



Optical Properties of Polymers

UV-VIS CHARACTERIZATION AND COLORIMETRIC ANALYSIS

KEY WORDS

OPTICS,
UV-VIS,
COLORIMETRY

DESCRIPTION

The University of Aveiro (UA) offers facilities and expertise for optical characterization of materials, including UV-Vis-NIR spectrometry and colorimetric analysis. UA is equipped with a wide range of for analyzing the optical behavior and performance of materials, including UV-Vis spectrophotometry with integrating spheres, fluorescence spectroscopy, refractive index, and colorimetric systems. These techniques enable the precise evaluation of absorption, reflectance, transmittance, scattering, and emission properties of polymer films, as well as the determination of color parameters such as Lab* and ΔE .

Available equipment includes UV-Vis spectrophotometers with integrating spheres for measuring transparent, matte, or diffuse surfaces, enabling the study of optical stability, aging effects, and the influence of pigments or UV-absorbing additives. These capabilities are essential for understanding how degradation, formulation changes, and recycling cycles impact polymer transparency, coloration, and optical behavior, supporting the development of more durable and recyclable materials.

APPLICATIONS

- Evaluation of transparency and absorption of polymeric films
- Color analysis, tinting and chromatic variations
- Optical degradation study during recycling
- Characterization of coatings, additives and pigments

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