

CHANGES IN THE GLOBAL MINERAL COMPOSITION OF COPPER CONCENTRATES

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ABSTRACT

This paper presents selected findings of the ICSG research activities looking to increase public knowledge about the evolving mineral composition of copper concentrates produced and traded internationally, and the impacts of these changes on blending, smelting and refining of copper, including the processing of mineral by-products and residuals and the disposal of hazardous waste resulting from the copper concentrates processed.

The document starts by describing in some detail the most relevant findings on copper concentrate composition and downstream impacts in processing plants over the period 2017-2019. Information about selected regulatory issues affecting the transport of some hazardous waste reported as minor metals in copper concentrates is discussed in detail. The paper summarizes advances on the analysis of the mineral composition of copper concentrates in 2020 and early 2021 presented by ICSG in different conferences, published academic papers and most recent data of precious metal content in shipments of copper concentrates.

Finally, it presents the average mineral composition estimated for global copper output and trade of copper concentrates in recent years, and a detailed analysis of the latest annual data for the global trade flow of copper concentrates between countries in gross weight. The report ends with a detailed discussion of the minor metals structure and recent trends in the mineral composition of the exports of copper concentrates from Chile, the main exporter of copper.

Copper, copper concentrates, byproducts, hazardous waste, arsenic