

Safe concentration of benzene exposure in work environment at motor workshop

ABSTRACT

Benzene is a colorless liquid that can evaporate rapidly in air and slightly dissolved in water. Exposure of benzene to the body has a very adverse impact on health. The aims of this research were to know benzene risk characteristic or RQ, and safe concentration of benzene exposure in a workshop environment. This research was observational, cross-sectional design with a population of 7 workers of the motor industry in Surabaya. The benzene exposure in the workplace was measured by Gas Chromatography-Flame Ionization Detector (GC-FID). Data analysis was done by using quantitative data. Maximum benzene intake received by workers was 0.1837 mg/kg/day. RQ on average workers more than 1 (> 1), with the highest RQ of 22.673. The highest safe concentration of workers was 3.9 mg/m³ and the lowest safe concentration was 0.4 mg/m³. The concentration of benzene exposure in the motor industry showed was above the threshold limit. According to the regulation of Manpower and Transmigration Ministry No 13 the year 2011, RQ for benzene showed a high-risk impact for workers, the smallest safe concentration for the worker was 0.4 mg/m³.

Keyword: Benzene; Motor workshop; RQ; Safe concentration