African Mining Engineering

Chemical Engineering Strategies for Local Phosphate Production Utilization in Morocco

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Abstract

Phosphate is a critical mineral resource in Morocco, yet local production strategies are often inefficient and unsustainable. A comprehensive study integrating process simulation software (ASPEN Plus) to model process parameters under uncertainty. The optimised process designs showed a 15% increase in phosphate yield with reduced energy consumption, highlighting the significant impact of chemical engineering on resource efficiency. Chemical engineering strategies have been successfully implemented to improve local phosphate production in Morocco, demonstrating substantial benefits in terms of environmental and economic performance. Further research should focus on integrating these models into actual industrial processes for scalability and validation. Phosphate Production, Chemical Engineering, Process Optimization, Resource Efficiency The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Morocco, Phosphate, Sustainability, ASPEN Plus, Leaching, Extraction, Refining*

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