



eBook

Cobalt

Responsible Sourcing in Your Supply Chain

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Introduction

Cobalt's first uses in history offered few hints to its future as a critical mineral.¹ Early societies in Egypt, Persia, and other regions of the world mined cobalt as a dye for porcelain, pottery, and glassware due to its rich blue color. In the 1900s, as automobiles emerged, manufacturers used it as a superalloy for its resistance to wear.²

Then, in the early 2000s, the production of portable electronic devices transformed the way the world used cobalt. Suddenly, cobalt was in high demand for its application in lithium-ion batteries, which power these devices. Industries in many verticals, from aerospace and defense to medical devices, leverage cobalt as a key component in their supply chains. It is viewed as a technology-enabling metal³, and has become a staple in many of today's products.

However, its increased visibility has led to concerns about supply and the mining processes used to extract it. As such, non-governmental organizations (NGOs), industry groups, activists, stakeholders, and other concerned parties are beginning to take note of its presence in supply chains, and companies are starting to move toward including it in their responsible mineral programs.

Cobalt will be a critical component of the shift toward environmental sustainability that investors, regulators, and consumers are looking for in corporate environmental, social, and governance (ESG) programs. Such programs must have deep due diligence to be defensible and comprehensive, or companies could be shut out of contracts and face brand damage.

In this eBook, you will learn which industries may be at risk of using undocumented cobalt, how to identify risk in the supply chain, and best practices and tools companies can leverage to meet their cobalt reporting goals.

1 The Cobalt Institute. (n.d.). *History of Cobalt*. <https://www.cobaltinstitute.org/history-of-cobalt.html>

2 The Cobalt Institute. (n.d.). *Wear-resistant Alloys*. <https://www.cobaltinstitute.org/wear-resistant-alloys.html>

3 The Cobalt Institute. (n.d.). *Cobalt, the technology-enabling material*. <https://www.cobaltinstitute.org/cobalt-the-technology-enabling-material.html>





CHAPTER 01

Modern Cobalt Mining

The Cobalt Mining Landscape

Cobalt naturally occurs in many regions of the world, attracting large mining operations in countries such as Russia, China, and Australia. However, more than half of all global cobalt reserves exist in the Democratic Republic of the Congo (DRC). Sixty percent of the world's cobalt is sourced from the region, and the area has seen decades of violence and human rights violations as armed groups exploit these natural resources to finance ongoing conflict.⁴

The majority of cobalt extracted in the DRC comes from large-scale mines (LSMs). These operations use modern machinery and are usually owned by companies that maintain detailed records and implement regimented processes to track output materials. They generally have more oversight than artisanal mines (ASMs), which may operate on untraceable cash transactions and may not record dig sites, output, or data. As such, LSMs typically pose a reduced risk to the companies that source from them.

⁴ U.S. Securities and Exchange Commission. (2017, March 14). Fact Sheet: Disclosing the Use of Conflict Minerals. <https://www.sec.gov/opa/Article/2012-2012-163htm---related-materials.html>

Cobalt Mining Risk in the Democratic Republic of the Congo

In recent years, the increased demand for cobalt has driven its price higher, and due to the mineral's abundance and the widespread poverty in the region, many people seek to enter the cobalt mining industry in some way. This has led to increasing numbers of ASMs feeding cobalt into the global supply chains of companies in a variety of industries.

Workers at ASMs are often employed in dangerous conditions, forced to mine by hand while facing risks such as cave-ins, flooding, and other environmental hazards. In these unregulated spaces, workers generally receive little in the way of payment, and there is often minimal oversight on factors such as fair employment practices. Artisanal mines may be operated or exploited by armed groups.

Ore from both ASMs and LSMs are delivered to smelters, where it is refined and sold to companies downstream. Companies that source from the DRC and lack traceability in their supply chains may be inadvertently purchasing cobalt from ASMs, which introduces a number of risks that will be outlined later in this eBook. Insistence on complete, accurate documentation and independent third-party audits are key to conducting the due diligence required in a robust responsible mineral program.

Lemonade Stands

A “lemonade stand” is a term used by western refining companies to describe roadside stands where local ASM miners sell their goods. They may walk long distances to sell their materials, providing no traceability to the original mine site.

As a result, many companies unfamiliar with the DRC may inadvertently purchase ore that was sourced from roadside stands, corner markets, or other nontraditional vendors, then passed down through the supply chain. These ores may be sold as either copper or cobalt, depending on the level of concentrate and whichever will fetch the highest price. These dealings typically take place with no source of origin details or supporting documentation to verify the legitimacy of the minerals.



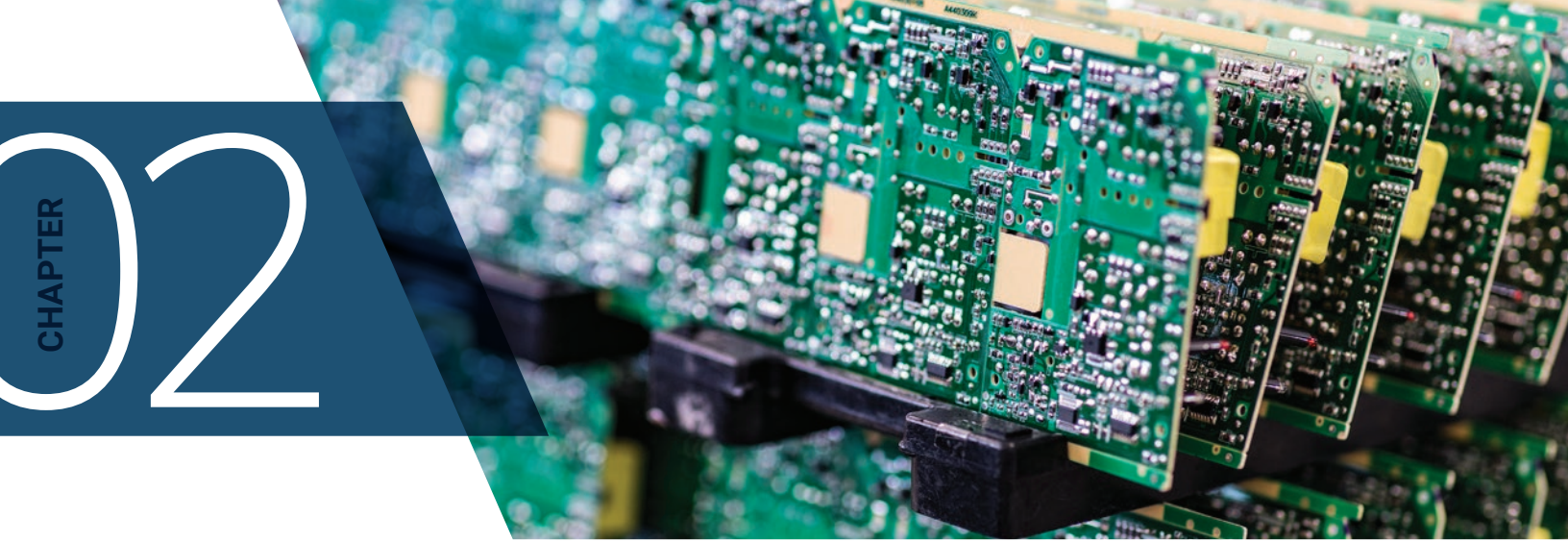
The Push for Transparency

Cobalt has long been a mineral of concern for intergovernmental organizations such as the Organisation for Economic Co-operation and Development (OECD). Many expected it to be included as a conflict mineral under Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. However, when the act was passed, only tin, tungsten, tantalum, and gold (3TGs) were covered.

There is now more cobalt in the global market than ever before, particularly in products manufactured by popular smartphone makers. This tends to generate more interest among consumers when cobalt mining practices make the news. As more attention is given to human rights violations in the DRC, and cobalt's role in perpetuating them, interest groups have begun to make a push for greater transparency in cobalt mining.

Processes developed in response to the Dodd-Frank Act and similar legislation have improved the transparency of supply chains and the traceability of conflict minerals. These processes can be applied to cobalt sourcing to achieve the same results. Now that the need for responsible cobalt sourcing has been established, and tools have been made available to enable it, many companies have begun to proactively implement broad-scale responsible mineral programs in anticipation of future legislation.





