

Paper Number: 4583

Sampling methods in colluvium material for metallurgical characterisation

Van der Schyff, W.N.¹ and Dimmick-Touw, M.D.²

¹Exxaro Resources, Roger Dyason Road, Pretoria, South Africa. Willem.vanderschyff@exxaro.com

²Exxaro Resources, Roger Dyason Road, Pretoria, South Africa. Mark.dimmick-touw@exxaro.com

During exploration activities at the Mayoko Iron Ore Project in the Niari Province of the Republic of Congo, (Figure 1), Exxaro encountered the problem of how to obtain scientifically representative samples for the evaluation of the metallurgical characteristics of the unconsolidated colluvium material. The colluvium material forms a very important portion of the Mayoko Iron Ore resources, as this presents an easily extractible niche product.

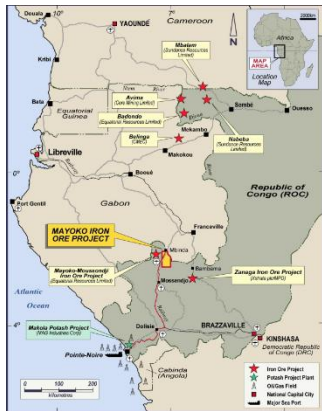


Figure 1: Location of the Mayoko Iron Ore project

Following extensive Reverse Circulation (RC) and Diamond Core Drilling (DD) resource evaluation campaigns, the *in-situ* resources were satisfactorily spatially delineated. However, the requirements for metallurgical characterisation, including lump: fine ratio, expected plant yield and associated quality variables of the products, were inadequately defined when using these drilling methods alone. This is primarily due to loss of some of the contaminants due to wash-out during drilling, as well as providing a skewed particle size distribution due to the inherent destructive nature of the RC drilling process.

The aforementioned variables are crucial in determining the most cost effective beneficiation process. Another cost effective method to evaluate the required metallurgical characteristics therefore had to be implemented. Various methods were investigated and after evaluation of the alternative methods, an extensive Auger Drilling (AD) campaign was approved.

This poster will discuss the advantages, limitations and results of the auger drilling programme on the unconsolidated colluvium of the Mayoko Iron Ore Project.

