#### Home > ... > FP2 >

OPTIMIZATION OF A BACTERIAL LEACHING PROCESS FOR THE TREATMENT OF AURIFEROUS ARSENICAL PYRITES

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# OPTIMIZATION OF A BACTERIAL LEACHING PROCESS FOR THE TREATMENT OF AURIFEROUS ARSENICAL PYRITES

# **Fact Sheet**

Project Information		
Grant agreement ID: MA2M0055 Project closed		<b>Funded under</b> Specific research and technological development programme (EEC) in the fields of raw materials and recycling, 1990-1992
Start date 1 July 1992	End date 31 December 1994	Total cost No data
		<b>EU contribution</b> No data
		Coordinated by Cheni SA France

# Objective

The developed system has been demonstrated at different levels, including a full system test conducted underground in real conditions in the Potasas del Llobregat mine. This test was carried out on a Voest-Alpine AM-110 roadheader, a large

machine weighing of 95 t and with a 300 kW cutting motor. Tests results were very positive and showed the technical feasibility of the original idea. There are no records of an equivalent experience with underground cutting machines at world level.

In detail, the most important partial results which are available from the project are summarized below:

- Image processing software able to combine colour, texture, and 'a priori' information, to recognize and identify natural rock and mineral formations (AITEMIN).

- Optimal decision software to define the most convenient trajectory/path, based on a parametric costs function and taking into account mechanical and operational restrictions (LAAS-CNRS).

- Robotic modelling and control of heavy mining/construction equipment (AITEMIN).

- Image fusion of multiple camera arrangements (AITEMIN).

- In-field calibration of cameras/robot reference systems, in natural and/or unstructured environments (LAAS-CNRS).

- Hardware/software structure for advanced automation applications in very harsh environments (AITEMIN).

#### ABSTRACT

The aim of the proposed programme is the "Optimization" of a bacterial leaching process for the treatment of auriferous, arsenical pyrites". For the implementation of this programme, METBA S.A. Greece as the coordinator will collaborate with the UWC CARDIFF, England and BRGM, France. The Olympias pyrite concentrate produced in Chalkidiki Northern Greece will be

examined as the case study. The current project will include basic research studies on bacterial oxidation of arsenopyrite and pyrite, aiming to provide the basis for optimal leaching conditions. Continuous laboratory tests in a mini-plant of a total installed volume of 30 1t will be conducted for reliable quantification of process mechanisms and operating variables. Experimental results Will be assessed in order to develop an optimized process flow-sheet for the treatment of Olympias auriferous arsenical pyrite concentrate and other similar refractory concentrates. The economic viability of this process will be also evaluated.

# Fields of science (EuroSciVoc)

natural sciences > computer and information sciences > software

engineering and technology > materials engineering > colors

engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > sensors > optical sensors natural sciences > chemical sciences > electrochemistry > electrolysis social sciences > sociology > industrial relations > automation

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### Programme(s)

<u>FP2-MATREC C - Specific research and technological development programme (EEC) in the fields of raw</u> <u>materials and recycling, 1990-1992</u>

# Topic(s)

Data not available

# **Call for proposal**

Data not available

# **Funding Scheme**

CSC - Cost-sharing contracts

### Coordinator

Cheni 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

#### National Technical University of Athens

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EU contribution

No data

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Total cost

No data

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#### **UNIVERSITY OF WALES CARDIFF**

🕌 United Kingdom

EU contribution

#### No data

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Total cost

No data

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