Circularity

2023 Highlights

63,409 tonnes of hazardous and non-hazardous waste recycled

37,654 tonnes of end-of-life materials and urban ore recycled at Trail Operations

- Teck's Trail Operations was the first stand-alone zinc processing site globally to receive the Zinc Mark

GRI Indicators

2-23, 2-24, 2-27, 3-3, 306-1, 306-2, 306-3, 306-4, 306-5, G4-MM3

This topic is considered material by our employees, local communities, government regulators, investors and society in the context of all Teck-managed sites.

How Does Teck Manage This Topic?

Information about our approach to circularity and how Teck contributes to the circular economy, including relevant policies, management practices, systems and topic boundaries, is available for download on our website.

Pictured: Employee at Trail Operations, Canada.

Our Performance in Circularity in 2023

Our Targets and Commitments At Teck, we are supporting the global transition to a low-carbon and circular economy while also working to minimize our operational impacts. The following table shares our progress related to circularity and waste management goals.

Sustainability Strategy Goals	Status	Summary of Progress in 2023
Strategic Priorities: · Be a leader in responsibly providing the metals and minerals needed for the transition to an economy focused on reducing waste and keeping products in use · Work towards disposing zero industrial waste by 2040		
Goal: By 2025, establish site-based industrial waste inventories and plans to turn waste into useful and appropriate products. Based on these inventories and plans, set goals for industrial waste reduction.	On track	Assessed our providers of transport and waste handling in North America to understand the fate of off-site industrial and demolition wastes. The results from the evaluation will assist in the potential for waste reduction, reuse and/or recovery. This effort also reduces legacy risks for any required disposals.
Goal: By 2025, develop and implement a responsible producer program and "product passport" that is traceable through the value chain.	On track	We accredited a number of sites for responsible production practices. Notably, our Trail Operations received the Zinc Mark, becoming the world's first stand-alone zinc processing site to be awarded the Zinc Mark. Our Quebrada Blanca (QB) and Carmen de Andacollo (CdA) operations received the Copper Mark. Obtained verification of our practices in alignment with the MAC TSM Protocols and with ICMM's Mining Principles and Performance Expectations at our Red Dog, QB and CdA operations. Red Dog Operations is in the process of obtaining the Zinc Mark in 2024. Reviewed learnings from the germanium block chain pilot study that was completed in 2022 and will further evaluate how best to make that information available to our customers and, ultimately, further down the value chain.
Goal: Be a leader in product stewardship by continuing to implement our Materials Stewardship program and produce secondary metals at our Trail Operations.	On track	Onboarded five new base metal customers using enhanced counterparty and receiving site screening procedures. Updated product testing and documentation to meet new International Maritime Organization requirements for hazard declarations. Produced secondary metals at our Trail Operations through the recycling of 37,654 tonnes of material.

Global and Industry Context

Clean energy technologies and sustainable development continue to drive increased demand for metals and mining products with the demand for copper alone expected to double by 2035.[10] To meet the needs of society while effectively managing net impacts from mining, the integration of circular principles and industry collaboration is essential, along with a life cycle approach to metals production, use and generation.

By providing metals that are essential and highly recyclable, and engaging in metal recycling, Teck plays an important contributory role in the transition to a circular economy. We are implementing circular practices at our sites, with the aim of scaling practices across the business and, more broadly, across the metals and mining industry. As the definition of circular economy and the role of the mining industry within it evolves, we will evaluate opportunities to collaborate and further advance the circular transition.

[10] Circular Economy. ICMM. 2023.

Advancing Circularity

Teck's commitments to increased circularity and our contributions to the broader circular economy are demonstrated in three key areas:

- Responsible production across our business and across the mine life of our operations, including minimizing waste and impacts on nature, and delivering benefits to the local region
- Provision of key metal recycling services, including partnering with related businesses to support larger recycling networks and markets for recycled materials
- Collaboration with industry, downstream partners and policy-makers to increase the collection and circularity of commercial and consumer products after our minerals and metals have entered the market

In the mining industry, critical aspects of the circular transition include process circularity (processes that minimize, reuse and ultimately eliminate waste) and product circularity (product design and collection processes that harvest and reuse metals indefinitely).[11] For Teck, focus areas for these critical aspects include waste management at our operations and provision of recycling services at Trail.

Process Circularity

We continually improve our waste management practices, avoiding waste at the source wherever possible and minimizing waste by adopting best practices. This enables us to provide the minerals and metals that the world needs, while minimizing potential impacts of our activities and ensuring that benefits are delivered to local communities and the environment. We divide waste into two main categories: mineral waste and non-mineral waste.

