



NAME : DEPARTMENT OF CHEMISTRY AND TECHNOLOGY OF POLYMERS

INSTITUTION : CRACOW UNIVERSITY OF TECHNOLOGY

COUNTRY : POLAND

Profile :

The Department of Chemistry and Technology of Polymers (hereafter called “Department”) is a part of the Faculty of Chemical Engineering and Technology at the Cracow University of Technology. In the Department there are 3 full professors, 1 associate professor, 9 adjuncts and 4 members of staff.

Faculty members of the Department are involved in teaching and research in the area of polymer chemistry and technology, including materials science issues. At the post-graduate level 45 students are trained within the specialisation “technology of polymers”, performing at the final semester M.Sc. works under supervision of faculty members of the Department. Most of the research work is performed together with 12 Ph.D. students who are working towards their doctorates at the Department, being funded by the Ministry of National Education and Science in Poland.

Activities :

Education: the main teaching profile is technology and engineering of polymeric materials (polymers, copolymers, blends, (nano)composites, plastics, hybrid materials, etc.) and their application as innovative products in modern materials engineering.

Research: synthesis, processing, characterisation and optimization of properties of polymeric materials for advanced applications. Design of structure / properties relationships in polymer nanocomposites to fabricate value-added products and technologies.

Cooperation: established links with Polish polymer industry to develop jointly new products and technologies as well as to offer training possibilities and research expertise.

Expertise on following materials:

- polymers
- copolymers
- blends
- (nano)composites
- hybrid materials

**Actual research domains concerning materials technology / Competences :****Activities :**

Research work performed at the Department focuses on the following areas:

1. Synthesis of novel polymers for special applications (e.g. biodegradable polymers, polymers from renewable resources),
2. Preparation of polymer blends and nanomaterials for thermal energy storage materials,
3. Polymer nanocomposites with enhanced thermal properties,
4. Recycling of polymers and plastics, particularly PVC wastes,
5. Flame retardancy of polymeric (nano)materials,
6. Application of novel techniques in polymer synthesis and characterisation, e.g. MT-DSC, microwaves, thermovision.

Available research infrastructure :

- fully-equipped polymer processing laboratory (extrusion, Brabender mixing, injection moulding, compression moulding, pressing, pelleting, grinding, etc),
- thermal analysis laboratory (TG, DSC, MT-DSC, DMA, TG/DSC),
- FTIR, FTIR microscopy, UV-Vis, NMR, AFM, GC/MS, GPC, HPLC,
- mechanical properties testing machines,
- LOI, thermovision camera, UL-94.

Coordinate address :

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