EFFECTIVENESS OF ORGANIC WASTE AS DAMPER ON NOISE INTENSITY AND MECHANICAL VIBRATION TESTING OF PELLET MACHINES

Seviana Rinawati[1], Eko Ganis Sukoharsono[2]
[1,2] Sekolah Pascasarjana Universitas Brawijaya
[1]seviana_rw@student.ub.ac.id

ABSTRACT

Machines and mechanical work equipment cause vibrations which part of the force is transmitted to workforce body or objects found in workplace and work environment. Noise and mechanical vibration of pellet machine are physical factors in work environment that have an impact of work-related accidents and occupational diseases. One of control hierarchies uses engine dampers, in this research using organic waste as a damping material. The aims of this study was to measure of noise and vibration intensity at the pellet machine using or without a damper by testing of noise and mechanical vibration intensity on pellet machines and workers exposed to it.

The analysis methods is carried out at the pellet machine by providing a damper from organic waste treatment (fibrous) with variations in thickness of 10 mm and 5 mm and carried out with 3 times of noise measured using Sound Level Meter (machine) and Noise Dose Meter (workers) while mechanical vibration using Vibration Meter (machine) and Whole Body Vibration Meter (workers). The research data continued with statistic test and show the distribution pattern of safe work area by noise and vibration maps using the surfer 13 application.

The results of research are expected to show a decrease of noise and mechanical vibration intensity by providing a damper from organic waste at pellet machine. Indicates a difference between dampened and undamaged machines (machine and workers exposure) and indicates a mapping of safe area from noise and mechanical vibration exposure in the workplace.

Keywords: Organic Waste Damper, Noise, Mechanical Vibration, Pellet Machines