



Integral Characterization of Plastic Waste

COMPOSITIONAL ANALYSIS OF PLASTIC WASTE

KEY WORDS

PLASTIC WASTE,
COMPOSITIONAL
ANALYSIS,
POSTCONSUMER
PACKAGING

DESCRIPTION

Composition of various plastic wastes is integrally analyzed using a set of complementary analytical techniques. These techniques allow determining the type of base polymer material and the presence and type of additives and/or mineral fillers. The analysis is performed on both, specific types of plastic waste and mixed plastic waste streams. In the last case, detailed quartering is carried out according to the stream under study in order to work with actual representative samples. In this way, different types of plastics and the relative amount of each one within the stream are determined from the characterization.

AVAILABLE TECHNIQUES AND/OR EQUIPMENT

Standard Differential Scanning Calorimetry (DSC) and/or modulated (MDSC)

Standard Thermogravimetric Analysis (TGA), modulated (MTGA), and/or High Resolution (HiRes MTGA)

Fourier Transform Infrared Spectroscopy (FTIR), micro-FTIR, and Attenuated Total Reflectance (ATR)

X-Ray Diffraction (XRD)

X-Ray Fluorescence Spectrometry (XRF)

Optical Microscopy (OM)

Scanning Electron Microscopy (SEM) with Energy Dispersive X-ray Spectroscopy (EDS)

Transmission Electron Microscopy (TEM)

Atomic Absorption Spectrophotometry (AA)

APPLICATIONS

Municipal Solid Waste (MSW)

Waste from Electrical and Electronic Equipment (WEEE)

Post-consumer flexible and rigid packaging

Agro-plastics

Containers and Packaging

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