CHAPTER 02

Cobalt & Supply Chain Risk

Industries Impacted

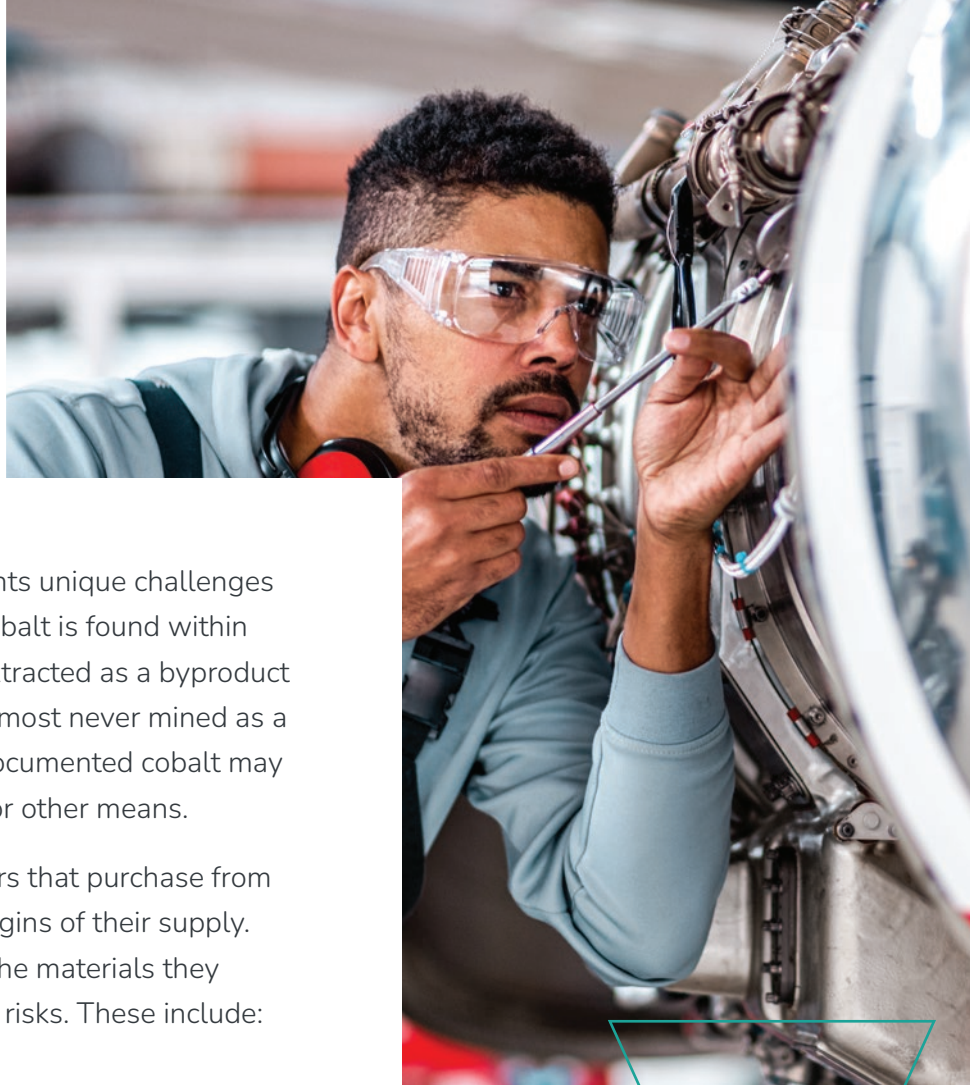
Cobalt enables technologies such as energy storage for batteries, stronger magnets, and more resilient superalloys, which has made it an integral part of product design in many industries. The industries that may be most impacted by increasing demands on cobalt sourcing include aerospace, automotive, electronics, and medical devices.⁵

Cobalt’s Applications in Various Industries

Industry	Applications
Aerospace	Gas turbine engines, jet engines, various components in space vehicles, anti-corrosion surface treatments
Automotive	Batteries for electric/hybrid cars, motors, tires, magnets for Maglev trains
Electronics	Rechargeable batteries, semiconductors, microchips, disk drives
Medical devices	Magnetic resonance imaging (MRIs), prosthetics, orthopedic implants

Understanding Supply Chain Risk

⁵ The Cobalt Institute. (n.d.). Cobalt uses. <https://www.cobaltinstitute.org/cobalt-uses.html>



Although not a rare metal, cobalt presents unique challenges in tracking it across the supply chain. Cobalt is found within other mineral ores and is largely only extracted as a byproduct of nickel or copper.⁶ As such, cobalt is almost never mined as a solitary ore in LSM operations, and undocumented cobalt may enter the global supply through ASMs or other means.

Companies sourcing cobalt from smelters that purchase from ASMs may have difficulty tracing the origins of their supply. Without processes in place to validate the materials they source, a company may face a variety of risks. These include:

- ▶ Human trafficking and slavery
- ▶ Child labor
- ▶ Unfair working conditions
- ▶ Difficulty adhering to customers' responsible mineral goals

Recent reports of unethical cobalt mining have gained international attention, helping to drive awareness and industry action. Increasingly, businesses are demanding more transparency in their supply chains — and as they expand their responsible mineral programs to include cobalt, they will need the support of their suppliers to prove source of origin and show due diligence throughout the supply.

