



# Materials Identification

## SEPARATION AND IDENTIFICATION OF COMPONENTS BY PHYSICAL AND CHEMICAL METHODS

### KEY WORDS

MATERIAL IDENTIFICATION,

ANALYTICAL TECHNIQUES,

COMPOSITIONAL ANALYSIS

### DESCRIPTION

Identification of materials and components of an unknown sample can be performed combining several analytical techniques:

Infrared spectroscopy with Fourier transform (FTIR and micro-FTIR)

Attenuated total reflectance (ATR)

Differential scanning calorimetry (DSC)

Thermogravimetric analysis (TGA)

High performance liquid chromatography (HPLC)

Gas chromatography coupled with mass spectroscopy (GC/MS)

Elemental analysis by ICP/AES and ICP/OES

X-ray analysis by diffraction (DRX, WAXS) and fluorescence spectroscopy (FRX)

Electronic microscopy (SEM/EDX, TEM)

Analysis of selective solvents solubility

### APPLICATIONS

Polymer identification

Component separation

Additive identification

Contaminant detection

Trace analysis

Chemical composition analysis

Elemental analysis

Quality control verification

Raw material validation

Product verification

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