible Minerals Initiative (RMI) starting in early 2017, to help companies gather due diligence information on the cobalt supply chain. The CRT was first publicly launched on December 21, 2018.

Cobalt refiners must go through the RMI's Responsible Minerals Assurance Process (RMAP), and all due diligence is applied before a cobalt refiner is supported by the RMI. The Responsible Minerals Initiative maintains a list of cobalt refiners who participate in conformity, due diligence, and RMAP.

RMI provided financial contributions to support the expansion of mine monitoring to artisanal small-scale mining (ASM) cobalt sites in the DRC. An ASM mine monitoring program collects and analyses digital responsible sourcing data on ASM sites and translates this data into quantifiable improvements on and around those sites.

The main objective of this initiative is to support company due diligence achieve positive, systemic impact through offering Corrective Action Plan (CAP), improve monitoring for ASM sites and help cobalt refiners fulfil assurance requirements for on-the-ground assessments and monitoring.

Miners who extract cobalt from the earth are at risk of serious illness due to their exposure to the mineral's toxic properties; those who work directly with cobalt can even succumb to death.

Mica facts

Electronics and electrical industries are the largest consumers of sheet forms of mica. Mica is a brittle rock that has thousands of closely-spaced, thin layers. Each layer is made of sheets of silicate and alumina, which provide electrical insulation. As a result, mica is used to insulate all types of electronic components from vaporizing electric current.

Mica is a silicate mineral found in granite, pegmatites, and schists. Mica is light in weight, relatively soft and its sheets are flexible, heat resistant, and do not conduct electricity. Mica sheets are produced from mica flakes during the second phase of mining: splitting and collection. The brittle nature of mica makes it easy to break into small particles which can be separated using gravity tables or flotation processes; these particles are called mica flakes. Mica flakes are used in industrial applications as pigments for plastics. Both forms of mica are used in a variety of industries.

Mica's thermal properties lend themselves well in applications, including stoves, kerosine heaters, dielectrics in capacitors, decorative panels in lamps and windows, insulation in electric motors and generator armatures, and field coil insulation.

Due to its excellent mechanical properties, mica can be cut, punched, stamped, and machined to close tolerances.

Mica can be ground into fine powder-like dust, which makes it versatile for several applications. This property of mica allows it to be used in creating a unique brightening effect that enhances the pigmentation of car paints, filling plastics to create cosmetics products. This mineral is also naturally produced and safe to use on almost all skin types with little to no side effects.

The rubber industry uses ground mica as an inert filler and as a mold lubricant in the manufacture of molded rubber products, including tires.

Mica can also be colored by applying pigment using heat to achieve a desired color; however, these colors are artificially made via a lab process.

The earliest use of mica has been found in cave paintings created during the Upper Paleolithic period (40,000 BC to 10,000 BC).

Mica was known to ancient Indian, Egyptian, Greek and Roman and Chinese civilizations, as well as the Aztec civilization of the New World.

Mica mining effect on human rights violations and child labour

The mining of Mica is a complex, specifically demanding task. Due to the risk of damaging mica's natural state and its quality, sheet mica mining is most demanding for miners and hardworking people at mines. As a result, usually, small sized or surface mica scraps are collected by hand by local communities.

For years, India has been recognised as the largest producer and exporter of sheet mica globally, with most mines located in Bihar and Jharkhand states. Jharkhand region has no other industries and there is scarcity of jobs to earn a living, therefore, many families risk their lives every day to extract mica from crumbling mines under these informal organizations. Most children who work in mica mines earn fifty rupees a day, equivalent to around seventy cents, where wholesalers can earn more than a thousand US dollars for a kilogram of good quality mica.

Mining mica involves digging vertical shafts a couple of meters wide and about 15 meters deep and blasting. Mica ore is reduced in smaller size, then extracted and loaded on trucks with shovels for transporting to processing plants. During the mica mining process, workers breathe large amounts of silicon dust. Long-term inhalation of mica dust causes lung scarring that leads to developing silicosis and tuberculosis. Spending hours digging in soil with their bare hands puts them at risk of skin infections and cuts.

Children and women are a major labour pool for mica extraction. Children are about 62% of the overall labour pool because their small stature and small hands make them ideal and valuable for entering narrow mine shafts and sorting smaller pieces of mica. Moreover, the mines frequently collapse, threatening children's lives. It is estimated that 22,000 children as young as four works in mica mines in Jharkhand and Bihar, and due to the illegal and secretive nature of child labour, the exact numbers are unknown. According to the findings of the US Department of Labour, in Madagascar, around 10,000 children work in the mica sector.

