FIRE Compendium Series Vol. 2B

Corrosion of Refractories - Testing and Characterization Methods

Jacques Poirier and Michel Rigaud

Wear by corrosion of refractory materials remain a major concern for plant operators, manufacturers of refractories, installers and refractory engineers involved in R&D and Education in this field of expertise.

This second volume on the theme of corrosion is yet to be followed by volume 2C : The Impact of Corrosion.

The aims are 1) to describe how to evaluate corrosion damages under laboratory conditions and to establish correlations with in-plant testing; 2) to describe how to determine the materials characteristics once corroded, introducing the description of in-situ and advanced methods, with a specific section on castables; 3) to review ways to minimize corrosion damages selecting the appropriate material and the best installation procedure and adopting key standard operating procedures; 4) to provide the tools to learn from theories, concepts and various disciplines.

Seven authors have been recruited by FIRE, to cover the subject in three main chapters: I Testing Methods: 1.1 Laboratory Testing Methods: 1.1.1 Tesing up to 1600C – P. Quirmbach; 1.1.2 Testing up to 2000C – P. Piluso 1.1.3 Testing Composite Materials – F. Rebillat 1.2 In-Plant testing vs Full Testing – M. Rigaud,T. Vert.

II Characterization Methods for Corroded Samples. 2.1 Traditional Methods – M. Rigaud; 2.2 Insitu and Advanced Methods – J. Poirier; 2.3 Specific Methods for Castables – C. Worhmeyer.

III Ways to Minimize Corrosion Damages. 3.1 Ways to Minimize L-S Attack – M. Rigaud; 3.2 Ways to minimize G-S Attack – J. Poirier; 3.3 Ways to learn from Experience – M. Rigaud

The content of the book has been outlined and reviewed by fellow experts (industrials and academics). It represents a major contribution to appreciate the impact of corrosion of refractories on the plant availability and quality of products

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CHAPTER 3

Ways to minimize Corrosion Damage