



Council for Scientific and Industrial Research (CSIR)

Natural Resources and the Environment (NRE)

Durban, South Africa

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Title:	Beneficiation of green liquor dregs into cement production and/or as a neutralising agent for the treatment of acid mine drainage
Abstract:	<p>Kraft pulp mills generate large amounts of green liquor dregs (GLD). Green liquor dregs can be classified as industrial minerals that are rich in calcium carbonate. They are usually disposed by landfilling. Information received from industry revealed that the disposal costs of GLD by land filling can reach R20mil per year for a single mill. Estimates from the same mill revealed that up to 48 000 tons of GLD are disposed annually by land filling. Green liquor dregs disposal therefore presents a major environmental and economic problem to the South African FTTP sector, and the industry is under pressure to find alternative options for managing it.</p> <p>One option to utilise GLD is in the production of cement. Mined natural limestone ore composed of 70% calcium carbonate is predominately used in cement production. It is anticipated that dregs with calcium carbonate contents greater than 70% may be compatible with cement production. Another option being investigated is the treatment of acid mine drainage (AMD) using GLD. A promising option to treat AMD efficiently and cost effectively is to use limestone. Limestone is used to neutralize the acidity, whereas precipitation of heavy metals and other suspended solids is take care by the subsequent lime treatment process. However, owing to the low availability of limestone and its high cost, new AMD treatment technologies that focus on replacing naturally mined limestone is required. In this project the potential of beneficiating GLD into cement clinker production and as an alternative cheap source of neutralizing agent in treatment of acid mine drainage (AMD) is being investigated. This will be of mutual benefit to the pulp and paper industry as a way to dispose of GLD thereby reducing their environmental footprint and waste management costs, and at the same time to the mining industry/Government. The project incorporates a PhD study.</p>
Lead institution:	CSIR
Partner institutions:	UKZN, Sappi, Mondi
Student name:	Lebo Sebogodi
Principal Investigator	Prof. Bruce Sithole
Degree:	PhD
Funded by:	CSIR, DST Waste Roadmap
Start date:	Sept 2016
End date:	March 2019
Feedstock:	Chemical pulp mill dregs
Value chain products:	Building products, AMD treatment
Geographic source of the feedstock:	Mpumalanga, KZN