

# Enrichment of Co, Ni, and Mn from Cobalt-rich Ferromanganese Crust by Combining Enhanced Gravity Separation and Reverse Froth Flotation

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Recent technological advancements are raising the demand for valuable and critical metals. In a quest to find new resources, cobalt-rich ferromanganese crust (CRFC) is considered as a new alternative since it contains various valuable metals, including cobalt (Co), nickel (Ni), and manganese (Mn). The aim of this work was to investigate the efficiency of (1) the enhanced gravity separation by the Falcon concentrator and (2) the reverse flotation to enrich valuable metals from CRFC. The main finding of this research was that Mn, Co, and Ni could be enriched by combining the enhanced gravity separation and the reverse flotation after carefully controlling the particle size of the sample.

**Keywords** : Cobalt-rich ferromanganese crust, Falcon concentrator, Reverse flotation, Particle size