

# CERAMIC BASICS

eLearning courses designed to increase productivity and profits



## Learning made Simple, Visual, and Interactive

The THORS *Ceramic Basics* course details the characteristics and types of ceramics. Learners are introduced to the mechanical, thermal, electrical, chemical, and optical characteristics of different ceramic materials. This course provides learners with an engaging learning experience that allows them to obtain a thorough understanding of the types of ceramics, spanning from traditional to engineered.

Credit Hours **1.5**

## Learning Objectives

- Gain a broad knowledge of the basics of ceramics.
- Classify ceramics based on their characteristics.
- Understand the mechanical, thermal, electrical, and chemical characteristics of ceramics.
- Differentiate between traditional and engineered ceramics.
- Understand the characteristics of engineered ceramics designed for specific applications.

## Table of Contents

### I. Characteristics of Ceramics

- Mechanical Characteristics
  - Hardness
  - Density
  - Brittleness
- Thermal Characteristics
  - Resistance to High Temperatures
  - Resistance to Thermal Shock
  - Resistance to Thermal Expansion
- Electrical Characteristics
  - Dielectric Strength
  - Electrical Resistivity

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### I. Characteristics of Ceramic (continued)

- Ferroelectricity
- Piezoelectricity
- Superconductivity
- Chemical Characteristics
  - Resistance to Acidic Substances
  - Resistance to Alkaline Substances
  - Resistance to Humidity
- Optical Characteristics

### II. Types of Ceramics

- Traditional Ceramics
  - Earthenware
  - Stoneware
  - Porcelain
- Engineered Ceramics
  - Chemistry-Based Ceramics
  - Glass-Based Ceramics
  - Application-Based Ceramics
  - Advanced Ceramics
  - Technological Advancements in Ceramics

