

EVALUATION OF KRIGING AND COKRIGING FOR ASBESTOS ORE RESERVE ESTIMATION IN CANA BRAVA MINE, GOIÁS, BRAZIL.

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The ore body in Cana Brava Asbestos Mine, in Minaçu, central-eastern Goiás, Brazil, extends north-south and dips 45° west. In the development of this mine more than 1000 vertical diamond drill holes have been made systematically on a regular grid 35x35 m. Representative samples in mineralized zones from drill holes were analyzed for total grade (TT), long fiber grade (TL), medium fiber grade (TM), and short fiber grade (TC), as well as retained grades on sieves (T7, T14, T25, T50, and T200), length index (IC), and dust (PO). All analyzed variables show an asymmetrical distribution with average values for TT equal to 3%, IC equal to 650, and dust around 18%. This paper presents a comparative study between kriging and cokriging for asbestos reserve evaluation in the Cana Brava Mine. The main reason for cokriging was based on good linear relationship between total grade (TT) and all other variables, considered as secondary ones. All results have proved that both methods generate very similar estimates of reserves, confirming that when secondary variables are well correlated with the primary variable, cokriging gives good results comparable to ordinary kriging. Despite this, we conclude that there is no need for cokriging when primary and secondary variables are well correlated and equally sampled. Therefore, in this case the ordinary kriging technique is sufficient for reliable reserve estimation.