ABSTRACT

PREPARATION AND CHARACTERIZATION OF COMPOSITE WALL PLASTER BUILDING AS A SOUND INSULATING MATERIALS USING STYROFOAM-CEMENT

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This research has been done on the manufacture and characterization of composite plaster walls as sound absorbers using styrofoam-cement materials. The starting material used is a mixture of cement, sand and styrofoam. Cylindrical samples that have been made with variations of the percentage composition of styrofoam by using solid method, characterized such as porosity, density, compressive strength, thermal conductivity and the dumping sound test. Test results of compressive strength, thermal conductivity and density of the samples showed that the composition of the addition of styrofoam then compressive strength, conductivity and density of the sample will be smaller. In contrast to the value of porosity and increased damping sample composition along with the addition of styrofoam. Based on the results of the characterization of composite cement-styrofoam with cement composition of 10% and 50% styrofoam is a composite of the most suitable to be applied as a plaster wall soundproofing, with characteristic absorption coefficient ($\alpha$) frequency (125-1000) Hz for (0.26 - 0.38), 0.6 MPa compressive strength, thermal conductivity of 1.2 J s$^{-1}$m$^{-1}$K$^{-1}$, and a porosity of 25%.

Keywords: composite, cement-styrofoam, the sound absorbers, solid method.