

# Characterization of Kenyan Ceramics for Production of Medium Duty Alumina Firebrick Incinerator Linings

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**ABSTRACT:** The aim of this study was to evaluate locally available ceramic raw materials for the manufacture of Medium Duty Alumina Refractory Firebrick for incinerator lining. The clays were collected from two sites, Eburru in Nakuru County and Mukuruwe-ini in Nyeri County in Kenya. Atomic Absorption Spectrophotometer and X-Ray Diffraction analytical methods were used to determine the chemical composition of the respective clays before and after firing at 1000°C for two hours. Atomic Absorption Spectrophotometer results revealed that Eburru Kaolin contained the highest amount of silica at 72.64% SiO<sub>2</sub> but had the lowest of all other oxides. All the three raw materials were found to increase their oxide percentages after firing due to the loss in moisture and organic matter and reflected on their alumina-silica ratio. The X-Ray Diffraction results showed that the refractory formulated using the clays at a ratio of 2:2:1 Eburru Kaolin : Eburru Fireclay: Mukuruweini Ballclay attained good structural properties after firing at 1000°C for two hours and was comparable to commercial products in the market in addition to meeting the standards of a Medium Duty Refractory Firebrick. This is suitable for manufacture of incinerator linings.

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