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Significant Processing Parameters Affecting for Pyro-Plasticity of Porcelain Tiles

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Pyroplasticity is the tendency of the ceramics to deform under its own weight, during its firing process which affects to reduce the ceramic product quality. The properties of liquid phases formed during the firing process may affect on this deformation of porcelain ceramic products. The properties of the liquid phases formed during firing are varied mainly according to the raw materials composition (feldspar, ball clay, silica sand and dolomite) and the firing temperature. Hence this research study was conducted to find the main affecting factor for pyroplasticity among said factors and to find optimum combination of raw materials and optimum temperature to be maintained for firing process to have minimum deformation percentage. It was found that tertiary blend of ball clay, silica sand and dolomite were the mostly significant parameters affecting to pyroplasticity index.

Keywords: ball clay, feldspar, mixture design, phase transformation, porcelain tile, pyroplasticity.