IM4DC

Action Research Report

SUMMARY

Researcher:
Zela Ichlas (PhD Student)
[Supervisor: Don Ibana]

School/Centre:
Mechanical Engineering
WA School of Mines

University/Institutions:
Curtin University

Key themes:
Community and Environmental Sustainability
Operational Effectiveness

Key countries:
Indonesia, Australia

Completion:
June 2015

Research aims:
This ongoing PhD research aimed to establish a direct solvent extraction technique for purifying nickel and cobalt from the pregnant liquor solution generated by nitric acid leaching under atmospheric conditions. Work on the stripping of aluminium and zinc and the scrubbing of co-extracted cobalt and manganese is in progress. The application of the technique to an Indonesian test sample will then be carried out.

For further information on this action research:
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Final report available on request from:
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The Development of a Solvent Extraction Process for Purifying Nickel and Cobalt from Nitric Acid Leach Solutions of Laterite Ores

This research has established that a direct solvent extraction technique involving two sequential solvent extraction stages but using only one solvent system that consists of Cyanex® 272 in ShellSol2046 is the most attractive option in purifying nickel and cobalt from pregnant liquor solution generated by nitric acid leaching under atmospheric conditions. The first stage allows the removal of aluminium and zinc and the second stage is the removal of cobalt together with residual impurities leaving only nickel in the raffinate. Work on the stripping of aluminium and zinc and the scrubbing of co-extracted cobalt and manganese is in progress. The application of the technique to an Indonesian test sample will then be carried out.

International Mining for Development Centre

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