Although cobalt is not currently covered under conflict mineral legislation, many companies are beginning to address it in their

⁶ The Cobalt Institute. (n.d.). *Critical Raw Material*. <https://www.cobaltinstitute.org/critical-raw-material.html>

CHAPTER 03



Understanding the Regulatory Landscape

existing responsible mineral programs. Much of the impetus for responsible sourcing comes from industry, with associations and NGOs pushing for its inclusion as a mineral of concern due to risk of forced labor and other humanitarian concerns. As a result, many companies now require suppliers to track and report on the sources of their cobalt as a condition of doing business.

Responsible Minerals Legislation

Key pieces of legislation have shaped the responsible minerals regulatory landscape. While cobalt is not covered under existing regulations, a strong responsible mineral program will help manufacturers anticipate and respond to changes in the marketplace as cobalt sourcing requirements develop.

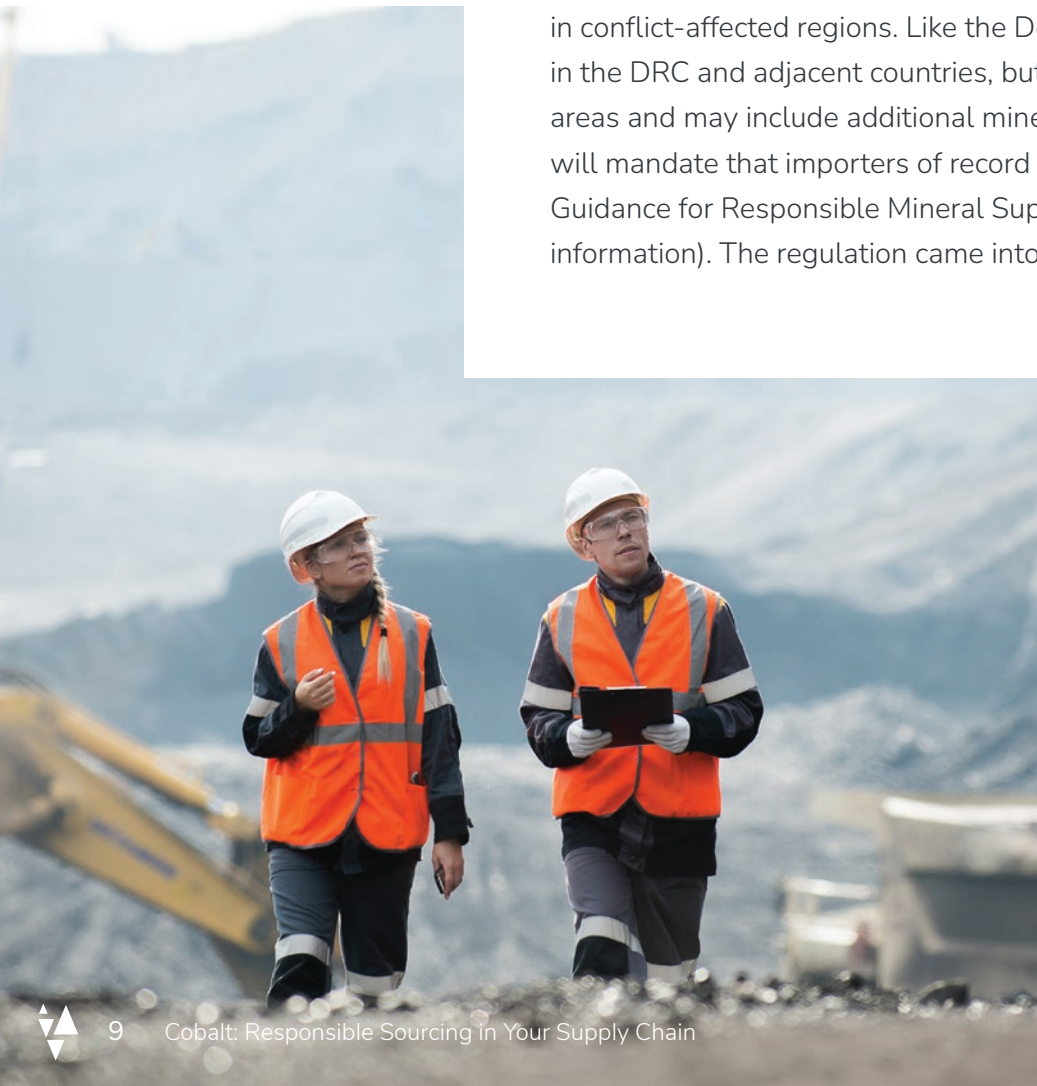


The Dodd-Frank Wall Street Reform & Consumer Protection Act

Compliance with the Dodd-Frank Act, which came into effect on July 21, 2010, is typically a core component of any responsible mineral program. Section 1502 of the act requires publicly-traded companies in the U.S. to submit a public disclosure to the U.S. Securities and Exchange Commission regarding their use of tin, tungsten, tantalum, and gold (3TGs), including their sources of origin and verifiable chain of custody.

EU Conflict Minerals Regulation

In May 2017, the EU passed the Conflict Minerals Regulation, with the intent of preventing armed groups from profiting from the sale of minerals in conflict-affected regions. Like the Dodd-Frank Act, it covers the 3TGs in the DRC and adjacent countries, but it will also apply to other high-risk areas and may include additional minerals of concern. The regulation will mandate that importers of record follow the OECD's Due Diligence Guidance for Responsible Mineral Supply Chains (see Page 13 for more information). The regulation came into effect on January 1, 2021.



Industry Response to Cobalt

As technology continues to innovate, demand for cobalt will only increase. Reports of substandard working conditions and human rights violations in cobalt mines have spurred industry response, as companies, investors, and consumers acknowledge that growth should not come at the expense of those laboring in the mines.

The Corporate Response

In advance of formal regulation, many companies have implemented their own responsible mineral programs, which have affected suppliers upstream of the manufacturing process. Companies such as Intel, Apple⁷, Dell, Hewlett Packard, and BMW have implemented supplier codes of conduct, increasing transparency and ensuring their suppliers operate ethically.

In addition, companies may conduct audits to validate the data provided by suppliers. This often requires suppliers or refiners to put more stringent practices in place to ensure they can comply with their customers' requirements.

