

Utilization of styrofoam as soundproofing material with auditory frequency range

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Abstrak

The utilization of bricks made of styrofoam is expectedly able to be a soundproof for noise control and as a preventive action to reduce the steadily increasing prevalence of hearing loss. This study aimed to assess the use of sound absorption material in which styrofoam was utilized to reduce the noise exposure. In this study, fine aggregates (sand and styrofoam) were made with a mixture of cement with a composition of 1:4 and 1:6, also the addition of polystyrene waste with a percentage of 0%, 20%, 40%, 60%, and 80%.

Determination of acoustical property of the mixture was done by testing the sound absorption coefficient using Four Microphones Impedance Tube (ISO 140-3). The results showed that the highest value of absorption coefficient was at a frequency of 800 Hz with an additional 80% styrofoam for the composition of 1:4 at 0.4100 dB and at a frequency of 800 Hz with an additional 40% styrofoam for the composition of 1:6 at 0.5870 dB.