

S. Njogu, F.W. Nyongesa, B.O. Aduda, Effect of plant-derived organic binders on fracture toughness and fatigue of kaolin-based refractories, *Journal of Materials Science*, 43 (2008)4107 – 4111

The fracture properties of kaolin – based refractories prepared using plant derived binders from okra and “mrenda” have been investigated. It was observed that okra binder improved the MOR of fired samples from 194.0 ± 0.1 MPa to 384 ± 0.1 MPa, while the fracture toughness increased from 3.9 ± 0.1 MPa (for binder free samples) to 5.6 ± 0.1 MPa and 5.7 ± 0.1 MPa for okra and ‘mrenda’ plasticized samples respectively. It is concluded that the use of organic binders enhances the reliability and service life of kaolin refractories used in thermally fluctuating environments.