Institute of Refractories Engineers

HIGH ALUMINA REFRACTORIES

IRE Training Day
31 October 2013

Sheffield

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Welcome

1. Introduction
2. Raw Materials
3. Production Methods
   - Exercise
4. Properties
5. Applications
   - Exercise

Close

High Alumina Refractories

INTRODUCTION

- Reminder
  - What are Refractories
    - Shaped Refractories
    - Alumino-Silicate Refractories
  - Why are they important?

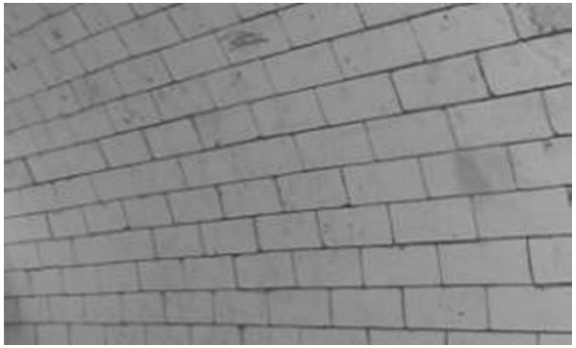
What Are Refractories

BS 3446

“A non-metallic material or product (but not excluding those containing a proportion of metal) having heat-resisting properties.”

Classification by Form

- Shaped
  - Bricks
  - Blocks
  - Pre-cast



- Un-Shaped – Monolithics
  - Castable
  - Rammable
  - Mouldable
  - Gunnite

Shaped vs Unshaped

Worldwide, Shaped products account for ~60% of the market.

- Preferred Properties
- Ease of Repair

Classification by Chemistry

Acid	**Neutral**	**Basic**
Silica	Alumina	Magnesia
Fireclay	Bauxite	Doloma
Zircon	Andalusite	Magnesia-Chrome
Silicon Carbide	Mulite	Magnesia-Carbon
	(Zirconia)	
	(Carbon)	

Use in increasingly ACID environments

Acidic or Siliceous Slags.

Basic or Limey Slags.

Market by Chemistry

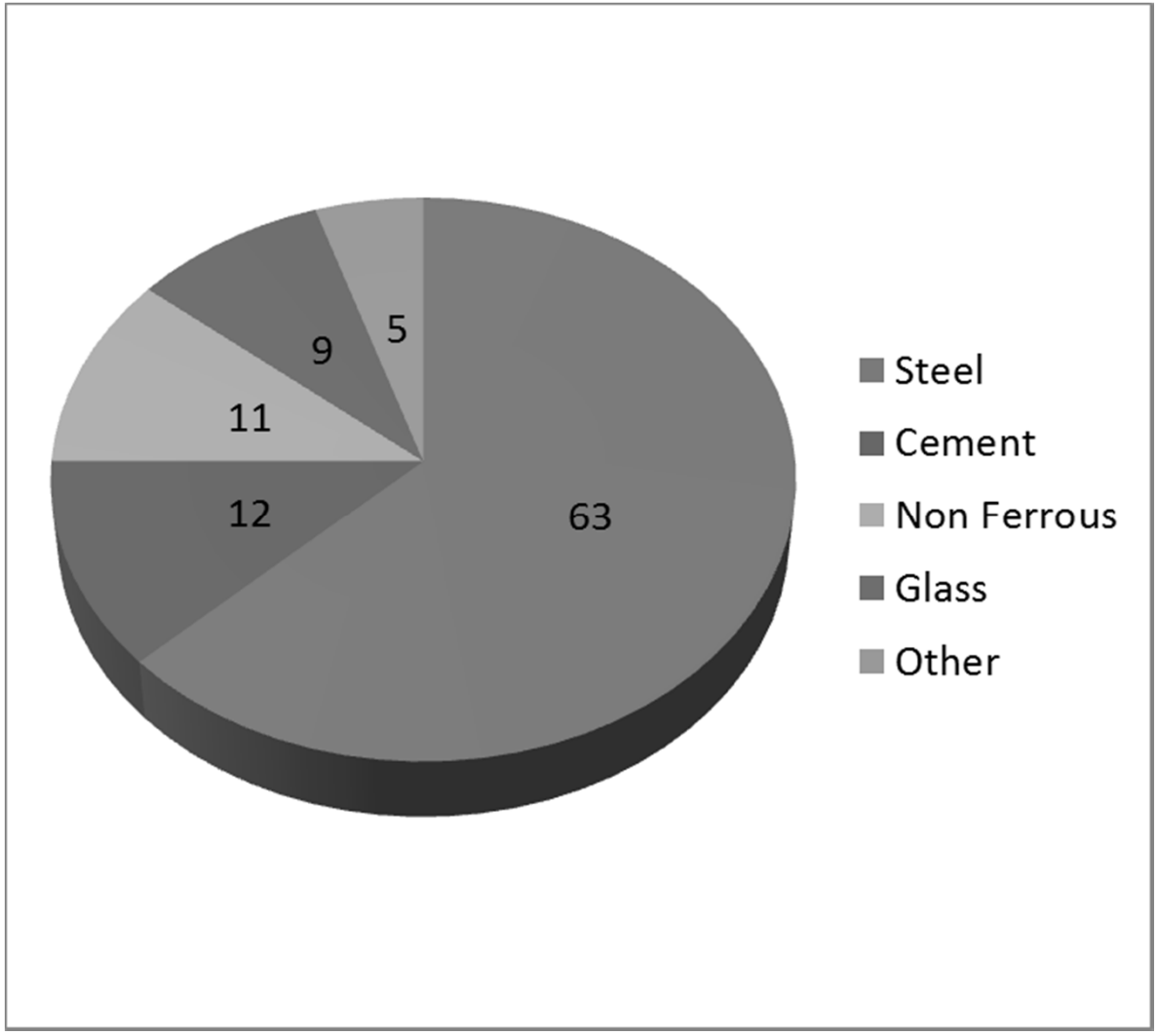
Worldwide, Alumina Products (shaped and unshaped) account for approx 40% of market.