Management of Mineral Waste

Based on volume, mineral waste is the most significant waste type generated by Teck. In 2023, our operations generated approximately 767 million tonnes of mineral waste, with the vast majority being waste rock from the extraction of ore and steelmaking coal. We use internal and independent third-party subject matter experts to design our mineral waste storage facilities. Mineral waste storage methods are determined based on site-specific conditions and industry good practices.

The following categories of mineral waste are products of Teck's operations. See Our Approach to Circularity, as well as our website for more information:

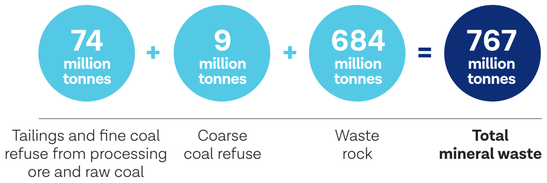
Waste Rock: Waste rock is material that is removed to access ore and steelmaking coal. The bulk of waste rock from our operations is placed in areas that are specifically designed to contain the rock. Waste rock is also used for reclamation activities and to construct dams, roads and similar structures. Long-term storage of waste rock is conducted in accordance with closure plans and approved by regulatory authorities. These plans typically include contouring, covering and revegetation to achieve established land use objectives.

Coarse Coal Refuse: Coarse coal refuse is a coarse fraction of raw coal that is separated during processing; it is not currently an economic product. Coarse coal refuse is placed in designated engineered facilities or can be used as construction material if not susceptible to leaching. Coarse coal refuse can also be mixed with dewatered fine coal refuse within engineered structures. Coarse coal refuse is an excellent construction material for creating retention embankments for fine coal refuse.

Tailings and Fine Coal Refuse: Tailings and fine coal refuse are the finer fractions of the processed mined material that have no economically recoverable commodities. These materials are typically stored in tailings storage facilities. All of Teck's tailings storage facilities are designed by external third-party experts and independently reviewed for both design and performance. See Our Approach to Tailings Management, as well as our website for more information.

For additional details on our categories and management of mineral waste, see Our Approach to Circularity.

Figure 3: Mineral Waste



Management of Non-Mineral Waste

Teck also generates non-mineral waste. These waste materials are segregated and disposed of in accordance with material-specific waste management plans and regulatory requirements, mitigating potential impacts on human health and the environment.

The following categories of non-mineral waste are products of Teck's operations:

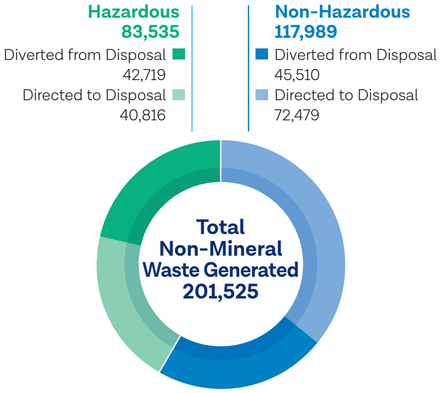
Hazardous Waste: At Teck, waste is considered hazardous if it is defined as such by jurisdictional regulatory regimes. The primary industrial hazardous wastes produced at our operations include waste oil, solvents, antifreeze, paint and batteries. We collect and store hazardous waste in a responsible manner and in accordance with regulatory requirements. Licensed contractors recycle or dispose of this waste off-site in line with legislative obligations.

Non-Hazardous Waste: The most significant types of non-hazardous waste streams include contaminated solids and liquids, scrap metal, wood waste, glass, tires, e-waste, cardboard and paper.

Industrial Waste: Industrial waste is a subcategory of non-mineral waste. It includes types of waste generated by industrial processes; it excludes municipal/domestic waste streams. Significant industrial waste streams at Teck include metallurgical waste, sludges, process residuals (i.e., water treatment), haul truck tires, construction and demolition debris, equipment and contaminated soil.

For additional details on our categories and management of non-mineral waste, see Our Approach to Circularity.

Figure 4: Non-Mineral Waste by Composition in Metric Tonnes (t) — 2023[1],[2]



(1) Rounding of the individual numbers may cause a discrepancy in the total value.
(2) 2023 data includes QB2 as of January 1, 2023.

[11] Mining and the Circular Economy. ICMM. 2023.

Table 8: Waste Diverted from Disposal by Recovery Operation, in Metric Tonnes (t) — 2023[1],[2]

Type of Waste	On-Site	Off-Site	Total
Hazardous Waste			
Preparation for reuse	0	54	54
Recycling	34,548	7,938	42,486
Other recovery operations	0	180	180
Total Hazardous Waste	**34,548**	**8,171**	**42,719**
Non-Hazardous Waste			
Preparation for reuse	24,123	463	24,586
Recycling	2,754	18,169	20,923
Other recovery operations	0	0	0
Total Non-Hazardous Waste	**26,877**	**18,632**	**45,510**

(1) Rounding of the individual numbers may cause a discrepancy in the total value.
(2) 2023 data includes QB2 as of January 1, 2023.

