

ABSTRACT

Chromium used as a coating metal material. Heavy metal that used uneffectively can caused health problem for workers. Workers that work on *plating* chrome have high risk for chromium exposure, especially for inhalation. After the material inhaled, it will be absorbed into the kidneys and excreted through urine. The purpose of this study was to analyze the level of chromium in the air and albumin level in urine's workers in Candi Sidoarjo District.

This was an observational descriptive research with cross sectional design. The sample of this research were 15 people. The research sample is using total sampling. The independent variable is the level of chromium in the air, worker characteristics and external environmental factors. The dependent variable is the chromium and albumin levels in urine as well as the health problems of workers.

The results showed chromium levels in the work environment didn't exceed the threshold value. As many as 53% of workers have chromium levels in urine exceeding the normal value limit, 20% of workers with positive albumin in urine and 73% of workers often experience complaints of low back pain. The results of the cross tabulation were seen from individual characteristics, workers who had chromium levels exceeding the normal limit of the majority were workers with an age group of more than 40 years, with a work period of more than 10 years, not wearing Personal Protective Equipment (PPE) in the form of masks and long sleeves, personal hygiene that was not good and smoking worker behavior.

The conclusion of this study is the level of chromium air in the work environment is still safe. Workers in the coating and rinsing area with air chromium levels of 0.01 mg/m^3 have higher chromium levels in urine than in the polishing area with air chromium levels of 0.005 mg/m^3 . It is recommended to have a control such as using a suitable PPE, especially masks and the need for the procurement of exhaust fans at the working area.

Keywords: metal coating, chromium, urine albumin

ABSTRAK

Kromium digunakan sebagai bahan pelapisan logam. Penggunaan kromium secara kurang tepat akan mengakibatkan kerugian bagi pekerja. Pekerja pelapisan kromium mempunyai risiko pajanan kromium yang tinggi, terutama melalui jalur inhalasi. Setelah bahan terhirup akan terabsorpsi menuju ginjal dan diekskresikan melalui urine. Tujuan dari penelitian ini untuk menganalisis kadar kromium di udara dengan kromium dan albumin dalam urine pada pekerja industri rumah tangga pelapisan logam di Kecamatan Candi Sidoarjo.

Penelitian ini merupakan penelitian deskriptif observasional dengan rancang bangun *cross sectional*. Besar sampel pekerja pelapisan logam sebanyak 15 orang. Sampel penelitian menggunakan total sampling. Variabel independen adalah kadar kromium di udara, karakteristik pekerja dan faktor eksternal lingkungan. Variabel dependen adalah kadar kromium dan albumin di urine serta keluhan kesehatan pekerja.

Hasil penelitian menunjukkan kadar kromium pada lingkungan kerja tidak melebihi nilai ambang batas. Sebanyak 53% pekerja memiliki kadar kromium dalam urine melebihi batas nilai normal, 20% pekerja dengan positif albumin pada urine dan 73% pekerja sering merasakan keluhan nyeri pinggang. Tabulasi silang menunjukkan pekerja yang memiliki kadar kromium melebihi batas nilai normal mayoritas adalah pekerja dengan kelompok umur lebih dari 40 tahun, dengan masa kerja lebih dari 10 tahun, tidak memakai Alat Pelindung Diri (APD) berupa masker dan baju lengan panjang, personal hygiene yang tidak baik dan perilaku pekerja yang merokok.

Kesimpulan dari penelitian ini adalah kadar kromium udara di lingkungan kerja masih aman. Pekerja di area pelapisan dan pembilasan dengan kadar kromium udara 0,01 mg/m³ memiliki kadar kromium di urine lebih tinggi daripada di area pemolesan dengan kadar kromium udara 0,005 mg/m³. Disarankan melakukan pengendalian seperti penggunaan APD yang sesuai terutama masker dan perlunya pengadaan *exhaust fan* pada area kerja.

Kata kunci : pelapisan logam, kromium, albumin urine