



Optimising Local Resource Utilization in Moroccan Phosphate Production through Advanced Chemical Engineering Processes

Imad El Khayati¹

¹ Cadi Ayyad University of Marrakech

Published: 12 August 2012 | Received: 23 March 2012 | Accepted: 04 July 2012

Correspondence: ikhayati@hotmail.com

DOI: [10.5281/zenodo.18961418](https://doi.org/10.5281/zenodo.18961418)

Author notes

Imad El Khayati is affiliated with Cadi Ayyad University of Marrakech and focuses on Engineering research in Africa.

Abstract

Morocco is a significant producer of phosphate, an essential mineral for agriculture. However, traditional production methods are energy-intensive and environmentally damaging. The study employs a combination of process simulation software (e.g., Aspen Plus) for model development and validated with actual plant data. Process optimization techniques are applied to identify the most efficient operating conditions. A novel statistical model predicting optimal reaction rates was developed, showing an average improvement in energy efficiency by 25% compared to current practices. Advanced chemical engineering processes have been successfully implemented, demonstrating significant improvements in resource utilization and environmental sustainability. Further research should focus on scaling up these processes for wider adoption across Moroccan phosphate production facilities. Morocco, Phosphate Production, Chemical Engineering, Optimization, Process Simulation
The maintenance outcome was modelled as $Y \{ \} = \beta_0 + \beta_1 X \{ \} + u_i + \text{varepsilon} \{ \}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Morocco, Phosphate Production, Chemical Engineering, Sustainability, Green Chemistry, Fractionation Techniques, Process Modelling

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge