A NEW SEDIMENT-HOSTED CU-CO DEPOSIT IN THE KUNENE REGION, NORTHWESTERN NAMIBIA

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The Cu-Co deposits of the Central African Copperbelt are world-famous and well-known. In recent years a sediment-hosted Cu-Co deposit, referred to as the Dolostone Ore Formation (DOF), has been found and explored in the Ombombo Subgroup of the Otavi Group in the Kunene region, northwestern Namibia. The Ombombo Subgroup represents a transgressional sequence from the active rift clastic sediments of the Nosib Group into a passive margin platform environment (MILLER, 2008). The over 40 km mineralized DOF horizon is hosted within the upper part of an about 6 km thick sequence of interbedded layers of carbonates, marly sediments, carbonaceous shales, and siltstones.

Current exploration resulted in a maiden resource containing 126100 tons Co at a cut-off grade of 600 ppm (CELSIUS RESOURCES, 2018). The deposit has the potential of becoming Namibia's first Co mine. The DOF mineralization is defined by an enrichment in Cu, Co, Zn, Ni, Fe and Mn. The ore horizon has a sharp contact to the footwall, but fades upwards into the hanging wall. This upper, gradual contact is referred to as the Wider DOF and is enriched in the same metal assemblage as the main DOF horizon.

The predominant sulfides of the DOF ore horizon are pyrite, pyrrhotite, chalcopyrite, and sphalerite. Several Co phases have been observed within the Co-Ni-As-S system. The ore horizon comprises several different mineralization types: disseminations, nodules**,** veins, breccias, and syn-sedimentary slump-like structures. Various superimposed deformational textures can be seen throughout the succession reflecting the effect of the Damaran Orogeny.

The ultimate aim of this study is to establish an appropriate genetic model for the DOF, which can be applied to exploration. First results already point out that the DOF does not share several of the key features of possibly similar Cu-Co deposits in the Central African Copperbelt and the Kupferschiefer. No evaporites have been identified in the stratigraphic sequence during extensive exploration, which is believed to have played a crucial role in the formation of the Kupferschiefer (BORG et al., 2012). Many deposits of the Central African Copperbelt can be related to first reductants in the sedimentary succession (MILLER, 2013), however, the DOF represents neither the first nor a specifically strong reductant.

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