ANALYSIS ON THE RISK OF CARBON MONOXIDE (CO) GAS EXPOSURE TO WORKERS IN HOME INDUSTRY OF TOFU (Case Study of Tofu Home Industry in Hamlet of Klagen, Tropodo Village, Subdistrict of Krian, District of Sidoarjo)

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ABSTRACT

Plastic waste bursing which is used as the fuel on the process of making tofu in home industry Hamlet of Klagen, Tropodo Village, Subdistrict of Krian may cause CO gas where it may incur health problems to its workers. The objective of this research is to analyze the level of risk to CO gas on workers in home industry of tofu in Hamlet of Klagen, Tropodo Village, Subdistrict of Krian, District of Sidoarjo.

This research is descriptive study with the approach of cross-sectional. This research was done in 5 home industries of tofu. Sampling technique used was proportional stratified random sampling, with a sample in total of 43 people. Data analysis method used was risk analysis in order to determine the characteristics of workers' risks. Based on the risk analysis Guideline, the level of risks said to be safe is if the value of RQ ≤ 1, and the risk level is said to be not safe if the value of RQ > 1.

The results of research of CO gas concentration on each home industries of tofu showed that they were still below threshold value according to the Regulation of Minister of Manpower No. PER. 05 2018 about The Safety and Work Health of Work Environment. The results of measurement on air physical environment obtained an average of air temperature 31,3^{o}C, average moisture 71,3%, high wind speed 0,80 m/s, and the direction of wind from South and East. The responding dosage of CO gas was 7,667 mg/ kg/ day. All of the workers in home industry of tofu obtained the value of RQ <1.

From the results of research it can be concluded that the risk level of CO gas exposure on workers in home industry of tofu is categorized as safe and not at risk of incurring respiratory tract disorder. As for suggestions for managers of home industry of tofu is to replace the plastic waste as a fueld with environmental-friendly fuel and provide face mask for the workers.

Key words: Risk Analysis, Carbon Monoxide (CO), Home industry of tofu.

ANALISIS RISIKO PAPARAN KADAR GAS KARBON MONOKSIDA (CO) PADA PEKERJA DI *HOME INDUSTRI* TAHU
(Studi Kasus *Home Industri* Tahu di Dusun Klagen, Desa Tropodo, Kecamatan Krian, Kabupaten Sidoarjo)

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ABSTRAK

Pembakaran sampah plastik yang digunakan sebagai bahan bakar proses pembuatan tahu di *home industri* Dusun Klagen, Desa Tropodo, Kecamatan Krian dapat menimbulkan gas CO yang bisa berisiko pada kesehatan pekerja. Tujuan dari penelitian ini adalah menganalisis tingkat risiko gas CO pada pekerja di *home industri* tahu Dusun Klagen, Desa Tropodo, Kecamatan Krian, Kabupaten Sidoarjo.

Penelitian ini merupakan penelitian deskriptif dengan pendekatan *cross sectional.* Penelitian ini dilakukan di 5 lokasi *home industri* tahu. Teknik pengambilan sampel menggunakan *proportional stratified random sampling*, dengan sampel sebanyak 43 orang. Metode analisis data yang digunakan analisis risiko untuk menentukan karakterisasi risiko pekerja. Berdasarkan Pedoman ARKL, tingkat risiko dikatakan aman apabila nilai RQ ≤ 1, dan tingkat risiko dikatakan tidak aman apabila nilai RQ > 1.

Hasil penelitian konsentrasi gas CO pada masing-masing *home industri* tahu masih dibawah NAB menurut Peraturan Menteri Tenaga Kerja No PER.05 Tahun 2018 tentang Keselamatan dan Kesehatan Kerja Lingkungan Kerja. Hasil pengukuran lingkungan fisik udara didapatkan rata-rata suhu udara 31,3^{o}C, rata-rata kelembaban 71,3%, kecepatan angin tertinggi 0,80 m/s, dan arah angin bergerak dari arah Selatan dan Timur. Dosis respon gas CO adalah 7,667 mg/kg/hari. Seluruh pekerja di *home industri* tahu didapatkan nilai *RQ* < 1.

Dari hasil penelitian dapat disimpulkan bahwa tingkat risiko paparan gas CO pada pekerja di *home industri* tahu adalah aman dan tidak berisiko terjadinya gangguan saluran pernapasan. Adapun saran untuk pengelola *home industri* tahu yaitu melakukan penggantian bahan bakar sampah plastik dengan bahan bakar ramah lingkungan dan menyediakan masker bagi para pekerja.

Kata Kunci: ARKL**,** Karbon Monoksida (CO), *Home industri* tahu.