User Industries

Refractories are used in ALL thermal processing industries

- **Chemicals**
- **Glass**
- **Ceramics**
- **Waste Processing**
- **Metals Industry**
- **Cement**
- **etc**

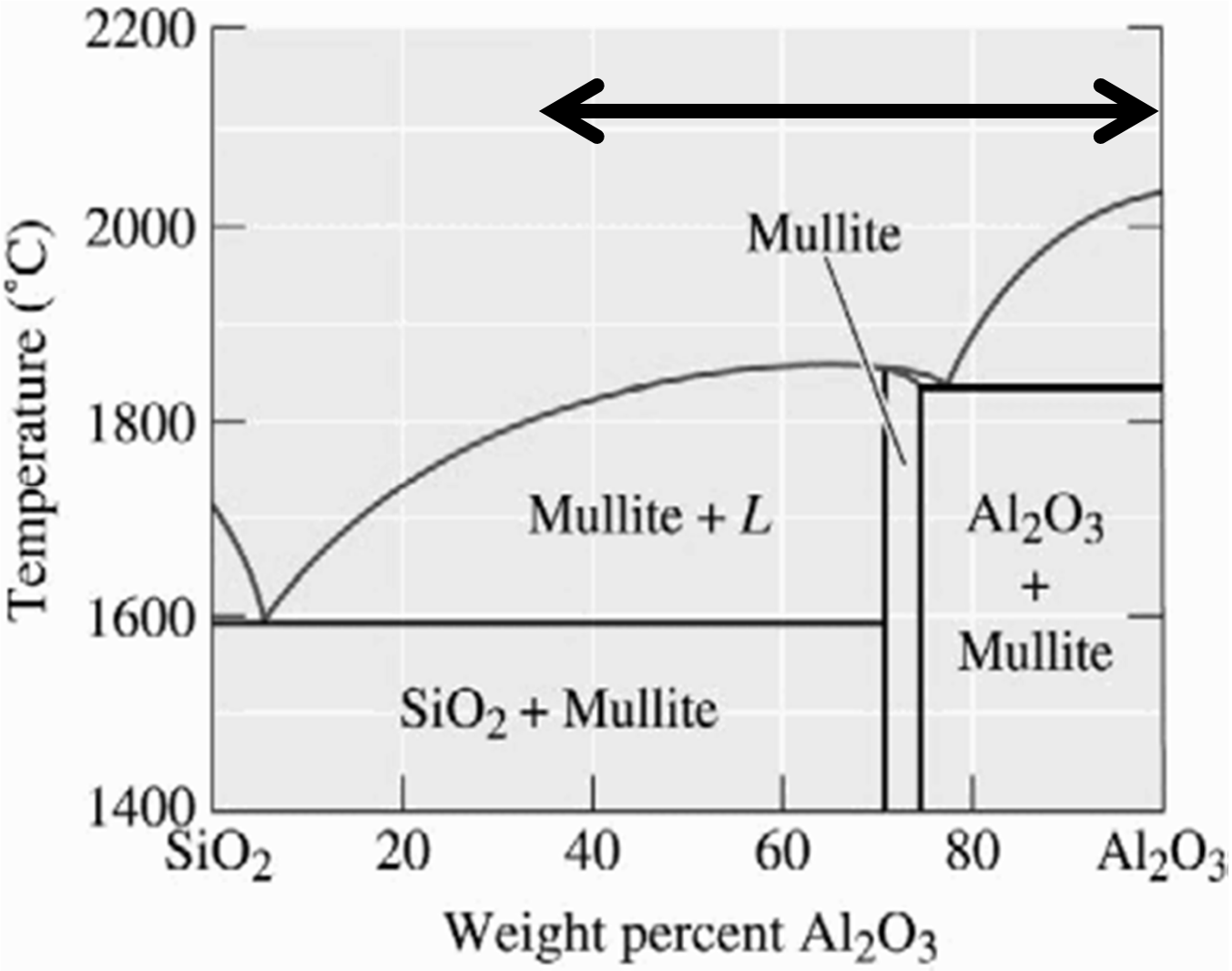
User Industries

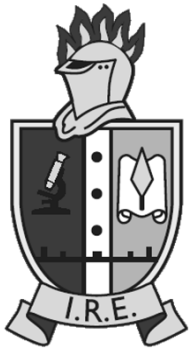


Why Alumina Refractories

- Chemical Resistance
- Thermal Shock Resistance
- Low Thermal Expansion
- Low Thermal Conductivity
- Long Storage
- Intermittent Use
- Price

Alumina Refractories





Thank You For Your Attention