

Introduction to Refractory Compositions outline

Lecture 1 (3 hours)

- Introduction to Refractories
- Silica Refractories
 - Raw Materials – Silica
 - Phase Relationships
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis
- Alumino-Silicate Refractories
 - Raw Materials – Alumina-Silica
 - Phase Relationships
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis



Lecture 2 (3 hours)

- Basic Refractories
 - Raw Materials – Magnesite, Dolomite, Chrome-Magnesite, Fosterite, Spinel
 - Phase Relationships
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis
- Insulating Refractories
 - Insulating Firebrick
 - Processing
 - Microstructure/Properties
 - Insulating Fiber
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis

Lecture 3 (3 hours)

- Monolithic Refractories
 - Raw Materials – Hydraulic Cement, No Cement, Chemical Binders
 - Phase Relationships
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis
- Non-Oxide Refractories
 - Raw Materials – Carbon, Silicon Carbide, Silicon Nitride
 - Phase Relationships
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis

Lecture 4 (3 hours)

- Composite Refractories
 - Raw Materials – Magnesia-Carbon, Alumina-Silicon Carbide-Carbon, Alumina-Carbon
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis
- Special Refractories
 - Raw Materials – Zirconia, Zircon, Fusion Cast - Alumina-Zirconia-Silica, Alumina, Alumina-Chrome, Magnesia-Chrome
 - Phase Relationships
 - Processing
 - Microstructure/Properties
 - Postmortem Analysis