Analisis pajanan benzene pada pekerja kilang paraxylenedi PT. X tahun 2022 = Analysis of benzene exposure to the workers of paraxylene refinery of PT. X in 2022

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Abstrak

Benzene bersifat toksik dan karsinogenik yang ditemukan dalam proses operasional Kilang Paraxylene di PT. X. Dalam proses kerjanya, pekerja terpajan benzene sehingga dilakukan analisa pajanan benzene terhadap pekerja. Desain penelitian adalah analisa kuantitatif dengan metode potong lintang dari data sekunder perusahaan. Variabel penelitian meliputi konsentrasi personal benzene, kadar SpMA, usia, masa kerja, status gizi, kebiasaan merokok, konsumsi alkohol, shift kerja, durasi pajanan per hari dan penggunaan APP dari 64 pekerja. Konsentrasi personal benzene diukur pada breathing zone pekerja berkisar antara 0,02 sd 0,44 ppm. Sebanyak 28 pekerja (43,75%) memiliki kadar SpMA melebihi IPB ACGIH 2021 (25 µg/g kreatinin), UCL 1,95% di semua SEG melebihi IPB, berarti ada ketidakyakinan sebesar 95% bahwa kadar SpMA pekerja Kilang Paraxylene tidak melebihi IPB. Uji korelasi pearson menunjukkan tidak terdapat hubungan yang signifikan antara konsentrasi personal benzene dengan kadar SpMA, p=0,195. Hasil uji statistic menemukan adanya hubungan signifikan antara kadar SpMA dengan masa kerja, p=0,04. Kadar SpMA hanya menggambarkan metabolit di tubuh namun tidak dapat memberikan rute pajanan. Penelitian lanjutan diperlukan untuk menganalisa dampak pajanan benzene pada pekerja yang melebihi durasi aman pajanan benzene pada PT. X.

.....Benzene is presence in routine operational activities of Paraxylene Refinery Unit in PT. X. The process exposed the worker to benzene. Hence, the need to analyze its exposure to the workers. The study design was quantitative analysis with cross sectional design by analyzing secondary data. The variables studied were personal benzene, SpMA level, age, length of work, BMI, smoking habit, alcohol consumption, shift/non shift, length of exposure per day, and use of PPE from the sampel of 64 workers. The result showed personal benzene concentrations measured in the breathing zone are below the recommended exposure limit (NAB Permenaker No 5/2018: 0,5 ppm), 28 respondents (43,75%) had SpMA level above the value of BEI ACGIH 2021 (25 µg/g kreatinin), UCL 1,95% of all SEG is higher than BEI meaning there is 95% inconfident that benzene concentrations in the breathing zones are below the standard. There is no correlation between personal benzene concentrations and SpMA p=0,195. There is a significant correlation between length of work with SpMA level, p=0,04. SpMA is useful in determining benzene exposure even in low level exposure however it does not recognize where benzene is coming from. Implementation of work rotation and benzene awareness need to be improved. Further study should be conducted to analyze risk of cancer to worker who has been exposed to benzene longer than the safe duration of exposure in PT. X.