

ABSTRACT

Benzene is a chemical compound that can cause haematological effects. Gasoline contains approximately 5% carcinogens benzene. Gas station employees, particularly fueling operators are working population that have a high risk of benzene exposure, primarily through inhalation pathways within the continuous exposure. The purpose of this study is to determine the effect of the concentration of benzene vapor in the air to complete blood quality, blood smear and health complaints of the gas station employees in Surabaya.

The method used to determine the concentration of benzene vapor in the air is gas chromatography (GC-FID), while to measure complete blood count and blood smear was done by 2cc venous blood sampling. The research design is a cross-sectional design with 13 samples as study group (fueling operator) and 13 samples as comparison group (administrative employees).

Results of this research showed that benzene vapor concentration measured in fuel pump area about 0,945 – 2,071 ppm which means above Threshold Limit Value in Permenakertrans no. 13/2011 that is 0,05 ppm. The research found that there are significant differences in leukocyte count ($p = 0,011$) and health complaints ($p = 0,005$) among fueling operators and administrative employees. Results of multivariate logistic regression analysis showed that the concentration of benzene vapor (> 0.5 ppm) has an effect on increased leukocyte count ($p=0,013$; $OR=0,052$) and on the health complaints ($p=0,006$; $OR=0,037$).

From this research can be concluded that there are significant effect from concentrations of benzene vapor in air on complete blood quality (increased leukocyte count) and health complaints. Researcher recommendations are provision of personal protective equipment (such as rubber gloves and smocks) and health talk about the importance of workers personal hygiene.

Keywords: benzene, complete blood quality, gas station