The study of the effect of organic complexing agents of Fe(III) or Fe(II) on iron monosulfide oxidative dissolution

**UEFISCDI**
Project: 51/2012
Acronym: ECAFE

**Coordinator:** University of Craiova
**Partner 1:** University "Al Cuza" Iasi
**Partner 2:** National Institute of Materials Physics Bucharest

**Strategy and objectives**

The study is focused on two directions: a theoretical direction of fixing of the main aspects of FeS oxidative dissolution and, respectively, a practical direction, materialized by experimental studies, having as objectives achievement of our own results and their interpretation regarding to literature data.

The main purposes of this study are the accurate characterization of FeS oxidative dissolution process in presence of Fe(III) and Fe(II) complexing agents, determining the temporal evolution of some indicators of FeS oxidation degree (pH, Eh, total iron concentration, total dissolved sulfur concentration, change/corrosion current densities, charge transfer/polarization resistances, etc.), surface analysis of reacted mineral samples by X-ray diffraction (XRD), FTIR spectroscopy, Raman spectroscopy, Scanning Electron Microscopy and the selection of ligands having an adequate inhibition efficiency of FeS oxidative dissolution, in order to create effective strategies of the suppression of the environmental contamination.

**Key persons**

**Project Manager:**
Dr. Paul CHIRITA

**Person in charge from Partner 1:**
Dr. Mihail Lucian BIRSA

**Person in charge from Partner 2:**
Dr. Mihaela BAIBARAC

**Total funding per years**

2012: 230000 Lei
2013: 690000 Lei
2014: 869992 Lei
2015: 210008 Lei

Total: 2000000 Lei
Results

Papers


Conferences

1) Fourteenth International Symposium on Water-Rock Interaction, WRI 14, Avignon, France, June 9-14, 2013
Effect of inorganic anions on FeS oxidative dissolution.
P. Chirita, C.A. Constantin and M.L. Schlegel

2) Goldschmidt Conference 2013, August 25-30 2013, Florence, Italy
The Effect of 1,10-phenanthroline on the oxidative dissolution of iron monosulfide (FeS).
C.E. Badica and P. Chirita

3) Goldschmidt Conference 2013, August 25-30 2013, Florence, Italy
The effect of some new organic inhibitors on the oxidative dissolution of iron monosulfide (FeS).
C.A. Constantin, P. Chirita, C.E. Badica, L. Birsa, E. Matei, I. Baltog and M.L. Schlegel

Abstracts
