

ANALYSIS OF RISK OF EXPOSURE TO NH₃ AND H₂S GAS TO WORKERS IN THE SMALL INDUSTRIAL ENVIRONMENT (LIK) OF MAGETAN REGENCY IN 2021

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ABSTRACT

NH₃ and H₂S gases was produced from the decomposition process of the rest of the fur, meat and pieces of skin that can pose a risk to the health of workers. The aims of the study were analyze and determine the risk of exposure to NH₃ and H₂S gases on the health of workers in the Small Industrial Environment (LIK) of Magetan Regency.

The design of this research was descriptive quantitative which the aim was to describe an event that occurs in numerical and narrative form. The study used a cross sectional time approach design and the ARKL approach (Environmental Health Risk Analysis) with a sample of 13 workers. Air sampling was carried out at one location where the leather tanning process was carried out at the fleshing stage. The data analysis method used risk analysis to determine the risk characterization of workers in the Small Industrial Environment (LIK) Magetan. Based on the ARKL guidelines, the amount of risk said to be "safe" if the RQ value 1, and the amount of risk said to be "unsafe" if the RQ value > 1.

The results showed that the concentration of NH₃ and H₂S gases was still below the NAV based on the Regulation of the Minister of Manpower and Transmigration Number PER.13/MEN/X/2018, namely 25 ppm and 1 ppm. The ARKL calculation used the minimum and maximum values for measuring NH₃ and H₂S gas concentrations with reference concentrations (RfC) values of 0.5 mg/kg/day and 0.002 mg/kg/day. RQ values for workers for NH₃ and H₂S gas concentrations for all RQ concentrations < 1 safe for workers.

The conclusion is that the level of risk of exposure to NH₃ and H₂S gas in the Small Industry Environment (LIK) of Magetan Regency is safe for workers. The suggestion for the agency was to manage the place for the disposal of the rest of the meat, fur, and fresh skin so that it was not accumulate and not produce excessive odors. Workers were also advised to wear masks as personal protective equipment.

Keywords: Risk Analysis, NH₃, H₂S, Leather Tanning Industry Workers.

**ANALISIS RISIKO PAPARAN GAS NH₃ DAN H₂S
TERHADAP PEKERJA DI LINGKUNGAN INDUSTRI KECIL (LIK)
KABUPATEN MAGETAN TAHUN 2021**

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ABSTRAK

Gas NH₃ dan H₂S di hasilkan dari proses pembusukan dari sisa bulu, daging dan potongan kulit yang dapat berisiko pada kesehatan pekerja. Penelitian bertujuan untuk menganalisis dan menetapkan besarnya risiko paparan gas NH₃ dan H₂S terhadap kesehatan pekerja di Lingkungan Industri Kecil (LIK) Kabupaten Magetan.

Desain penelitian ini adalah deskriptif kuantitatif yaitu suatu penelitian yang bertujuan untuk mendiskripsikan atau menggambarkan suatu kejadian yang terjadi dalam bentuk numerik dan narasi. Penelitian menggunakan desain pendekatan waktu *cross sectional* dan metode pendekatan ARKL (Analisis Risiko Kesehatan Lingkungan). Dengan sampel sebanyak 13 pekerja. Pengambilan sampel udara dilakukan di 1 titik lokasi tempat proses penyamakan kulit pada tahap *fleshing*. Metode analisis data yang digunakan yaitu analisis risiko untuk menentukan karakterisasi risiko pada pekerja di Lingkungan Industri Kecil (LIK) Magetan. Berdasarkan pedoman ARKL, besarnya risiko dikatakan “aman” apabila nilai $RQ \leq 1$, dan besarnya risiko dikatakan “tidak aman” apabila nilai $RQ > 1$.

Hasil penelitian menunjukkan konsentrasi gas NH₃ dan H₂S masih dibawah NAB berdasarkan Peraturan Menteri Tenaga Kerja dan Transmigrasi Nomor PER.05/MEN/X/2018 yaitu 25 ppm dan 1 ppm. Perhitungan ARKL menggunakan nilai minimum dan maksimum pengukuran konsentrasi gas NH₃ dan H₂S dengan nilai konsentrasi referensi (RfC) sebesar 0,5 mg/kg/hari dan 0,002 mg/kg/hari. Nilai RQ pada pekerja untuk konsentrasi gas NH₃ dan H₂S konsentrasi $RQ < 1$ aman bagi pekerja.

Kesimpulan tingkat risiko paparan gas NH₃ dan H₂S di Lingkungan Industri Kecil (LIK) Kabupaten Magetan aman bagi pekerja. Saran untuk instansi yaitu melakukan pengelolaan tempat pembuangan sisa daging, bulu, dan kulit segar sehingga tidak menumpuk dan tidak menghasilkan bau yang berlebihan. Pekerja juga dihimbau menggunakan masker sebagai alat pelindung diri.

Kata Kunci: Analisis Risiko, NH₃, H₂S, Pekerja Industri penyamakan kulit.