

Ceramite® BCR Furnace Hearth Tile

Superior Performance in Wear Resistant Applications

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During 1980 Elkem Materials, Norway developed a high wear resistant material "Ceramite®" for lining of pipes to transport abrasive powders. Ceramite® is a group of advanced castables exhibiting unique properties, such as extreme casting accuracy, high abrasive wear resistance, mechanical strength and good resistance to high temperature, including applications exposed to thermal shock conditions. Ceramite® is easy to mix, cast and shape in any size and is easy to work with in situ, using the trowellable formulation.

The key component of Ceramite® is Microsilica developed by Elkem. Microsilica (Silicon Oxide - SiO₂) is an amorphous silica product derived from the production of Ferro Silicon and Silicon Metal. Microsilica consists of ultra fine, sub-micron particles and is amorphous and thus very reactive. The average particle size is well below 0.15 micron in diameter, each microsphere is 100 times smaller than an average cement grain.

In a typical mix, with a 10% dosage of Microsilica, there will be between 50,000 and 100,000 Microsilica particles per grain of cement. Microsilica is added to composite materials to improve the microstructure of the materials. Elkem Microsilica is a key component in the production of high performance concrete, fibre-cement and refractories and an important additive in the high wear castable Ceramite®.

Ceramite® Properties & Qualities

Ceramite® comes in different grades of castables adjusted to various tasks and wearing conditions in aluminum, cement and Ferro industries i.e. with severe abrasion. The properties of the Ceramite® grades are highly dependent upon the choice and mix of aggregates. Ceramite® consists of a mix of cement, Microsilica, a specific aggregate and modifiers. The binder is designed to enhance the aggregates properties and ensure the extreme density of the Ceramite® structure.

Ceramite® works well in industries like aluminum, where operation and smelting temperature normally varies between 650-800°C. Ceramite's® natural de-wetting property combined with high strength, wear resistance and refractoriness yields pre-cast and pre-fired products such as Floor Tile, Furnace Lining Tile, Furnace Frames, Launderers, Crucibles and Pipes.

Several Ceramite® installations world wide within the aluminum industry have in the last 10 years resulted in well proven pre-cast Ceramite® solutions based on the customers requirements. Customers often demand (for) reduced downtime, less maintenance, high performance, increased lifetime, safety, stable operation and reduced costs.

Ceramite® use world over in cast houses has demonstrated extraordinary benefits in terms of increased lining life, reduced down time and increased furnace volume.



INDUSTRIES SERVED

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|-----------------|--------------------|------------------------|---------------------------|
| ☞ Refining | ☞ Non-Ferrous | ☞ Zinc | ☞ Precast Manufacturing |
| ☞ Rock Products | ☞ Die-Casting | ☞ Boiler Manufacturing | ☞ Mineral Processing |
| ☞ Chemical | ☞ Power Generation | ☞ Primary Aluminum | ☞ O.E.M. Furnace Builders |
| ☞ Steel | ☞ Incineration | ☞ Secondary Aluminum | ☞ Cremation |