universidade de aveiro

CAPABILITY

Structural Analysis of Polymeric Materials

STUDY OF THE CHEMICAL STRUCTURE, CRYSTALLINITY AND DEGRADATION OF POLYMERIC MATERIALS

KEY WORDS

STRUCTURAL CHARACTERIZATION,

POLYMERIC MATERIALS,

RECYCLING

DESCRIPTION

The University of Aveiro has advanced capabilities for the structural characterization of polymeric materials using X-ray diffraction (XRD), FTIR spectroscopy, Raman spectroscopy and complementary techniques such as DSC, TGA, UV-Vis, NMR and elemental analysis. This infrastructure enables the study of chemical structure, crystallinity, molecular order and degradation or aging processes, as well as the assessment of processing and recycling effects on material structure. These capabilities support R&D activities in formulation, compatibility, recyclability and the development of solutions within a circular-economy framework.

APPLICATIONS

- Study of crystallinity, phases and molecular structure in polymers.
- Chemical analysis and determination of functional groups.
- Evaluation of thermal, oxidative or photochemical degradation.
- Research on compatibility and miscibility in mixtures and compounds.
- Analysis of the effect of processing and re-processing on the structure.
- Development and optimization of formulations for technical applications.
- Support for R&D projects in recycling and the circular economy.

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