

Defining Teck's Low-Carbon Zinc Products

March, 2024

The Teck logo is positioned in the bottom right corner of the page. It consists of the word "Teck" in a bold, white, sans-serif font. The background of the entire page is a dark blue gradient, with a diagonal cutout on the right side revealing a close-up, high-contrast image of zinc metal products, likely zinc ingots or sheets, showing their metallic texture and rectangular shapes.

As reported in our report *Carbon Footprints of Teck Special High Grade Zinc and Continuous Galvanizing Grade Zinc* released in December, 2023, in 2022, Teck's Special High Grade (SHG) zinc had a carbon footprint of 0.94 tonnes of CO₂e per tonne of zinc and Teck's Continuous Galvanizing Grade (CGG) zincs had footprints ranging from 0.99 to 1.11¹. Based on third-party data from the International Zinc Association (IZA) and Skarn Associates, when compared to the carbon footprints of different global suppliers of SHG and CGG zinc, Teck's carbon footprint is significantly lower. Based on our relative performance, our assertion is that Teck's SHG and CGG are low-carbon products.

Based on the market assessments and Teck's 2022 data, we have drawn the conclusion that Teck's SHG Zinc is:



ONE-THIRD THE GLOBAL AVERAGE

based on 2021 data from the IZA and Skarn Associates.



In the LOWEST CARBON INTENSITY QUARTILE

from 2019–2022² based on Skarn data.

Teck's Approach to Defining Low-Carbon Zinc Products

Today, there is no globally accepted standard for defining when a zinc product is low carbon. For our purposes, our assertion about our zinc products being low carbon is based on two factors:

- i) the relative position of the footprint of our zinc products relative to other suppliers, and
- ii) the magnitude by which we are lower relative to other suppliers.

Analysis on both dimensions is provided in the Market Assessment Section. Given that the carbon performance of the industry is dynamic and ever changing, Teck will continue to monitor performance and provide updates as appropriate.

System Boundary for Carbon Footprint

The GHG Protocol's Product Life Cycle Accounting and Reporting Standard and the International Zinc Association's Technical Guidance on Carbon Footprint

Calculation for Special High Grade Zinc published guidance suggests that the carbon footprint of SHG and CGG zinc should include GHG emissions from "cradle-to-gate". In a cradle-to-gate boundary, the following emissions are used to calculate the carbon footprint:

1. Emissions associated with the mining and production of zinc concentrate feeding into the smelting and refining process:
 - a. Scope 1 and 2 emissions from the mining and production of zinc concentrates at Teck mines. Scope 3 emissions (relative to Teck) from the mining and production of zinc concentrates at non-Teck mines³. The designation 'Teck mine' refers to the Red Dog Mine, which is indirectly owned by Teck and provides zinc concentrates for Trail Operations, and the designation 'non-Teck mines' refers to mines not owned by Teck that Trail Operations procures zinc concentrate from.
 - b. Scope 3 emissions associated with the production and transportation of purchased goods and fuels for each of the mines (Teck and non-Teck) from which zinc concentrate is sourced.

1 CGG Zinc is a product that alloys a small percentage of aluminum with SHG zinc. A range of values is provided for CGG zinc as Teck sells a range of CGG zinc products with varying percentages of aluminum.

2 2019–2022 is the only period available from Skarn Associates; 2023 data is not yet available at the time of publication.

3 The Scope 1 and 2 emissions from non-Teck mines are Scope 3 emissions relative to Teck.

2. Emissions associated with the transportation of zinc concentrates from the applicable mine to Trail Operations:

a. Scope 3 emissions (relative to Teck) associated with the movement (e.g. trucking, rail, and shipping) and handling (e.g. ports) of the zinc-containing concentrates.

3. Emissions associated with the smelting and refining of zinc concentrates at Trail Operations:

a. Scope 1 and 2 emissions of Trail Operations.

