# Improve the Green Tile Strength of the Tile Body by Using Montmorillonite

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Floor tiles are commonly made of ceramic, porcelain and stones due to their attractiveness, durability, and easiness to clean. The main components of a tile are tile body, glaze layer, and printed layer. The production cost lost is mainly depending on green and dry tile body. The tile body is very important for good quality and high strength finished products (fired tile). This research aims to manufacture high strength green and dry Tiles by using montmorillonite (MMT) because montmoillonite is consists of nano particles which will increase the density of the tile body. MMT sample was selected from Murunkan, Mannar for the investigation. First, silica test was carried out for clay samples (Ball clay and MMT clay). After the silica test; the tested clay sample were used for making base formula by adjusting silica percentage of the body composition because, MMT has high amount of silica. The green tile body was made using ball clay, MMT, feldspar, silica sand, dolomite, sodium triphosphate and sodium silicate. The raw materials were grind with 40% water in a pod mill about 13 minutes. The grind sample called slip. The slip was dried at 120 ℃. Dried sample was crushed and sieved by 1000 ii.tm sieve. Then 6% of water was added to the sieved sample and mixed with hand. It's called moisture powder. Then 83g of moisture powder was weighted and green tile was pressed by using Laboratory press and flexural strength (modulus of rupture-MOR) was measured. Dried and fired tiles were made and finally tile strength (MOR), loss on ignition, shrinkage, water absorbance were measured and analyzed according to reference tile. MMT has nano particles; it was reducing the pore space and increases the packing fraction of the green tile body that's why prepared green tile, dried tile and fired tile strengths were increased.

Keywords: Montmorillonite, Flexural strength, Shrinkage