

ABSTRAK

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ANALISIS RISIKO PAJANAN GAS KARBON MONOKSIDA (CO) PADA PEDAGANG DI TERMINAL PURABAYA TAHUN 2025

xvi + 79 Halaman + 17 Tabel + 12 Lampiran

Terminal Purabaya memiliki kebangkitan kendaraan tinggi. Selama pengukuran 4 jam, tercatat sebanyak 137 unit bus melintas dari total sekitar 2.155 unit yang beroperasi per harinya. Konsentrasi karbon monoksida (CO) melebihi standar baku mutu kualitas udara ambien, dengan rata-rata mencapai 180332,9 $\mu\text{g}/\text{m}^3$. Kondisi ini menunjukkan potensi risiko kesehatan bagi masyarakat, terutama pedagang yang beraktivitas di dekat sumber emisi. Penelitian ini dilakukan untuk menganalisis seberapa besar risiko paparan karbon monoksida (CO) yang dialami oleh pedagang di lingkungan Terminal Purabaya.

Jenis penelitian ini adalah studi deskriptif analitik dengan rancangan *cross-sectional* serta pendekatan mengacu pada Analisis Risiko Kesehatan Lingkungan (ARKL). Sebanyak 32 pedagang dipilih menjadi sampel melalui metode *purposive sampling* berdasarkan kriteria khusus yang ditentukan. Pengumpulan data dilakukan di empat titik pengamatan, dan analisisnya mengikuti tahapan dalam metode ARKL.

Hasil menunjukkan rata-rata konsentrasi CO mencapai 180332,9 $\mu\text{g}/\text{m}^3$ berada di atas baku mutu udara yang ditetapkan PP No. 22 Tahun 2021. Rata-rata suhu dan kelembaban udara tercatat sebesar 29,9°C dan 78,7%, serta kecepatan angin sebesar 1,14 m/s dari barat. Nilai RfC sebesar 1,207 mg/kg/hari dan nilai asupan (*intake*) pedagang tercatat sekitar 44,79081128 hingga 5,817556543 mg/kg/hari dengan estimasi risiko kesehatan menunjukkan nilai $RQ > 1$.

Tingkat Risiko 32 pedagang termasuk dalam kategori tidak aman atau berisiko mengalami efek non-karsinogenik akibat pajanan CO pada waktu nyata. Disarankan dilakukan uji emisi rutin, pembatasan *idle time*, penerapan *green building*, serta penggunaan masker KN95 dan menjaga berat badan ideal bagi pedagang yang bersiko.

Kata Kunci: Analisis Risiko, Pajanan, Gas CO, Pedagang, Terminal Purabaya

Daftar bacaan: 15 buku (2010–2024), 39 jurnal/artikel ilmiah (2014–2025), 4 website/artikel online (2018–2024), 2 peraturan kesehatan

ABSTRACT

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RISK ANALYSIS OF CARBON MONOXIDE (CO) EXPOSURE AMONG VENDORS AT PURABAYA TERMINAL IN 2025

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Terminal Purabaya experiences high traffic volume. During a four-hour observation period, 137 buses were recorded passing through, out of approximately 2,155 operating daily. The concentration of carbon monoxide (CO) exceeded the ambient air quality standard, with an average of 180,332.9 $\mu\text{g}/\text{m}^3$. This condition indicates a potential health risk, particularly for traders working near emission sources. This study aims to assess the level of health risk due to carbon monoxide (CO) exposure among traders at Terminal Purabaya.

The research employed a descriptive-analytic approach with a cross-sectional design and was guided by the Environmental Health Risk Assessment (EHRA) framework. A total of 32 traders were selected as respondents using purposive sampling based on specific criteria. Data were collected at four observation points and analyzed according to the stages of EHRA.

Results showed that the average CO concentration of 180,332.9 $\mu\text{g}/\text{m}^3$ exceeded the ambient air quality threshold set by Government Regulation No. 22 of 2021. Environmental measurements recorded an average temperature of 29.9°C, relative humidity of 78.7%, and wind speed of 1.14 m/s coming from the west. The Reference Concentration (RfC) was set at 1.207 mg/kg/day, while the estimated intake among traders ranged from 5.82 to 44.79 mg/kg/day. The risk estimation indicated that the Risk Quotient (RQ) > 1.

All 32 traders were categorized as being at an unsafe or at-risk level for non-carcinogenic health effects due to real-time CO exposure. It is recommended to conduct regular vehicle emission tests, limit idle time, implement green building principles, and encourage the use of KN95 masks as well as maintaining ideal body weight among at-risk traders.

Keywords: Risk Analysis, Exposure, CO Gas, Vendors, Terminal Purabaya

References: 15 books (2010–2024), 39 scientific journals/articles (2016–2025), 4 websites/online articles (2018–2024), 2 health regulations