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Geometallurgy of Niobium Deposits: An Integrated Multi-Disciplined Approach

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Abstract : Spatial ore distribution, ore heterogeneity and their links with geological processes involved in Niobium concentration are all factors for consideration when bridging field observations to extraction scheme. Indeed, mineralogy changes of Nb-hosting phases, their textural relationships with hydrothermal or secondary minerals, play a key control over mineral processing. This study based both on filed work and ore characterization presents data from several Nb-deposits related to carbonatite complexes. The results obtained by a wide range of analytical techniques, including, XRD, XRF, ICP-MS, SEM, Microprobe, Spectro-CL, FTIR-DTA and Mössbauer spectroscopy, demonstrate how geometallurgical assessment, at all stage of mine development, can greatly assist in the design of a suitable extraction flowsheet and data reconciliation.

Keywords : carbonatites, Nb-geometallurgy, Nb-mineralogy, mineral processing.
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