

Chapter 8

Advances of Nanotechnology Applications in Mineral Froth Flotation Technology

Madzokere Tatenda Crispen, Nheta Willie, Gumbochuma Sheunopa

Summary

In this chapter, the most salient nanoscience and nanotechnology concepts related to extractive metallurgy, specifically mineral froth flotation, are discussed. The most relevant and current findings of nanotechnology-based research in the domain of mineral processing and a concise overview of recent advances in the application of nanotechnology for improved mineral recovery using froth flotation technology is reported. In this ever-expanding age of technologies to improve mineral processing, nanotechnology stands as one of the technologies which can revolutionize the mineral processing industry in general. Nanomaterials present novel properties, which can be exploited to generate exceptionally good reagents to improve recoveries and grades of minerals of interest during the froth flotation process. In light of these current developments, insight into potential future research directions for nanotechnology research in the domain of froth flotation of minerals is given.