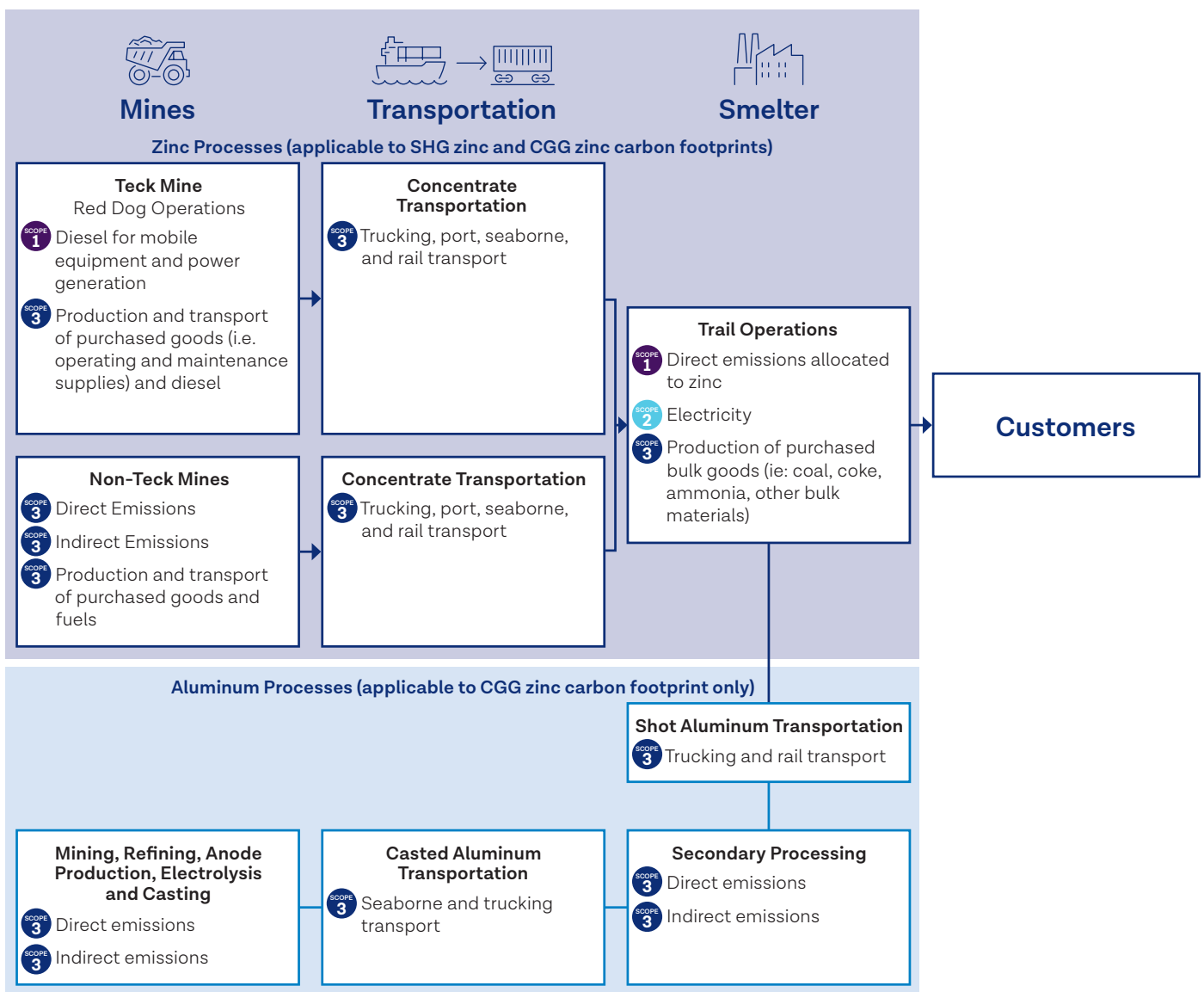
b. Scope 3 emissions associated with the production and transportation of bulk goods.

4. Emissions associated with the production and transportation of aluminum used at Trail Operations (applicable to CGG zinc carbon footprint only)

a. Scope 3 emissions (relative to Teck) associated with the mining, smelting, anode production, electrolysis, casting, secondary processing and transportation of the aluminum used for CGG zinc alloying.

