Effects of composition and particle size of crystallization on physical properties of marble composite

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Abstrak

Composited tile was made using marble particles, phenol resin and hcxamethy leneleiramine (HEXA) as the catalyst. The matrix and hardener of these materials were mixed on volume variation from 62.50 ml to 12?,()<) ml. and on variation of 25. 40 and 60 mesh. Samples were dried in a room temperature for 3 hours. The compressive strength and crystal structure were analysed. The results showed that compressive strength values were in range of 6.15 x I07 N/m" - 9.61 x Id7 N/n. and there were two crystal structures consisted of marble crystal and phenol crystal. The analysis was carried out by using the Rietveld semi quantitative analysis. The final crystal structure of marble is rhombothedral, where the lanice constants arc a h =- 4.969 A: c = 17.026 A. This results indicate that the composites and marble can he used to make tile, because they were lighter, stronger and the amount of crystals increases compared with the pure marble.