



# Polymers Characterization

## INTEGRAL ANALYSIS OF MECHANICAL AND THERMAL PROPERTIES

### KEY WORDS

CHARACTERIZATION,  
MECHANICAL  
PROPERTIES,  
THERMAL ANALYSIS

### DESCRIPTION

This capability integrates a set of standardized and adapted procedures to offer a comprehensive characterization of the behavior of polymeric materials. Mechanical performance (tension, flexion, compression, hardness) is evaluated to validate the design and structural integrity. In parallel, through thermal analyses (DSC, TGA), the composition, stability, and key transition temperatures (melting, glass transition), fundamental for reverse engineering and quality control, are determined. The synergy between mechanical and thermal analysis provides a deep understanding of the material, correlating its structure and composition with its in-service performance. This capability is key to solving complex failure analysis problems, developing advanced formulations, and optimizing virgin and recycled materials.

### APPLICATIONS

- Failure analysis
- Formulation analysis.
- Comprehensive quality control of raw materials
- Development and validation of recycled materials
- Thermal stability and mechanical performance studies

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