

RISK ANALYSIS OF NITROGEN DIOXIDE GAS EXPOSURE TO PARKING ATTENDANT AT KAPASAN MARKET SURABAYA IN 2023

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ABSTRACT

The activity of entering and exiting motorized vehicles within the parking area resulted in emissions in the form of nitrogen dioxide (NO₂) gas, which posed a risk to the health of parking attendants. The research aimed to determine the level of NO₂ gas risk to the health of parking attendants at Pasar Kapasan Surabaya.

This cross-sectional descriptive study employed the Environmental Health Risk Analysis approach. The method of sampling used was total sampling, which involved 14 individuals. Air sampling was carried out on four floors of the Pasar Kapasan Surabaya parking garage. The intake of NO₂ was calculated using risk analysis, and the respondents' level of risk was determined.

The four floors of the parking area were found to have an average NO₂ content that varied from 0,047 ppm to 0,053 ppm. The study's findings showed that the NO₂ levels were within the quality limits established by Permenaker No. 5 of 2018. The greatest risk level measured was 0.162 (RQ≤1), whereas the highest daily consumption of NO₂ gas was 0.0032 mg/kg/day. The study's conclusions state that exposure to NO₂ did not put the parking attendants at Pasar Kapasan Surabaya at danger of developing health issues. The researchers recommended installing exhaust fans in the parking area to increase air circulation and using respirator to lessen exposure to pollution as a preventative strategy.

Keywords : Environmental Health Risk Analysis, Nitrogen dioxide (NO₂),
Parking attendant.

ANALISIS RISIKO PAJANAN GAS NITROGEN DIOKSIDA PADA PETUGAS PARKIR DI PASAR KAPASAN SURABAYA

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ABSTRAK

Kegiatan masuk dan keluarnya kendaraan bermotor di dalam area parkir menghasilkan emisi berupa gas nitrogen dioksida (NO_2) yang dapat berisiko terhadap kesehatan petugas parkir. Tujuan dari penelitian ini untuk mengetahui tingkat risiko gas NO_2 terhadap kesehatan petugas parkir di Pasar Kapasan Surabaya.

Penelitian ini merupakan penelitian deskriptif dengan desain *cross sectional* dan menggunakan pendekatan Analisis Risiko Kesehatan Lingkungan (ARKL). Teknik pengambilan sampel yang digunakan adalah *total sampling* sebanyak 14 orang. Pengambilan sampel udara dilakukan di 4 lantai area parkir Pasar Kapasan Surabaya. Analisis risiko digunakan untuk menghitung intake NO_2 dan menetapkan karakterisasi risiko pada responden.

Hasil pengukuran rata-rata konsentrasi NO_2 pada keempat lantai area parkir ditemukan kisaran 0,047 ppm-0,053 ppm. Hasil penelitian menunjukkan kadar NO_2 tidak melebihi baku mutu dalam Permenaker No. 5 Tahun 2018. Nilai intake tertinggi yang diperoleh untuk NO_2 yaitu 0,0032 mg/kg/hari dan tingkat risiko paling tinggi sebesar 0,162 ($\text{RQ} \leq 1$). Hasil penelitian menyimpulkan bahwa paparan NO_2 tidak berisiko terhadap kesehatan petugas parkir di Pasar Kapasan Surabaya. Sebagai tindakan pencegahan, peneliti menyarankan penggunaan respirator untuk mengurangi paparan terhadap polutan dan pemasangan exhaust fan di area parkir untuk meningkatkan sirkulasi udara.

Kata Kunci : Analisis Risiko Kesehatan Lingkungan, Nitrogen dioksida (NO_2), Petugas parkir.