

4036056 PHIH/M : MAJOR: INDUSTRIAL HYGIENE AND SAFETY
M.Sc.(INDUSTRIAL HYGIENE AND SAFETY)

KEY WORDS : SOUND ABSORPTION/ SOUND ABSORBING MATERIAL
/ STANDING WAVE APPARATUS

TANASRI SIHABUT : NOISE CONTROL EFFICIENCY OF
FIBERBOARD MADE FROM OIL PALM FROND. THESIS ADVISORS:
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Due to the excessive noise pollution in Thailand, a great deal of sound absorbing materials have to imported which materials often are too costly. Therefore, development of new, cheap and locally produced sound absorbing materials is also a way to save Thai currency from going out.

This study looks into the possibility of producing fiberboard as a mean for absorbing excessive noise from palm frond which is disposed of as waste material. The sound absorption coefficient of this new product is measured by standing wave apparatus constructed to comply with ASTM C384. Optimum density of the fiberboard was determined from the sample sheets with densities of 0.16-0.32 g/cm³. Then palm frond fiberboard whose absorption was the best (optimum density) with three different thicknesses i.e. 1/2, 3/4 and 1 inch was produced to search the absorption characteristics at different frequencies.

Results from the experiment showed that the optimum density of material with highest absorptive capacity was 0.27 g/cm³. When varying the thickness of this sample sheet, the sound absorption coefficients of 3/4 inch sheet were higher than 1/2 inch sheet at low frequencies while the absorption capacity of 1 inch sheet significantly decreased at all frequencies except at the frequency of 4000 Hz. Speaking generally, considering all sample sheets, it was found that the higher the frequency, the greater the sound absorption coefficient.