

16-059

Effects of red mud on properties of red ceramics

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Alumina is obtained through the chemical processing of bauxite, known as Bayer process. During this process an insoluble residue denominated red mud is generated. In addition to silica, red mud has high levels of iron, sodium, calcium and other elements that can add important characteristics to ceramic products. In this sense, this work had the objective of evaluating the effect of utilization of red mud as raw material to traditional ceramic production. As raw materials, besides the red mud, two clays suitable for ceramic products manufacturing were used. The raw materials were submitted to physical, chemical, mineralogical and morphological characterization. The specimens were prepared by uniaxial pressing and sintered in temperatures at 850, 950 and 1050 °C. The relative dry density, firing linear shrinkage, water absorption and mechanical resistance were evaluated. It was demonstrated the real potential that this ceramic segment has in attempt to provide a technical and environmentally correct solution for utilization of red mud as raw material.