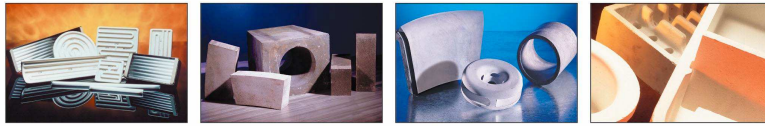




VULCAN
Refractories



High Performance Ceramics and Refractories

News Release

20th September 2004

Vulcan launches Combined Side Wall Protector Blocks for Aluminium Reduction Cells.

Vulcan Refractories Limited, Cheadle, Staffordshire, UK, today announced the launch of Combined Side Wall Protector Blocks for use by operators of Aluminium Reduction Cells following the successful completion of in-plant trials conducted with a major aluminium producer in the USA.

Vulcan's new Combined Side Wall Protector Blocks, custom made for each Reduction Cell application, represent an evolution from the company's proven Vulcasil SRP46 material (SNBSC – silicon nitride bonded silicon carbide) that is used to manufacture high performance side wall blocks for Reduction Cells.

Through extensive research and development, Vulcan has perfected the manufacturing technique for the new Combined Side Wall Protector Blocks that are formed using a proprietary technique to bond silicon carbide material to a pre formed carbon block containing variable graphite additions.

The Combined Side Wall Protector Blocks are designed to replace the majority of the hot/cold carbon ramming paste currently used to infill and seal between the cathode and the vertical side wall of the Cell.

Installing the Combined Side Wall Protector Blocks requires only a small joint of rammed carbon paste, approximately 50-70 mm wide, which is manually applied to complete the joint between the edge of the cathode and the Combined Side Wall Protector Blocks. This arrangement is a fast and efficient solution to the need to form a high integrity fillet area allowing minimal shrinkage and ensuring a good seal with the end of the cathode, thereby preventing aluminium ingress into the collector bar area.

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Vulcan anticipates that cell rebuild operators will welcome this new method of Cell build since the paste installation is no longer a lengthy process that requires the use of an expensive specialised machine to ram large quantities of hot carbon paste to seal the wide joint. In addition to Health & Safety issues, this process has many drawbacks since it is difficult to ram the carbon paste into the joint in a controlled manner leading to quality problems caused by variable density and poor dimensional accuracy.

Since the carbon paste develops its initial strength during the bake process, the strength of the bond is frequently variable and this can cause premature erosion of the carbon paste seal during Cell operation. Additional benefits in cold climatic conditions are apparent since the volume of pre heating for the carbon paste and the Cell is much reduced.

By reducing the amount of carbon paste required, Combined Side Wall Protector Blocks eliminate these problems. Specifically there is less shrinkage of the carbon paste fillet and therefore a much reduced possibility of ingress by aluminium.

The Vulcan Combined Side Wall Protector Blocks can be manufactured in block sizes of up to 800 x 500 mm maximum, this limit being determined by weight during manual handling and installation. To achieve a wide range of thermal conductivity, the Blocks can be produced using various combinations of amorphous carbon at 7 watts per metre kelvin (wmk) to 60 wmk for graphite. This flexibility gives Reduction Cell designers far more scope to achieve improved thermal balance for each Cell.

Vulcan offers its customers in the aluminium industry a comprehensive custom design and manufacturing service for its extensive range of refractory products. Advice is available from the Vulcan Technical Support Team to ensure that customer application issues and performance requirements are thoroughly evaluated during the design and specification phases.

Established in 1969, Vulcan Refractories Limited has proven expertise in the field of technical ceramics and high performance refractories and designs and manufactures refractory components for numerous applications. The company is also the UK's leading specialist manufacturer of infrared surface heating systems. All Vulcan products are manufactured in accordance with ISO 9002 and have applications in a wide range of industries including Aerospace, Automotive, Ceramics, Domestic Appliance, Electronics, Power Generation and Plastics. Vulcan is a responsive full-service supplier with expanding exports to 30 countries worldwide from its headquarters and manufacturing facility in Cheadle, Staffordshire, UK.

Note to The Editor:

The information contained in this News Release has been provided by Nick Zienkowicz, Director, Vulcan Refractories. An application illustration and colour product photograph is attached.

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