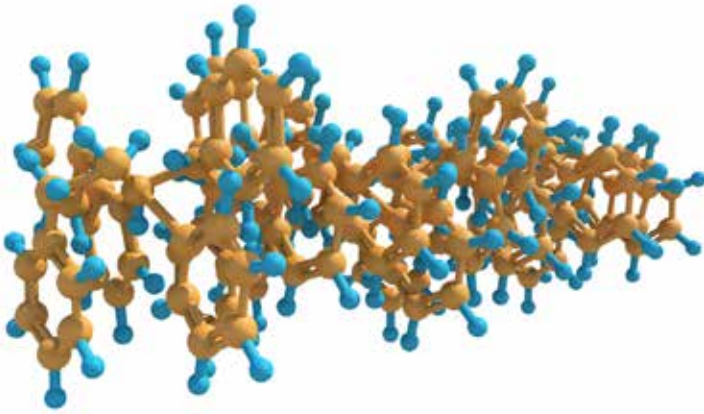


POLYMER BASICS

eLearning courses designed to increase productivity and profits



Learning made Simple, Visual, and Interactive

Take a peek into the world of industrial polymers vital to civilization. The THORS course Polymer Basics provides a comprehensive view of the lifecycle of synthetic polymers. This introductory course, replete with vibrant visuals and interactives, explores the chemistry, classification, and manufacturing processes associated with synthetic polymers. In addition, this course examines the properties and performance of synthetic polymer products.

Credit Hours **2**

Learning Objectives

- 💡 Learn the basic terminology associated with polymer chemistry.
- 💡 Recognize the basic polymers types from its chemical structure.
- 💡 Compare and contrast the polymer types.
- 💡 Gain comprehensive knowledge on the entire life cycle of a synthetic polymer and the associated manufacturing processes.
- 💡 Understand the relationship between polymer properties and product performance.
- 💡 Predict polymer properties based on its degree of crystallinity.

Table of Contents

I. Structure and Classification

- **Structure and Chemistry**
 - o Polymer Terminology
 - o Chain Chemistry
 - Homopolymers, Copolymers
 - o Chain Architecture
 - Linear Chain, Branched Chain, Crosslinked Polymers
 - o Morphology
- **Classification**
 - o Response to Temperature
 - o Resin Code

II. Manufacturing Process

- **Polymer Sources**
 - o Polymers from Energy Sources
 - o Bio-Sourced Polymers
- **Polymer to Product**
 - o Material Processing
 - Compounding, Types of Industry Grade Polymers
 - o Forming
 - High Volume Manufacturing
 - Medium Volume Manufacturing
 - Low Volume Manufacturing
 - o Finishing

• Product Performance

- o Polymer Properties
- o Degree of Crystallinity
 - Strength
 - Modulus
 - Toughness
 - Chemical Resistance
 - Barrier Properties
 - Weather Resistance
 - Heat Resistance
 - Opacity
 - Viscosity
 - Applications