Table 9: Waste Directed to Disposal, by Disposal Operations, in Metric Tonnes (t) — 2023[1],[2]

Type of Waste	On-Site	Off-Site	Total
Hazardous Waste			
Incineration (with energy recovery)	0	671	671
Incineration (without energy recovery)	0	1	1
Landfilling	0	12,067	12,067
Other disposal operations	0	28,077	28,077
Total Hazardous Waste	**0**	**40,816**	**40,816**
Non-Hazardous Waste			
Incineration (with energy recovery)	40	0	40
Incineration (without energy recovery)	537	125	662
Landfilling	48,191	6,559	54,750
Other disposal operations	5,522	11,505	17,027
Total Non-Hazardous Waste	**54,290**	**18,189**	**72,479**

(1) Rounding of the individual numbers may cause a discrepancy in the total value.
(2) 2023 data includes QB2 as of January 1, 2023.

Product Circularity

Recycling Services at Trail

The metal recycling services provided by Teck are a critical component of the circular economy, enabling the circular principle of keeping materials in use for as long as possible. Our Trail Operations is one of the world's largest fully integrated zinc and lead refineries, which is also one of the largest metal recycling centres in North America.

At our Trail Operations, we recycle materials that add value and are compatible with process and regulatory limits. Our focus remains on treating cathode ray tube glass, along with small quantities of zinc alkaline batteries and other post-consumer waste through our lead battery recycling program. By incorporating these end-of-life materials into the circuit, metals are recovered without any degradation in properties, allowing for their reuse in new commercial or consumer products. These complex materials contain ingredients that can substitute for primary raw materials and help divert certain consumer wastes from entering landfills.

Electric Vehicle Battery Recycling at Trail Operations

In 2023, Teck advanced the proposed Electric Vehicle Battery Recycling (EVBR) Project at Trail Operations and sought collaboration with commercial partners, governments and others to support our business case. The purpose of the EVBR Project is to expand Trail's recycling program to recover the critical minerals within the lithium-ion batteries (LIB) that power electric vehicles (EVs) and electronic goods and send them to EV battery production facilities across North America for reuse. Recycling LIBs can recover battery-grade compounds such as lithium, nickel, cobalt and manganese from end-of-life batteries and from manufacturing battery scrap. By providing these secondary sources of critical minerals, the EVBR Project would support the circular economy, reduce waste and carbon emissions, and contribute to a more sustainable battery value chain. It is expected that, if the project advances, the EVBR Project could recycle up to 35,000 tonnes of LIB materials per year — the equivalent of 140,000 EV batteries.

More information on our recycling definitions can be found in Our Approach to Circularity.

Tire Recycling

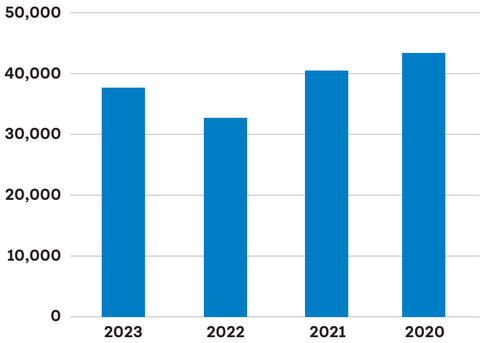
Teck provides key commodities, which are durable and infinitely recyclable, that are required for sustainable products and infrastructure and is working to reduce waste and pollution, to keep products in use and to help improve the natural environment where we operate.

An innovative pilot project at Trail Operations and Neptune Terminals in British Columbia has combined recycling mining haul truck tires with a program to enhance the longevity of paved surfaces. See our case study, Where the Rubber Meets the Road — Tire Recycling for Rubberized Asphalt, on page 22 for more details.

At our Carmen de Andacollo Operations, more than 258 tonnes of mining tires have been recycled since 2022. The recycling of these tires is carried out by a company that uses renewable energy and provides certification of the materials' destination.

Teck is also collaborating with suppliers to pursue other innovative uses for recycled mining tires. Our commercial recycling offtake arrangements and our commitment to responsible materials stewardship help ensure that waste rubber crumb and other components are considered for use in other sustainable products. For example, partnering with our conveyor belt manufacturers and distributors has facilitated the ongoing research and development necessary to create and certify fire-retardant conveyor belts made with recycled materials. At our Fording River Operations, we began trials with a raw coal feeder conveyor belt that contains recycled rubber crumb (tire-derived polymer) that would have otherwise been manufactured by our suppliers using virgin materials. The volume of recycled rubber crumb in this application is significant, as the conveyor belt is 3,368 feet long and 54 inches wide. Following installation and analysis of operational data, this trial may be expanded to other sites and applications.

