MERCURY

Advanced Refractory Technology Training Course

5 – 9 April 2027
London (UK)



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Advanced Refractory Technology Training Course

Ref: 15805_335863 **Date:** 5 – 9 April 2027 **Location:** London (UK) **Fees:** 5900 Euro

Introduction:

The Advanced Refractory Technology training course provides participants with an understanding of the latest refractory materials and technological advancements. As industries demand higher performance standards, the importance of durable and efficient refractory applications becomes increasingly critical. It explores innovative materials, cutting-edge techniques, and best practices in refractory design and application.

Participants will gain valuable insights into the factors that influence refractory performance, including thermal stability, resistance to corrosion, and mechanical strength. This Advanced Refractory Technology training will equip attendees with the knowledge and skills to enhance the durability and efficiency of refractory systems in various industrial applications, ensuring optimal performance and longevity.

The Advanced Refractory Technology training course offers a comprehensive exploration of advanced refractory technologies, focusing on their fundamentals and applications. Participants will delve into key concepts from the Handbook of Industrial Refractories Technology while gaining practical insights into refractory systems' design, selection, and maintenance.

This Advanced Refractory Technology course highlights the application of refractory materials in industrial settings, ensuring optimal performance and durability. Through this course, detailed sessions on refractory technology fundamentals and real-world applications equip professionals with the skills needed to manage and enhance refractory systems effectively.

Targeted Groups:

- Engineers involved in material selection and application.
- Technicians working in the manufacturing and maintenance of refractory materials.
- Quality assurance and quality control professionals.
- Researchers focused on refractory technologies and material innovations.
- Project managers are overseeing refractory installation and performance.
- Operations personnel in industries such as steel, cement, and glass.
- Procurement specialists in charge of sourcing refractory materials.
- Academic institutions offering courses related to material sciences and engineering.

Targeted Competencies:

By the end of this Advanced Refractory Technology training, the participant's competencies will:

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- Understanding of advanced refractory materials and their properties.
- Ability to select appropriate refractory materials for specific applications.
- Knowledge of refractory installation techniques and practices.
- Skills in assessing and improving refractory durability and efficiency.
- Competence in conducting performance evaluations of refractory systems.
- Familiarity with industry standards and specifications for refractory applications.
- Capability to implement innovative solutions for refractory challenges.
- Awareness of environmental considerations in refractory material use.

Course Objectives:

At the end of this Advanced Refractory Technology course, the participants will be able to:

- Educate participants on the latest refractory materials and technology advancements across various industries.
- Enhance understanding of the properties, composition, and performance characteristics of refractory materials, including thermal stability and resistance to corrosion.
- Develop skills in selecting suitable refractory materials for diverse industrial applications, ensuring optimal performance and longevity.
- Minimizing failures and downtime provides insights into effective installation techniques and best practices for refractory systems.
- Assess, monitor, and enhance the durability and efficiency of refractory applications in real-world scenarios.
- Familiarize attendees with industry standards, testing methods, and regulatory requirements relevant to refractory technology.
- Encourage innovative thinking and problem-solving in addressing refractory-related challenges, promoting the adoption of cutting-edge solutions.
- Promote environmental awareness and sustainability in refractory materials, focusing on reducing waste and improving energy efficiency.
- Facilitate networking opportunities among professionals in the field, fostering collaboration and knowledge sharing.
- Equip participants with the skills to conduct thorough performance evaluations and diagnostics of existing refractory systems for continuous improvement.
- Enhance overall operational efficiency by introducing methodologies for integrating advanced refractory technologies into existing production processes.
- Prepare participants to lead training and development initiatives within their organizations, sharing knowledge of advanced refractory technologies with peers and junior staff.

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Course Content:

Unit 1: Introduction to Refractory Materials:

- Overview of refractory materials and their significance in various industries.
- Classification of refractory materials based on composition and applications.
- Discuss the properties of refractory materials: thermal conductivity, thermal expansion, and resistance to thermal shock.
- Examination of common applications of refractory materials in steel, cement, glass, and ceramics.
- Introduction to industry standards and specifications for refractory materials.

Unit 2: Latest Advancements in Refractory Technologies:

- Exploration of cutting-edge technologies in refractory manufacturing.
- Analysis of high-performance refractory materials, including ultra-high-temperature ceramics.
- Discussion on the role of nanotechnology in enhancing refractory performance.
- Overview of smart refractory systems with embedded sensors for real-time monitoring.
- Examination of innovative installation techniques and their benefits.

Unit 3: Durability and Performance Evaluation:

- Techniques for assessing the durability of refractory materials under various conditions.
- Introduction to laboratory testing methods for evaluating refractory performance.
- Methods for predicting refractory lifespan based on operational conditions.
- Discussion on failure modes of refractory materials and how to mitigate them.
- Case studies on performance evaluation of refractory applications in industry.

Unit 4: Application and Selection of Refractory Materials:

- Guidelines for selecting appropriate refractory materials for specific applications.
- Factors influencing material selection include temperature, chemical environment, and mechanical stress.
- Strategies for optimizing refractory designs to improve efficiency and reduce costs.
- Discussion on the importance of compatibility between refractory materials and other system components.
- Hands-on exercises for evaluating and selecting refractory materials for real-world scenarios.

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Unit 5: Sustainability and Environmental Considerations:

- Overview of sustainability challenges related to refractory materials.
- Strategies for reducing waste and enhancing recycling of refractory materials.
- Discussion on the environmental impact of refractory manufacturing and usage.
- Examination of energy-efficient practices in refractory applications.
- Case studies highlighting successful implementation of sustainable practices in refractory technology.