

Abstract

There are two types of workloads interfering the working productivity, mental and physical workloads. The follows of over-mental workload, the working burdens, called mental stress. Meanwhile, over-physical workload tends to lead to a tiredness. One way to lessen the tiredness among the labours is by measuring the labour-energy expenditures. There are some factors influencing the labour-energy expenditure. The research proposes to observe the effects of age, temperature, humidity, and labours' position inside the conveyor towards labours' energy expenditure.

This research uses an experimental design to discover the responses of four factors onto the labours' energy expenditure. The research done at PT. Mannasatria Kusumajaya Perkasa focusing the packaged drinks "Siiplah" 120ml. Every factor is divided into some levels. Age factor is divided into 2 levels, it is between 19-29 and 30-48-year-old. Temperature factor and humidity is divided into 2 levels, it is ideal and less ideal. The position factor is divided into 4 level in accordance with the labour position inside the conveyor.

Data analyse is done using Factorial Randomized Block Design (RAK-F). The ANOVA Test results indicate that all factors have influences onto the labours' energy expenditures. Results of data analysis indicating the 19 – 29 years old labours have bigger rate level of energy expenditure. An ideal temperature and humidity labours' working condition has higher rate, also, than the less ideal one. The inside conveyor 1st position labour energy expenditure is bigger than other ones.

Key words: *Energy Expenditure, Design Experiment, Factorial Randomized Block Design*