Industry Groups & Associations

Much of the work to improve the responsible mining of cobalt is being undertaken by industry groups operating in the region, such as the Cobalt Institute, which represents the majority of global cobalt suppliers⁸, and the Responsible Minerals Initiative (RMI), which represents 350 companies⁹ with conflict or other minerals in their supply chains. These organizations have developed tools and frameworks that manufacturers can use to enhance their efforts at responsible mineral sourcing.



7 Apple. (2019). *Supplier Responsibility*. <https://www.apple.com/uk/supplier-responsibility/>

8 The Cobalt Institute. (n.d.). <https://www.cobaltinstitute.org/about-cobalt/>

9 Responsible Minerals Initiative. (n.d.). *About the Responsible Minerals Initiative*. <http://www.responsiblemineralsinitiative.org/about/>



CHAPTER 04

Q&A With the Cobalt Institute's David Weight

David Weight has almost 40 years of experience in the metals industry and spent 14 years with the Cobalt Institute. He is an internationally recognized voice for cobalt and represents the large-scale miners of cobalt, manufacturers, downstream users, recyclers, and traders belonging to the Institute.

Is it still important for companies to identify sources of cobalt even if they don't use it in batteries?

Yes, I think there will be more recognition in this respect, that wherever you are in the value chain, you need to have some sort of due diligence to ensure you are aware of the provenance of your raw material. More importantly, if you do discover some risks in your supply chain, you must take active measures to mitigate those risks.

It's not so much a challenge for the large-scale producers, but it'll be a challenge to get this all the way downstream. For example, a company that has always purchased cobalt oxide from a distributor in the U.S. may not have thoroughly considered whether its cobalt originated in the DRC. The Cobalt Industry Responsible Assessment Framework (CIRAF) allows for a materiality assessment, whether you are a buyer or seller of cobalt, and aligning all parties involved is an important factor in identifying risks in a consistent fashion, and reporting on how those risks are mitigated.

The framework recognizes many existing guidelines. It allows the user to identify risks and report transparently on mitigation, as the reporting of activities enhances the due diligence process and increases transparency.

How does CIRAF help companies source cobalt responsibly?

The framework is designed for the whole supply chain, so it's meant to enhance due diligence and improve reporting beyond just SEC filings. It allows for reporting in a more transparent and consistent fashion. With CIRAF, downstream companies can do a materiality assessment and ask the right questions of their suppliers to ensure due diligence is being properly done on their cobalt supply. They are then encouraged to report on their activities on their website and have them verified by a third party.

