

## REFRACTORIES TRAINING MODULES

Our flexible industry-based refractories training courses have been designed for refractory manufacturers, suppliers, distributors, contractors and installers.

The interactive modules are suitable for delegates with no prior or a basic knowledge of refractories and highly beneficial to the more experienced; those looking to refresh and update their understanding of refractories.

During the open modules at the Lucideon headquarters in Stoke-on-Trent, participants will also be given the opportunity to discuss any challenges or issues that they may currently be facing.

### MODULE R1    REFRACTORY MATERIALS AND APPLICATION AREAS

#### 1 Day Course

Module scope:            To understand the different refractory materials, where they are used and how they are made.

This module will explain:

- Material chemistry
- The in-service environment
- Shaped and unshaped components
- Structures and their applications
- Material selection for product design

**At the end of the module, you will be able to:**

- Understand how a refractory functions and behaves
- Distinguish between insulating and dense materials
- Determine the differences between product types (e.g. low alumina, high alumina, chrome, magnesia brick, etc.)

## MODULE R2 UNDERSTANDING REFRACTORY PROPERTIES AND LINKS TO PERFORMANCE

### 1 Day Course

Module scope: To understand the principles of refractory testing and its limitations, and the importance of material specification data sheets and the information they provide.

This module will look at:

- Refractory testing in relation to performance
- Design and modelling

**At the end of the module, you will be able to understand:**

- Understand material specification and supplier data sheets
- Identify various test methods and what information can be used for selection and predicting in-service conditions

## MODULE R3 TROUBLESHOOTING

### 1 Day Course

Module scope: To understand deterioration and failures in-service.

This module will look at issues around:

- Damage in the service environment
- Potential issues with refractory castables
- Interactions between the lining and the shell
- Interactions between multiple refractory linings and the shell

**At the end of the module, you will be able to:**

- How to perform an inspection
- What to look for during an inspection
- How to obtain the most relevant samples and information from an inspection

## MODULE R4    REFRACTORY DESIGN 101

### 1 Day Course

Module scope:            To have an understanding of the concept of refractory design.

This module will look at issues around:

- Design and modelling performance
- Identifying the critical operating parameters
- Considering thermal design
- The economics of design
- Structural design

**At the end of the module, you will be able to:**

- Identify the limitations of a design
- Evaluate a design
- Improve a design