BioMinE FP6 Project

Mintek played a leading role in the BioMinE project between 2004 and 2008. BioMinE (short for Biotechnology for Metal-bearing materials in Europe) was an Integrated Project in the Sixth Framework Programme (FP6) of the European Commission (EC), and aimed to facilitate the development of innovative biotechnology-based processes for the recovery of metals from European resources.

Project description

BioMinE was a large and complex research and technology development project, with an overall budget of €17.4-million, of which the EC contribution amounted to €11.6-million. The BioMinE consortium comprised around 40 partners from Europe and South Africa, representing academia, research organisations, mining companies, engineering contractors and equipment suppliers.

The project comprised seven Work Packages, and ran for four years (from 1 November 2004 to 31 October 2008). The General Coordinator of the project was BRGM (Mintek’s equivalent company in France).

South Africa’s role in BioMinE

Four South African institutions participated in the BioMinE project: De Beers, Mintek’s Biotechnology Division, the University of Cape Town’s Department of Chemical Engineering, and the University of Stellenbosch’s Department of Microbiology.

Mintek’s role in the project was significant. It had the second-largest budget allocation of €2.3-million (of which €1.2-million was funded by the EC), it coordinated two of the project’s Work Packages (WP2: Bioleaching and WP5: Exploitation of Results), it hosted a technical workshop in South Africa, and it conducted two of the five pilot-plant investigations in the latter stages of the project.
Main achievements of BioMinE

BioMinE identified matches between bioprocessing technology opportunities and appropriate European resources suited for application of these technologies. Five specific opportunities, each employing a different, matching technology, were selected for piloting, design and economic evaluation studies. These were:

- RTB Bor: copper bioleaching in Serbia
- Aguablanca: nickel copper bioleaching in Spain
- Tara: zinc bioleaching in Ireland
- Low Duty Bioreactor (LDB) concept for sub-economic resources
- Biological reduction of sulfate to sulfide for metals recovery

A Life Cycle Assessment evaluated the environmental, social and economic benefits of bioleaching technology, using the Aguablanca and RTB Bor applications as case studies. Substantial scientific advances were derived and disseminated to the broader scientific community in the European Union. The minerals biotechnology knowledge base was strengthened and public awareness was raised. A BioMineWiki was created, and a DVD entitled “The Invisible Miners” was produced (see links below).

Structure of the BioMinE project

Internet links:
- http://biomine.brgm.fr/
- http://www.youtube.com/watch?v=6i_XfkCvsao

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