In addition to the emissions covered by the SHG zinc boundary (top box in Figure 1) the CGG zinc boundary includes upstream emissions from the aluminum contained in the CGG zinc alloy (bottom box in Figure 1).

Figure 1: System Boundary of Carbon Footprints



Global Carbon Performance Assessment

The basis for our assertions on the low carbon nature of zinc is based on two factors: i) the relative position of the footprint of our zinc products relative to other suppliers, and ii) the magnitude by which we are lower relative to other suppliers. Two sources of information form the basis for a global assessment of the carbon footprint performance of the zinc industry.

The International Zinc Association's [Zinc environmental profile: Life Cycle Assessment 2023 updated based on 2021 industry data](#).

The boundaries of that study include the Scope 1 and 2 emissions of mining and smelting operations and emissions associated with Scope 3 Category 1. According to the International Zinc Association (IZA), the global average footprint per tonne of SHG zinc is 3.5 tonnes of CO₂e.⁴

Mining and Smelting GHG Intensity Data from Skarn Associates
















Skarn Associates is a third-party consulting company of mining analysts that provides GHG emissions intensity curves for major mined commodities built up from detailed asset-level data.

The Skarn data sets for zinc mining and smelting include GHG emissions data for mining, the transportation of concentrates, and smelting and refining. Excluded from their analysis are emissions associated with inputs used at mines and smelters.

Based on Teck analysis of Skarn Associates' data, when looking at cradle-to-gate (i.e. emissions from mining, shipping, and smelting), SHG zinc production had an average intensity of 3.03 tonnes of CO₂e per tonne of SHG zinc in 2022.

While the IZA and Skarn Associates provide robust analyses, the cradle-to-gate boundaries with which they provide data are a subset of what Teck has utilized.⁵ Therefore, the Teck values reported include emissions which are unavailable in the IZA and Skarn Associates data sets.

Figure 1: Comparison of emissions boundaries for Teck, the IZA, and Skarn Associates

	Mining		Transportation	Smelting	
Emissions	Facility Scope 1 & 2	Facility Scope 3 associated with the production and transportation of purchased goods and fuels for each of the mines (Teck and non-Teck) from which zinc concentrate is sourced	Scope 3 emissions associated with transportation from Mine to Smelter	Facility Scope 1 & 2	Facility Scope 3 associated with the production and transportation of bulk goods
Teck Assured Number					
IZA					
Skarn Mine Data					

 Emissions are included in data set  A portion of emissions are included in data set  Emissions are excluded from data set

4 Zinc environmental profile: Life Cycle Assessment 2023 updated based on 2021 industry data. This data coverage represented 30% of the global zinc mine production and 31% of the global refined zinc production volume for the reference year 2021. 25 mines and 24 smelters from the IZA membership provided data.

5 While Scope 1 and Scope 2 reporting is increasingly common, Scope 3 quantification and reporting is less mature.

Limitations and Uncertainties

The data collected in accordance with this Report and the results of this Report are each subject to the assumptions and uncertainties set out below.

1. Use of Estimation Methods

Publicly accessible, asset level GHG reporting for industrial facilities, while increasingly available, is generally limited. Various techniques are used by third-party expert firms like Skarn Associates to generate asset-level estimates where information is unavailable or to reconcile with other forms of relevant data. Each technique has a varying degree of uncertainty. Users of the information provided should be mindful of limitations to accuracy and uncertainty associated with the estimations made by third parties.

2. Market Representativeness

As noted in the IZA study, approximately 13.5 million tonnes of refined primary zinc is produced globally, annually. The IZA study data is based on 30% of the global zinc mine production and 31% of the global refined zinc production volume for the reference year 2021. Data from Skarn Associates includes more than 10 million tonnes of mine production and more than 12 million tonnes of refined zinc production. Users of the information provided should be mindful of limitations to the representativeness of the data provided with respect to their sample sizes.

3. Use of Historical Data and Potential Changes in Carbon Performance of the Market

Data used in this document is historical and reflects historical performance and market analysis. It is possible that carbon performance of the market may have changed in 2023.