

## Rheology - Polymers Characterization

5 days

PCH/RHEO-E

### Overview

#### LEVEL

Skilled

#### PURPOSE

This course provides a technical understanding of polymers behavior.

#### LEARNING OBJECTIVES

Upon completion of the course, the participants will be able to:

- link properties and conformation of the polymer,
- have an overview of the main characterization methods to reach high quality product,
- discuss operating parameters of polymer processing.

#### WAYS AND MEANS

Videos to illustrate the different methods of characterization.

#### LEARNING ASSESSMENT

Quiz.

#### PREREQUISITES

No prerequisites for this course.

### Agenda

#### POLYMER STRUCTURE - PROPERTIES RELATIONSHIP

1.5 d

Description of the different scales from the chemical structures (microscopic scales) to macroscopic properties.

#### SPECIFIC TECHNIQUES OF ANALYSIS FOR MOLECULAR STRUCTURE

0.25 d

Processing processes.

Morphology.

End-use properties.

The following techniques will be described: molecular weight distribution, melt index, intrinsic viscosity, gel permeation chromatography, rheology.

#### MAIN COMMERCIAL THERMOPLASTICS, RELATED PROPERTIES & APPLICATIONS

0.75 d

Technical and commercial specifications.

Quality test at plant (on-line, off-line, at-line measurements).

Certificate of analysis.

Product data sheets.

Customer claims management.

#### RHEOLOGY OF POLYMERS PROCESSING

2.5 d

Basic rheological aspects of polymers melt.

Influence of operating conditions (P, T...) on the rheology of polymer processing.