While Mica does not have any documented adverse health effect when used in various products, mica dust poses hazards when it is inhaled during the mining process.

Going into narrow tunnels and caves is necessary to extract mica; children can fit into them more easily than adults.

Working in illegal mines puts children at risk of further problems such as physical abuse or modern slavery.

Mica Production and Reserves Worldwide

The world's largest deposit of mica, about 50% of the global reserve, is in India in Koderma and Giridih districts in Jharkhand state and in the Nellore district of Madras (now Chennai). Other major sources of mica are Finland, United States and China.

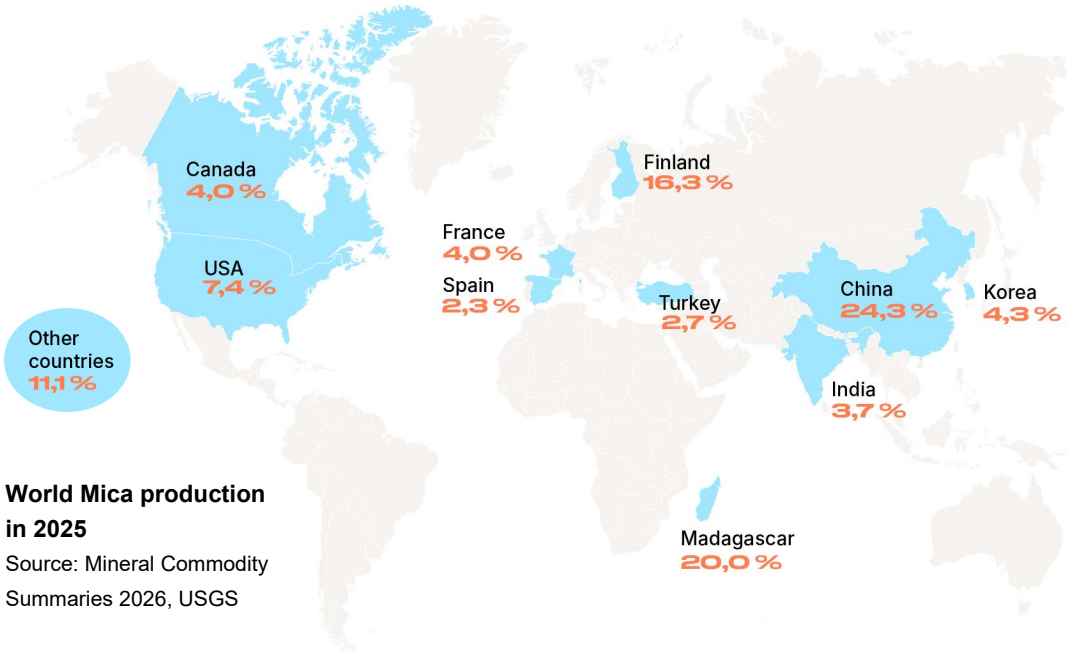
At one time, there were about 700 mica mines in India employing 20,000 workers, but strict environmental rules India placed into legislation in 1980 to limit deforestation and the discovery of substitutes for natural mica, forced most mica mines to close. However, illegal operation opened abandoned mines, and mining now continues, due to renewed interest in mica for natural cosmetics and from China's economic boom.

According to the U.S. Department of the Interior U.S. Geological Survey, global mica mine domestic production of scrap and flake mica was estimated to have increased by 24% in 2021, compared with that in 2020, and apparent consumption of scrap and flake mica increased by 20%. Apparent consumption of sheet mica was estimated to have increased by 34% in 2021.

Resources of scrap and flake mica are available in clay deposits, granite, pegmatite, and schist, and are considered more than adequate to meet anticipated world demand in the foreseeable future. World resources of sheet mica have not been formally evaluated because of the sporadic occurrence of this material. Large deposits of mica-bearing rock are known to exist in countries such as Brazil, India, and Madagascar. Limited resources of sheet mica are available in the United States. Domestic resources were subeconomic because of the high cost of the hand labour required to mine and process sheet mica from pegmatite.

Unlike the glitter often made from plastic, mica's delicate shimmer is one of the pillars of the modern cosmetic industry.

Today, about 70% of the total mica produced in India is from illegal and unregulated mines.



