

Introduction to Properties of Refractories course outline

Day 1

- Thermal Properties
 - Volume Stability
 - Reversible Changes
 - Irreversible or Permanent Changes
 - Heat Capacity
 - Thermal Conductivity
- Laboratory Demonstrations
 - Thermal Expansion – ASTM E228
 - Thermal Conductivity (Steady State) – ASTM C201
 - Thermal Conductivity (Transient) – ASTM C1113



Day 2

- Mechanical Properties
 - Elasticity
 - Brittle Fracture
 - Creep
- Laboratory Demonstrations
 - Elasticity – ASTM C1548
 - Strength (Flexural and Compressive) – ASTM C133
 - Creep – ASTM C832

Day 3

- Thermo-Mechanical Properties
 - Thermal Stresses
 - Thermo-Elastic Theory
 - Thermal Shock Damage Resistance Theory
- Laboratory Demonstrations
 - Fracture Surface Energies – γ_{NBT} and γ_{WOF}
 - Thermal Shock – ASTM C1171

Day 4

- Corrosion Properties
 - Fundamental Principles of Liquid-Solid Corrosion
 - Liquid Phase Formation
 - Wetting
 - Phase Equilibrium Diagrams
- Laboratory Demonstrations
 - Melting Behavior – ASTM C24
 - Static Corrosion – ASTM C621
 - Dynamic Corrosion – ASTM C874