SULFIDE TAILINGS INTEGRATED MANAGEMENT : THE FIXED STABILIZED BACKFILL AS AN ENVIRONMENTAL AND MINING NECESSITY

Fact Sheet

Project Information

SULFIXBACK

Grant agreement ID: BRE20362

Project closed

Start date
1 November 1992

End date
31 October 1995

Funded under
Specific programme (EEC) of research and technological development in the field of industrial and materials technologies, 1990-1994

Total cost
No data

EU contribution
€ 1 027 000,00

Coordinated by
PIRITES ALENTEJANAS SA
Portugal

Objective

Experimental work on chemical stability performed by the French Team (Cogema, INPL, U. Nancy) has contributed to the development of innovative test procedures. Methodology for the characterisation of each tailing and for the selection of the

adequate binder is well established. Through further technical development, the research work related to adsorption processes could be tested in the operating plants.

Mechanical strength testing done by the Portuguese Team (IST, CIMPOR) revealed that the cement type binder and corresponding proportion in the mixture varies with sulphide tailings characteristics. In any case, adequate addition of cement to sulphide tailings improve the mechanical strength of the mixture, decrease its permeability and reduce the capability of pollutant release.

Tests for auto-ignition potential assessment were done by Almagrera and from the obtained results it can be concluded that without heating in air atmosphere up to a minimum of 400 C all three tailings have no auto-ignition capability.

From the results obtained on the three different sulphide tailings it can be concluded that a viable technical alternative of underground disposal of these type of tailings can be studied through adequate testing and establish the economic conditions to assess the viability of its implementation into normal operation.
European mining industries, they are base metals (Cu, Pb, Zn) or gold producers, are generally exploiting and processing sulfide mineralizations, stocking large amounts of sulfide tailings (pyrite, arsenopyrite...) containing toxic compounds and heavy metals.

Available technologies such roasting to give sulfuric acid (and arsenic trioxyde) has become economically difficult because of the saturation of the market. Land disposal, in spite of recent developments like underwater disposal or dry covers, remains environmentaly hazardous in a long-term vue, as demonstrated by current canadian or swedish reclamation problems.

Three major mining operators from EC have identified the similarity of their sulphide problem, in spite of differencies in tonnages, toxic concentrations or mining methods. They are also decided to develop a new answer to this problem by an integral recycling ofthis concentrated sulphide tailings in undergrund works after chemical stabilization.

Fields of science (EuroSciVoc)

engineering and technology > environmental engineering > waste management > waste treatment processes > **recycling**

engineering and technology > environmental engineering > **mining and mineral processing**

Programme(s)

FP3-BRITE/EURAM 2 - Specific programme (EEC) of research and technological development in the field of industrial and materials technologies, 1990-1994

Topic(s)

1.1.2 - Mining technology

Call for proposal

Data not available

Funding Scheme

CSC - Cost-sharing contracts

Coordinator

PIRITES ALENTEJANAS SA

EU contribution

No data

Total cost

No data

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EU contribution

No data

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Total cost

No data

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EU contribution

No data

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Total cost

No data

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EU contribution

No data

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Total cost

No data

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EU contribution

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Total cost

No data

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EU contribution

No data

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Total cost

No data

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EU contribution

No data

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Total cost

No data

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