

Ceramic Properties of Mud Volcanoes Effluent

J.C. Knight, D.L. White & N. Deosaran

Abstract

The ceramic properties of the effluent of the Piparo mud volcano in central Trinidad have been investigated in relation to chemistry, mineralogy and fired physical and mechanical properties. X-ray diffactometry (XRD) and differential thermal analysis (DTA) revealed that mineralogically the high-plasticity effluent is essentially a kaolinitic clay. However, some quartz, mica and potash feldspar were also detected. Chemically, the organic matter was found to be 2.2% while the SiO_2 , Al_2O_3 and Fe_2O_3 content amounted to 55.2, 16.6 and 6.5% respectively. Loss on ignition (LOI) at 1000°C amounted to 14%. Testbars fired in the temperature range 800°C - 1000°C for 4 hrs exhibited the “black core” phenomenon. In addition, bloating occurred at 1000°C. However, specimens fired at and below 950°C where no bloating was evident, exhibited modulus of rupture and fracture toughness values in the range 6 – 19 MPa and 0.4 – 0.7 $\text{MNm}^{-3/2}$ respectively, depending on temperature. Based on data previously reported for the effluent of The Devil’s Woodyard mud volcano¹, the Piparo effluent is of similar chemical and mineralogical character and exhibit comparable fired properties.