Analisis Pengendalian Risiko Hidrogen Sulfida dari Corrosion Inhibitor terhadap Kesehatan Pekerja di Industri Hulu Minyak dan Gas Bumi = Analysis of Occupational Health Risk Control of Hydrogen Sulfide from Corrosion Inhibitor in Oil and Gas Upstream Industry

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Abstrak

Latar Belakang: Asam tioglikolat (TGA) yang digunakan sebagai bahan baku corrosion inhibitor dapat menghasilkan H2S (hidrogen sulfida) dan memajan kesehatan pekerja. Tujuan penelitian adalah menganalisis tingkat risiko H2S dari TGA dalam produk CI beserta usulan pengendalian risiko di perusahaan. Metodologi: Chemical Health Risk Assessment (CHRA) menurut DOSH versi 2018 pada dua unit kerja terpajan di PT. X, yaitu Unit kerja 1 (area produksi) dan Unit Kerja 2 (area warehouse). Hasil: Sesuai DOSH, tingkat risiko kesehatan gas H2S termasuk hazard rating (HR) = 5. Analisis exposure rating (ER) secara kualitatif menunjukkan ER area produksi (4) lebih tinggi dari ER di area warehouse (3) karena perbedaan frequency-duration rating (FDR) antar unit kerja. Dengan menghubungkan Magnitude rating (MR) saat aktivitas membuka tutup drum CI = 4, tingkat risiko kesehatan berada pada high risk level (RR = 20 Unit Kerja 1; RR = 15 Unit Kerja 2). Kesimpulan: Risiko kesehatan akibat pajanan H2S dari CI termasuk pada high risk level menurut CHRA DOSH dan langkah utama yang perlu dilakukan adalah subsitusi untuk menurunkan level risiko. Kesesuaian langkah pengendalian teknis, administratif, dan APD sangat penting saat TGA digunakan dalam produk corrosion inhibitor.

.....Background: Thioglycolic acid (TGA) is used as iron ion reduction in corrosion inhibitor which can produce H2S (hydrogen sulfide) and expose to human health. The purpose of this research is to analyze the risk level of H2S exposure from CI along with the proposed risk control in the company. Methodology: Chemical Health Risk Assessment (CHRA) according to DOSH (2018) in two exposed work units in PT. X (Work Unit 1 as production area and Work Unit 2 as warehouse area). Result: According to DOSH, the hazard rating of H2S is 5. Qualitative exposure rating (ER) analysis shows the ER of the production area (4) is higher than ER in the warehouse area (3) due to the difference in frequency-duration rating (FDR). By considering the Magnitude rating (MR) during drums opening is 4, the level of health risk is at high risk level (RR Work Units 1 = 20; RR Work Units 2 = 15). Conclusion: H2S exposure from CI is at high risk level according to CHRA DOSH and the main required control is substitution to reduce the risk level. Adequacy of technical, administrative, and PPE control measures is critical when TGA is used in corrosion inhibitor.