Will cobalt continue to be scrutinized?

Yes, we expect cobalt to continue to be scrutinized. Companies don't necessarily need new standards or further government regulations; rather, they need to work within the frameworks that already exist and do it more transparently.

The key is that it should be dealt with proportionately. There is a perception that cobalt is mined through illegal means such as child labor, but the vast majority of cobalt in the world is produced as a by-product of large-scale copper and nickel mining. While there is an issue with legal artisanal and small-scale mining in the DRC, this is due to poor regulation by the state.

Should companies boycott artisanal mines?

You don't want to demonize a legitimate subsistence activity. The issue is complex and involves people's livelihoods, and these people within the DRC and elsewhere need help to help themselves. Civil society should embrace the issue and work with the people affected. Stopping sourcing from this sector altogether will have a significant detrimental impact on livelihoods.

This is where civil society and the DRC government should get involved. Artisanal mining is, generally speaking, legal. The difficulty, however, is that it's poorly regulated, if at all. You have people working in conditions you wouldn't allow in industry, for example, and you have illegal activity, which should be rooted out. But those people who have a possibility of eking out even the smallest of livings by obtaining some minerals should be helped, perhaps through alternative livelihoods, safer work environments, better education, encouragement of traditional livelihoods, etc.

What should companies be looking for when choosing suppliers?

The key thing you need to look for is a corporate social responsibility statement. Most of our members have very well-developed sustainability programs. They normally publish the details of these on their websites, so you can see in their CSR and sustainability areas what they do with the local community and how they operate according to international standards.

Large-scale mines have a broad range of issues to address. They'll be looking at environmental aspects, such as water quality and biodiversity, occupational health and safety, community engagement and, of course, respecting human rights and addressing corruption issues.

Should companies replace cobalt in their supply chains?

We have found that cobalt, for various technical reasons, is very difficult to substitute. It's used in a vast range of areas, in many industries. Like the Goldilocks principle, cobalt is “just right” in many applications. Bear in mind, cobalt has been at the forefront of modern industrial development for more than 100 years, so industry is very experienced with its qualities, and has learned to optimize materials and processes using cobalt, which can't easily be replaced without severe degradation. It is a technology-enabling metal and a foundational element in working toward the low (or even zero) carbon economy of the future, and it is required to support the innovation platform for a clean, modern world.





CHAPTER 05

Preparing Your Program

The presence of even the smallest amount of unethically sourced cobalt is enough to compromise a responsible minerals program. While ASMs can introduce risk to a program, human rights advocates do not encourage the boycott of artisanally-mined cobalt. Instead, companies are encouraged to be vigilant when dealing with mineral traders or smelters, and ensure they have transparent processes in place when communicating with their supply chain. There are a variety of tools and resources they can leverage to build their programs and conduct due diligence.

The OECD Due Diligence Guidance

The OECD is made up of 36 member countries with the goal of aiding economic development and improving the social well-being of people around the world. Along with eight non-member countries, the OECD developed the Due Diligence Guidance

for Responsible Mineral Supply Chains, a framework that helps companies make responsible mineral purchasing decisions. The guidance has become a central part of the way companies report on conflict minerals, in accordance with global legislation.

According to the guidance, companies should take the following steps to ensure responsible mineral sourcing¹⁰:

1. Establish company management systems
2. Identify and assess risks in the supply chain
3. Create and execute a strategy in response to those risks
4. Conduct independent third-party audits of supply chain due diligence
5. Report annually on supply chain due diligence

¹⁰ Organisation for Economic Co-operation and Development. (n.d.). A global standard towards responsible mineral supply chains. http://mneguidelines.oecd.org/Brochure_OECD-Responsible-Mineral-Supply-Chains.pdf



Leveraging Supply Chain Data

Companies need data from deep in their supply chain to ensure their programs are prepared to scale as new minerals of concern, such as cobalt, arise. A robust supply chain sustainability management program helps your company see deeper and be smarter to proactively respond to changes in the regulatory landscape, prove due diligence, and identify and assess risks as they emerge in your supply chain.

Identifying Smelter Risks

All cobalt must be smelted or refined to usable purity levels before being shipped to manufacturers. This creates a “pinch point” in the process, and diligent companies should monitor this point for irregularities. Since smelters receive raw ore and recycled materials from many sources, they are also the last potential audit point, as it will become nearly impossible to trace the origin of minerals after they have been refined.



