



MAPR2430 Inorganic industrial chemical processes

[30h+15h exercises] 4 credits

This course is taught in the 2nd semester

Teacher(s): Juray De Wilde
Language: French
Level: Second cycle

Aims

To illustrate via well-chosen processes in the important inorganic sector the major constituents in the fabrication process, integrating knowledge from different other courses (kinetics, reactors, thermodynamics, transfer).

Main themes

A detailed analysis of the basic processes of the chemical industry (production of sulfuric acid, phosphoric acid, sodium carbonate, hydrogen, ammonia).

Content and teaching methods

- Industrial synthesis of sulfuric acid: production of SO₂, conversion of SO₂ to SO₃, absorption of SO₃, fabrication and environmental aspects, flow-sheets.
- Study of the catalytic conversion of SO₂ to SO₃: thermodynamics, kinetics, convertor calculations.
- Industrial synthesis of phosphoric acid: dry route, wet route, construction materials, phosphates.
- Industrial fabrication of sodium carbonate: process via ammonia, process via caustic brine, bicarbonation column, environmental aspects, handling, transport and storage.
- Production of hydrogen and ammonia: steam reforming, partial oxidation, shift-reaction, ammonia synthesis (catalyst, convertor, construction material).

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Evaluation based on an oral exam.

Other credits in programs

INCH22	Deuxième année du programme conduisant au grade d'ingénieur civil chimiste	(4 credits)
INCH23	Troisième année du programme conduisant au grade d'ingénieur civil chimiste	(4 credits)