

## Ceramic characteristics of the White-Burning Valencia Clay of Trinidad

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### **Abstract**

The ceramic potential and application scope of the white-burning, low-shrinkage Valencia clay of Trinidad have been investigated on the basis of chemistry, mineralogy and fired characteristics. Standard analytical chemical methods show that in addition to the major oxides  $\text{SiO}_2$  and  $\text{Al}_2\text{O}_3$ , the clay contains minor amounts of  $\text{MgO}$  and  $\text{TiO}_2$  and as low an  $\text{Fe}_2\text{O}_3$  content as 0.3%. While x-ray diffractometry (XRD) and differential thermal analysis (DTA) show the clay to be kaolinitic, the deposit also contains some quartz, mica, potash feldspar and calcite. On firing, significant vitrification of the clay commences only above  $1,000^\circ\text{C}$ . This, in part, leads to relatively low shrinkage and high porosity in the temperature range  $900^\circ\text{C} - 1,100^\circ\text{C}$  where many ceramic bodies are usually fired. However, the corresponding strength and toughness are sufficiently high to render the clay potentially suitable for a range of ceramic products. Further, as a potential component in certain refractories and as a shrinkage-reducing agent when blended with high-shrinkage clays, the high porosity and low shrinkage desirable.