When dealing with smelters, manufacturers should be mindful of:

Location

- ▶ Smelters located within the DRC or adjacent regions
- ▶ Cobalt sourced from a region with little to no known cobalt reserves

Sanctions

- ▶ Smelters that have previously received economic or other sanctions
- ▶ Smelters associated with individuals who have been sanctioned, or who have engaged in human rights violations, violence, or otherwise contributed to regional instability

Refusal of Oversight

- ▶ Smelters, or their parent companies, that have refused audits
- ▶ Smelters, or their parent companies, that have been subject to corrective action
- ▶ Smelters, or their parent companies, that are currently under investigation

Tools for a Responsible Supply Chain

Existing conflict mineral regulations have resulted in the innovation of more advanced data validation techniques to verify source of origin, which can be used to expand responsible mineral programs. Two tools have been developed based on OECD guidelines that can be leveraged by companies to identify risks, increase transparency, and improve reporting.

The Cobalt Industry Responsible Assessment Framework¹¹

The framework was developed to consolidate the efforts of the entities involved, directly or indirectly, with the mining of cobalt. The framework is designed to standardize the industry's approach to responsible cobalt mining, and allow stakeholders to track progress as they work toward sustainable and ethical mineral sourcing. It covers nine risk areas in four priority categories:

- ▶ Environmental risks:
 - ▷ Air/water/soil impacts
 - ▷ Biodiversity impacts
- ▶ Occupational Health & Safety (OHS):
 - ▷ OHS and working conditions
- ▶ Human rights:
 - ▷ Conflict and corruption
 - ▷ Human rights impacts
 - ▷ Child labor
- ▶ Community:
 - ▷ ASM
 - ▷ Quality of life
 - ▷ Resettlement

The companies that use the framework must report annually on the presence of a policy and due diligence management system, as well as preexisting responsible mineral sourcing standards.



¹¹ The Cobalt Institute. (2019, February 14). CIRAF Primer for Stakeholders. https://www.cobaltinstitute.org/assets/files/News/CIRAF-External-Primer_14022019.pdf

The Extended Minerals Reporting Template

In 2018, the RMI released the Cobalt Reporting Template (CRT) to address the challenges companies faced in responsibly sourcing the mineral. In 2021, as more minerals such as mica and lithium also came under scrutiny, the institute adapted the CRT into the Extended Minerals Reporting Template (EMRT). This new template is able to survey supply chains for any mineral of concern companies wish to examine in accordance with the OECD Due Diligence Guidance.

The EMRT is similar to the Conflict Minerals Reporting Template (CMRT), in that it is a standardized template that manufacturers can use to report on the smelters or refiners they sourced their minerals from. Through the EMRT, companies can show proper due diligence to their customers, or post it on their website for public viewing.

The RMI maintains a database of identified cobalt smelters. If your smelter is not on the list, you are encouraged to add it. Identified smelters are asked to take part in an audit process to verify their sources of origin, leading to more trusted sourcing as the list grows.

Third-Party Support

Manufacturers should strive to create a robust responsible mineral sourcing program that incorporates a wide range of minerals. Third-party supply chain sustainability management solutions, such as Assent, help by automating the collection and validation of data, enabling more effective supplier outreach, and by helping companies stay current with new and evolving regulations.





Conclusion

As technology continues to advance, cobalt will likely remain a key material in product design and, in turn, come under further scrutiny from governments, NGOs, industry groups, and other stakeholders. In order to stay ahead of their requirements, manufacturers that source cobalt should be proactive in establishing deep responsible mineral programs that are defensible and comprehensive.

This will require a cross-enterprise approach to responsible sourcing. Sharing data and expert guidance will enable more effective due diligence and protection from risks as the regulatory landscape evolves.

To learn how Assent helps manufacturers enhance their responsible mineral programs, contact us at info@assent.com.



