

**ANALYSIS EFFECTS OF EMPLOYEE AND
ENVIRONMENTAL FACTORS IN THE FORM OF NOISE
AND LIGHT INTENSITY ON WORKERS' ENERGY
EXPENDITURE PACKING SECTION OF PT. MANNASATRIA
KUSUMAJAYA PERKASA**

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Abstract

The amount of energy needed by the body is not only influenced by physical conditions, but also factors around the environment. The research was conducted on workers in the packaging division for 120 ml Siiplah products at PT. Mannasatria Kusumajaya Perkasa due to variations in the energy expenditure (calories) of workers. The factors studied were the age of workers, light intensity, noise, and treatment in the form of workers' positions on the conveyor. These factors are divided into two factor levels, namely 19-29 years and 30-48 years for age, <200 and >200 lux for light intensity, and 78.1-83.4 and 84.4-95.4 db for noise. The treatment of work positions at the company is divided into four, namely the earliest position is position 1, position 2, position 3, and position 4 as the last position. The data collected was designed using the Factorial Randomized Block Design (RAK) model. After the model is formed, the ANOVA test is carried out to determine which factors affect the energy expenditure of workers using the SPSS 17 program. The results of the ANOVA test show that there is a significant effect of light intensity, noise, and positional treatment on energy expenditure of workers. Factors that have a significant effect are further tested (post hoc test) using the LSD (Least Significance Difference) test to determine the difference in influence between factor levels. Further tests show that the higher the light intensity and the lower the noise level in the workspace, the smaller the energy expenditure required by workers.

Keywords: *Energy Expenditure, Factorial Randomized Block Design, Analysis of Variance Test*