

Program	PN MENER 1726
Project Leader (CO)	CEPROMIN Deva
Project title (ENG):	Researches regarding elaboration of new technology for gold ore processing
Project title (RO):	Cercetari privind elaborarea unei noi tehnologii de procesare a minereului aurifer
Duration	2005-2006
Team Leader	Cristiana COSMA
Summary (short description) ENG	<p>The aim of the project was to promote performant technological solutions, efficient and more environmental friendly both in the sector of extraction/ore processing and in the field of process wastewater treatment.</p> <p>Treatment possibilities of wastewater from the recovering flows of precious metals based different solubilization systems (HCl + CaCl₂, thiourea) were studied and it was elaborated the unitary treatment flow of wastewater from the processing of gold ore by solubilization/complexation with thiourea. Technical treatment flow of wastewater resulted from gold ore processing using thiourea, with high content of heavy metals and organic load, has the following phases: oxidation of organic load and oxidable heavy metals (Fe²⁺, Mn²⁺) with hydrogen peroxide (Fenton method), pH correction, metal hydroxides/oxides precipitation, flocculation of suspended matter, settling - phases separation. The treated wastewater is in agreement with discharging conditions into natural receiver to organic load and heavy metals indicators (Fe, Mn, Zn, Cd, Cr, Cu, Pb, Ni).</p>
Summary (short description) RO	<p>Proiectul a avut in vedere promovarea unor solutii tehnologice performante, eficiente si mai prietenoase fata de mediu, atat in sectorul industriei de extractie/prelucrare cat si in domeniul epurarii apelor uzate de proces.</p> <p>S-au studiat posibilitatile de epurare a apelor uzate rezultate din fluxurile de recuperare a metalelor pretioase care utilizeaza diverse sisteme de solubilizare/complexare (HCl + CaCl₂, tiouree) si a fost elaborat fluxul unitar de epurare a apelor uzate rezultate de la procesarea minereurilor aurifere in varianta de solubilizare/complexare cu tiouree. Fluxul tehnologic de epurare a apelor reziduale provenite de la procesarea minereurilor aurifere cu tiouree, cu continut ridicat de metale grele si incarcare organica comporta urmatoarele faze: oxidare incarcare organica si metale grele oxidabile (Fe²⁺, Mn) cu apa oxigenata (proces Fenton), corectie pH, precipitare hidroxizi/oxizi metalici, floculare suspensii, decantare - separare faze. Apa uzata epurata indeplineste conditiile de evacuare in emisari naturali la indicatorii incarcare organica si metale grele (Fe, Mn, Zn, Cd, Cr, Cu, Pb, Ni).</p>
Dissemination of results	
Conferences (platform, poster, abstract / full-paper)	<p>Mutihac L., Stefanescu M., Nagirdu D., Moise A., Cosma C., Oncu V., Treatment Possibilities of Wastewater from Precious Metals Non-conventional Recovery Processes, <i>Simpozion international „Mediul si Industria”</i>, 2005, Bucharest</p> <p>Cosma C., Nicolau M., Ballo A., Stefanescu M., Oncu V., Solutions technologique pour l'épuration des eaux usées évacuées par l'industrie minière - extraction d'or, 4^{ème} Colloque Franco-Roumain de Chimie Applique (CoFrRoCA), 2006, Clermont Ferrand, Franta</p>