



Faculté des sciences appliquées

FSA

MAPR2141 Physical chemistry of hydrometallurgical processes

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

Teacher(s): Joris Proost
Language: french
Level: 2nd cycle course

Aims

Study of the physico-chemical fundamentals and technological aspects of hydrometallurgical processes, and their application to the extraction and recycling of metals.

Main themes

2. Course description

Among the basic hydrometallurgical processes being considered are

- leaching
- purification of leach solutions (chemical precipitation, ion exchange, solvent extraction)
- metal extraction (cementation, precipitation by reductive gases, electrolysis)
- electrolytic metal refining.

These processes are treated both from a theoretical and technological point of view. The theoretical part is largely based on

- the study of thermodynamic equilibrium of ions, oxydes, sulphides and metals in aqueous solutions (e.g. by E-pH diagrams)
- chemical and electrochemical kinetics and rate theory

From a technological point of view, these basic processes and principles are applied for the construction of a global flow-sheet describing the extraction and recycling of metals. Laboratory sessions are organized to actively demonstrate the different processes.

Other credits in programs

INCH21	Première année du programme conduisant au grade d'ingénieur (5 credits) civil chimiste		
INCH22	Deuxième année du programme conduisant au grade d'ingénieur civil chimiste	(5 credits)	Mandatory