Figure 16: Recycled Material at Trail Operations
Amount of recycled material (tonnes)



Significant Incidents and Non-Compliance Related to Hazardous Materials and Waste Management

Teck has extensive environmental risk mitigation, reporting, response and remediation protocols outlined in our Sustainability Standards. In accordance with these standards, we assess the severity of environmental incidents, spills and non-compliances based on potential environmental, safety, community, reputational and financial impacts.

Based on our incident severity criteria, in 2023, there were no significant incidents related to waste management, including significant spills. There were also no significant charges, fines or penalties for non-compliance related to waste management during the reporting period.

Red Dog Operations and the Toxics Release Inventory

Every year, Red Dog is listed on the United States Environmental Protection Agency (EPA) Toxics Release Inventory (TRI) due to the volumes of rock and ore safely moved at the mine site each year. Red Dog is required to report the amount of materials moved at the mine site due to the grades of zinc and lead naturally occurring in the rocks. This is part of the mining process and does not indicate any health or environmental effect, including any releases of materials from Red Dog to the environment. The Alaska Department of Environmental Conservation (DEC) has also responded to the TRI, noting that almost all of the releases from TRI facilities in Alaska are regulated under strict EPA and state of Alaska permits, with monitoring and compliance requirements designed to prevent human and environmental harm.

Industry Collaboration for Increased Circularity

Through our memberships of the International Council on Mining and Metals (ICMM), the Mining Association of Canada (MAC), the International Zinc Association (IZA), the International Copper Association (ICA) and the International Lead Association (ILA), Teck actively participates in industry-wide initiatives that support increased circularity of our products and their end uses. In 2023, we contributed to efforts to enhance Life Cycle Assessment (LCA) programs to understand the footprint of metals production, use and recycling. We also supported industry initiatives and protocols for the recycling of lead batteries, in addition to our programs at our Trail Operations.

More information on the industry associations we work with to support increased circularity and to contribute to the broader circular economy can be found in Our Approach to Circularity.

Materials Stewardship

The responsible use, jurisdictions and any restrictions for all Teck products are managed via a Master Material List. For products to be added to the list, a detailed application is submitted. Products are assessed annually on product use, transportation and jurisdiction of use, product classification and hazard communication, and financial rate of return. In 2023, copper concentrate from Teck's newly expanded Quebrada Blanca Operations was added to the Master Material List.

We also commission and conduct site assessments to help ensure that Teck products are properly used and that wastes are appropriately managed along the supply chain to metallurgical complexes, refineries and other downstream end users. These assessments allow us to uphold customer relations and market access and meet regulatory requirements. In 2023, Teck carried out seven logistics and customer site assessments and monitored progress with new customers developed in 2022.

Similar risk management practices are applied to hazardous wastes that are generated at Teck sites. Teck has developed various tools to assess off-site disposal facilities, thereby reducing our long-term risk profile and financial exposure. In 2021, Teck announced our formal commitment to The Copper Mark, a voluntary assurance framework to promote responsible production practices. Teck's Highland Valley Copper Operations (HVC) was awarded the Copper Mark in 2022, and our Quebrada Blanca and Carmen de Andacollo operations were awarded the Copper Mark in 2023. Additionally, using the Copper Mark's multi-metals approach, Teck's Trail Operations is the world's first stand-alone zinc processing site to be awarded the Zinc Mark; QB and HVC also earned Molybdenum Mark certification.

Case Study: Where the Rubber Meets the Road — Tire Recycling for Rubberized Asphalt

In support of the global transition to a more circular economy, Teck is committed to improving process circularity in order to minimize, reuse and ultimately eliminate waste. Our innovative pilot project at Trail Operations and Neptune Terminals in B.C. supports this commitment by recycling mining haul truck tires — a challenging form of industrial waste — to create rubberized asphalt, with the potential to divert and remove thousands of tonnes of used haul truck tires from waste storage sites. Further contributing to the circularity goals of this program, rubberized asphalt has been proven to last up to five years longer than regular asphalt, which means less maintenance and extended pavement life. It also has been shown to perform better in areas using studded tires, de-icing and snowplowing. This pilot program has provided an opportunity to increase recycling of industrial waste, developing a sustainable second life for waste haul truck tires while extending pavement life.

Read the full case study at www.teck.com/news/stories.

Pictured: Haul truck at our operations in Canada.