

Analysis of PM_{2.5} cement dust levels, temperature and humidity in limestone burning home industry Tuban Regency, East Java, Indonesia

ABSTRACT

Background of this research is one of the parameters of air pollution that are harmful to human health is PM_{2.5}. The main source of PM_{2.5} is in the process of limestone burning. In the process of limestone burning, limestone is burned by using wood powdered fuel so that from the burning process, PM_{2.5} dust can be obtained which can affect the health of workers. The purpose of the study was to analyze the exposure of PM_{2.5}, temperature and humidity in the limestone burning home industry workers in Tuban Regency, East Java, Indonesia. The research method was a quantitative approach with a total population of 18 people in the burning section. PM_{2.5} cement dust levels were measured using EPAM 5000. Temperature and humidity were measured with a thermohygrometer. The results showed that measurement results of PM_{2.5} cement dust levels is at point I with a value of 12,610 mg/m³, point II was obtained at 4,248 mg/m³. Working environment temperature in the production area on point I and point II were quite high, namely 32.4°C and 31.1°C. Humidity at point I and point II obtained was 42% and 43% with standard of 65%-95%. PM_{2.5} and physical environment has not met the quality standards set on Minister of Manpower of the Republic of Indonesia Regulation No. 5 of 2018 about Safety and Health of the Work Environment in limestone burning so that it can be said limestone burning workers feel uncomfortable. Conclusions and Recommendations of the study was that the amount of dust PM_{2.5} measured mostly in limestone burning place on the first and second location is above the safe category, although none exceeds quality standards. Decent environmental management should be done and management such as the use of appropriate APD such as masks. Water around the burning location and plant trees so that dust is not easily breathed by workers.

Keyword: PM_{2.5} cement dust; Temperature; Humidity; Limestone burning