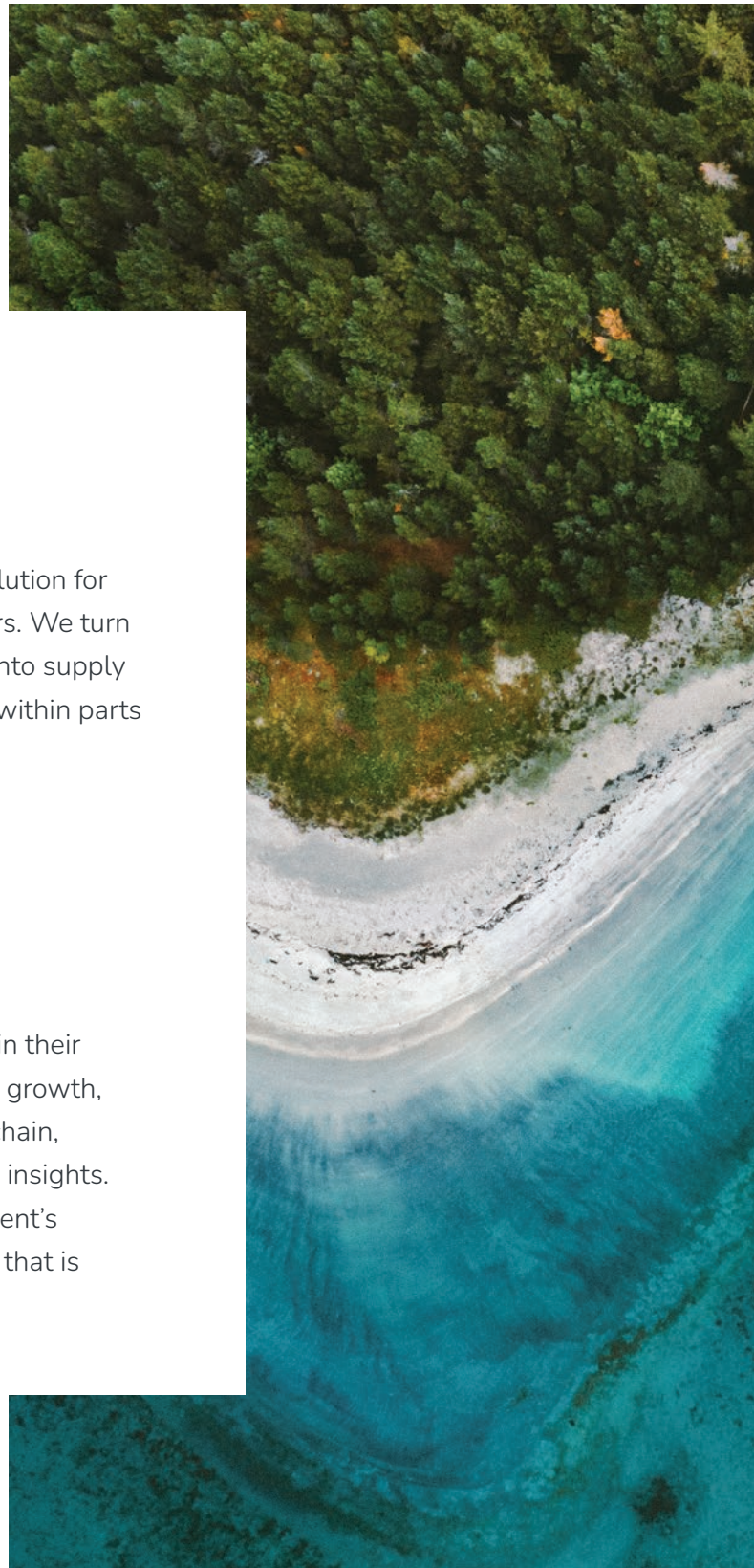


Who Is Assent?

Assent is the supply chain sustainability management solution for the world's most forward-thinking complex manufacturers. We turn sustainability goals into tangible action by delving deep into supply chains, identifying suppliers, parts, and even substances within parts to map the entire complex manufacturing genome.

What We Do

We help companies spot sustainability risks hiding deep in their supply chains and identify new areas of focus to enhance growth, efficiency, and value. By digging deep within the supply chain, we pull and validate more actionable data to provide real insights. Guided by regulatory experts with a diverse skill set, Assent's solution delivers a cross-enterprise view of sustainability that is necessary for true leadership in the field.





[Assent is] a low touchpoint program with very high results and program growth, year in and year out.

— Ryan Zelhofer, Former Product Compliance Manager, Plexus

Over **200,000**
parts managed

80% reduction in staff
management hours



The Assent Solution

The journey toward sustainability demands a new way of thinking about supply chains. Assent turns your supply chain data into a critical tool to make safe, sustainable, and ethical products by providing:

- ▶ Clean data collected from the source using automated engagement techniques that dive deeper into supply chains
- ▶ Crucial, at-a-glance supply chain sustainability data through streamlined dashboards
- ▶ An adaptable program that evolves alongside regulations and industry trends

People are the beating heart of any sustainability program. Assent combines its leading technology with expert guidance, ensuring each program is tailored to your specific needs. Dedicated customer success managers make sure you have a familiar face to speak to about changing program goals or enhancements.

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