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Materials are Limited – Creativity is Unlimited

Dear Readers,

The manufacturing processes, operating conditions, and refractory requirements of heavy industry, e.g. iron & steel, glass, cement, non-ferrous metals, chemicals, and others, have to be continuously optimized. The reason is a desire for higher quality or new products, cheaper and more efficient manufacturing, less downtime, and – in general – increasing profitability. The refractories industry – as the silent partner of heavy industry – always responds with new or improved materials. These commonly result in longer service life of refractories, which means lower consumption and reduced demand. The refractories consumption per ton of steel declined from 60 kg in 1950 to 15 kg in 2010. In response, refractory companies shifted their business strategy to selling more advanced products with high added-value.

At the 18th Refractory Conference & HITHERM 2014 of the Czech Silicate Society recently held in Prague, **Charles E. Semler** (USA) gave an impressive overview of these developments, as well as the continuing advancement of refractories technology. A complete report of this event will be published in a forthcoming issue. As examples of past advances, Dr. Semler listed, among others, improved raw material purity, development of materials with extremely high shock resistance, increased availability and use of synthetic raw materials such as magnesia (dead-burned and fused), mullite, zirconia-mullite, and sintered and fused varieties of alumina, spinel, zirconia, and CaO-MgO. New or optimized refractories have resulted in small to very large improvements in service life across many applications and most industries.

But there are still unlimited options for refractory technologists to continue innovation of refractories. Raw materials are the backbone of the refractory industry. They provide many opportunities for improvements that offer performance, environmental, cost, and other benefits. Additionally, more attention needs to be focused on recycling of used refractories to minimize wasteful disposal of usable raw materials, and help conserve valuable virgin resources.

In this issue you will find several examples of materials studies and refractories improvements or modifications. Materials might be limited, but creativity is unlimited. I wish you much pleasure in reading.

Yours



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