



CHIM2195 Introduction to polymer chemistry

[22.5h] 2.5 credits

Teacher(s): Jean-François Gohy
Language: French
Level: Second cycle

Aims

This course allows interested chemistry students to have an introduction to polymer chemistry. It will give the necessary bases to students who do not desire to specialize in this field. It does not constitute a necessary prerequisite to the more specialized courses of 2nd licence year (although quite useful).

Main themes

The following questions will be examined (in parenthesis, the number of hours dedicated to that part): 1. Basic notions (6hrs): - the notion of macromolecule: types of polymers (homo-, co-, branched, etc), notions of nomenclature, notions of stereochemistry, molecular masses and their distribution - the notion of polymeric material. 2. Main methods of synthesis (6 hrs): -general problems - chain polymerisation: introduction to radical, ionic and covalent polymerisations - the polymerisation by step: main principals and chosen examples - modification of polymers. 3. Methods of characterization (6 hrs): succinct presentation of characterization methods particularly used in polymeric chemistry: techniques of characterization of molecular masses, techniques of characterization of main physic properties (T_g , T_{fus} , ...). 4. Typical applications (4hrs): succinct description of some applications of polymeric materials.

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

Prerequisites: mean knowledge in general, organic, inorganic and physical chemistry.

Evaluation: written examination (about 3h) and short oral examination (about 15 min).

Main support: book J.M.G. Cowie "Polymers: Chemistry & Physics of Modern Materials" 2nd ed. Blackie Academic & professional, ISBN 0 7514 0134X. Chapters 1-14.

Other useful support: book J.P. Mercier, E. Marechal "Chimie des Polymères", Presses polytechniques et universitaires romandes, ISBN 2-88074-240-4.

Other credits in programs

CHIM21 Première licence en sciences chimiques
CHIM22 Deuxième licence en sciences chimiques