

# **Development and Application of an Innovative Approach to the Beneficiation of Serpentine Ores for the Bozymchak Concentrator**

*R Ventura<sup>1</sup> and K Mangulov<sup>2</sup>*

1. Principal Metallurgist, Core Resources Pty Ltd, Brisbane, Queensland 4010. Email: [RVentura@coreresources.com.au](mailto:RVentura@coreresources.com.au)
2. General Plant Director, KazMinerals, Bozymchak, Kyrgyz Republic. Email: [Kenzhitay.Mangulov@kazminerals.com](mailto:Kenzhitay.Mangulov@kazminerals.com)

## **ABSTRACT**

KAZ Minerals operate a gold-copper processing plant in the Kyrgyz Republic. The operation currently processes 1 Mtpa, and with future planned upgrades, intends to be a top 10 global copper producer. The Bozymchak plant began operations in 2015. Feed to the plant from the ore body has proven to be different to that originally understood from the initial mine plan. Over the years the Bozymchak processing plant has been adapted to manage this ore variability, with a good degree of success – especially in managing the Talc and Pyrite components of the current ore being treated. However, the global ore body is highly variable, with up to seven ore zones identified. In particular, Serpentine-containing ores have been identified as a significant issue for future mine planning/processing, with some zones containing majority of Serpentine minerals. These minerals will have a significant impact on plant feed in the future. To help address these future ore issues, KAZ Minerals engaged Core Resources to assist with developing a revised process flowsheet that will be able to handle the impact of these Serpentine minerals.

This paper outlines the various stages in the development of the revised flowsheet starting from understanding the mineralogy, performing laboratory-scale metallurgical testwork, conducting full-scale plant trials treating various proportions of the Serpentine ore to completing an engineering study to develop a suitable flowsheet for the Bozymchak future operations.