World Mica production in 2025

Source: Mineral Commodity Summaries 2026, USGS

Mica and Cobalt Legislative Narrative

The Responsible Minerals Initiative is committed to protecting human rights and developing mechanisms to create responsible and sustainable supply chains.

Conflict Minerals and Extended Minerals regulatory profile

The 3TG conflict minerals are regulated under the US Dodd-Frank Act of 2010 and in the EU, as The European Union (EU) Conflict Minerals Regulation established in May 2017. To this end, the regulation directed smelters and refiners conducting business with the EU to stop using conflict minerals in order to prevent abuse of the miners, mostly women and children. This requirement has been implemented effective January 1, 2021.

Since October 20, 2021, the Extended Minerals Reporting Template (EMRT) includes both cobalt and mica, which consolidates the previous Cobalt Reporting Template (CRT) and Mica Reporting Template (MRT) into a single template.

Conflict Minerals and Extended Minerals Reporting Template

Although EMRT and CMRT have been designed to collect information throughout the supply chain to determine the country of origin, identify smelters and disclose results to upstream stakeholders, they are fundamentally different. It was chosen to leave the CMRT and EMRT to separate the difference between minerals covered by regulation and ones that are tracked as a part of market's growing global regulations such us EU Battery Regulation.The CMRT is intended, in part, to facilitate the exchange of data necessary for compliance with Section 1502 of the Dodd-Frank Act, where EMRT is voluntary.

CMRT

- Covers 3TG (tin, tungsten, tantalum, gold)
- Focused on conflict financing
- Driven by Dodd-Frank & EU 2017/821
- Long-standing regulatory requirement

EMRT

- Covers cobalt, mica, lithium, nickel, natural graphite, copper
- Focused on human rights + environmental risks
- Driven by ESG expectations & EU Battery Regulation
- Emerging due diligence and battery compliance driver

Although there have historically been no global regulatory requirements for the responsible sourcing of minerals such as cobalt and mica, many manufacturers have proactively implemented chain of custody due diligence practices. These practices are intended to ensure that the minerals used in their products are sourced in accordance with the Organisation for Economic Co-operation and Development (OECD) Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (CAHRAs).

With the implementation of the EU Battery Regulation (Regulation (EU) 2023/1542) and the Corporate Sustainability Due Diligence Directive (CSDDD), companies operating within or supplying to the European Union are now subject to new mandatory requirements. The Battery Regulation mandates due diligence for raw materials such as cobalt, lithium, copper, and natural graphite, ensuring compliance with OECD Guidance for responsible mineral sourcing.

Additionally, the CSDDD requires large companies to establish comprehensive due diligence measures across their entire supply chains, covering both extraction and processing stages. This includes mapping, assessing, and addressing environmental, social, and governance (ESG) risks associated with their operations, as well as those of their subsidiaries, suppliers, and business partners.

These developments indicate that due diligence has transitioned from being a voluntary best practice to becoming a legal obligation for many companies. Manufacturers are now required to extend due diligence requirements across all levels of their supply chains, ensuring that business partners also comply with responsible sourcing practices. Adherence to the OECD Guidance and new EU regulatory requirements is intended to enhance company transparency and align with growing Environmental, Social, and Governance (ESG) expectations from investors and stakeholders.

In April 2025, the EMRT was updated to cover additional minerals: copper, natural graphite, lithium, and nickel, further streamlining responsible sourcing reporting for the industry.

From complexity to control in responsible sourcing

As regulatory expectations and supply chain complexity continue to increase, companies need a more structured and scalable approach to managing responsible sourcing. CDX supports this shift by enabling greater transparency, improved data quality, and more efficient compliance processes.

See CDX in action

The best way to understand the value of CDX is to experience it.

In a personalized demo, you'll see how to:

- Collect and manage material data across your supply chain
- Streamline compliance with evolving global regulations
- Improve data quality and reduce manual effort
- Collaborate more effectively with suppliers
- Build a scalable, future-ready compliance process

Book your demo now

Learn more at **cdxsystem.com**

DXC Technology

DXC.com

About DXC Technology

DXC Technology (NYSE: DXC) is a leading enterprise technology and innovation partner delivering software, services, and solutions to global enterprises and public sector organizations — helping them harness AI to drive outcomes at a time of exponential change with speed. With deep expertise in Managed Infrastructure Services, Application Modernization, and Industry-Specific Software Solutions, DXC modernizes, secures, and operates some of the world's most complex technology estates. Learn more on dxc.com.