Kajian Risiko Kesehatan Terkait Pajanan Bahaya Kimia Benzene, Toluene, dan Xylene di Dua Unit Pengolahan Minyak dan Gas Tahun 2017–2020 = Chemical Health Risk Assessment Related to Exposure Benzene, Toluene, and Xylene in Two Refinery and Gas Units 2017-2020

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Abstrak

Pekerja di unit pengolahan minyak dan gas memiliki potensi terpajan berbagai macam hidrokarbon dan zat kimia dalam pembuatan turunan minyak bumi. Benzene, toluene, dan xylene menjadi pajanan bahaya kimia yang paling sering dijumpai pada pengolahan minyak dan gas bumi. Pekerja yang terpajan bahaya kimia benzene, toluene, dan xylene melalui rute inhalasi memiliki berbagai risiko kesehatan baik akut maupun kronis. Penelitian ini bertujuan untuk menganalisis risiko kesehatan terkait pajanan bahaya kimia benzene, toluene, dan xylene pada pekerja di unit pengolahan minyak dan gas bumi. Penelitian ini menganalisis pajanan bahaya kimia benzene, toluene, dan xylene di dua unit pengolahan minyak bumi menggunakan metode Chemical Hazard Risk Assessment dari Departemen of Safety and Health Malaysia Tahun 2018. Hasil penelitian menunjukan bahwa benzene termasuk dalam kategori tingkat risiko kesehatan tinggi, sedangkan toluene dan xylene termasuk dalam kategori tingkat risiko kesehatan rendah. Tingkat pajanan bahaya kimia benzene, toluene, dan xylene dengan nilai rata-rata tertinggi berada pada unit laboratorim. Dari hasil penelitian terkait tingkat risiko kesehatan pajanan benzene, toluene, dan xylene diperlukan strategi kontrol yang tepat, seperti penggunaan alat pelindung diri yang sesuai dan meningkatkan sistem ventilasi di tempat kerja untuk mengurangi pajanan benzene, toluene, dan xylene melalui rute inhalasi.
.....Workers in refinery units have the potential to be exposed to various kinds of hydrocarbons and chemicals in the manufacture of petroleum derivatives. Benzene, toluene, and xylene are the most common chemical hazards in oil and gas processing. Workers who are exposed to the chemical hazards of benzene, toluene, and xylene through the inhalation route have various health risks, both acute and chronic. This study aims to analyze the health risks associated with chemical hazards exposure to benzene, toluene, and xylene in workers in oil and gas processing units. This study analyzed the chemical hazard exposure of benzene, toluene, and xylene in two petroleum processing units using the Chemical Hazard Risk Assessment method from the Department of Safety and Health Malaysia in 2018. The results showed that benzene was included in the category of high health risk level, while toluene and xylene is included in the category of low health risk level. The level of exposure to the chemical hazards of benzene, toluene, and xylene with the highest average value is in the laboratory unit. From the results of research related to the level of health risk of exposure to benzene, toluene, and xylene, appropriate control strategies are needed, such as the use of appropriate personal protective equipment and improving ventilation systems in the workplace to reduce exposure to benzene, toluene, and xylene through the inhalation route.