

ABSTRACT

Respirable dust is a dust particles sized between 0.5-4 micrometers that can be inhaled while breathing and enter the pulmonary alveoli. Respirable dust can be in various places as a waste or the product of a process, one of them in the ceramic industry. The source of respirable dust in ceramic industry came from raw materials such as clay and coco brown powder and from the crushing process of ceramic tiles that did not pass the quality control to be used as raw material again. Continous exposure to respirable dust at work can cause respiratory tract disorders both non-carcinogens and carcinogens effect. One of the way to prevent the effects of respirable dust exposure is by conducting risk assessment of respirable dust exposure. The purpose of this research is to carry out a risk assessment of respirable dust exposure in material preparation workers.

This research was a descriptive study with cross-sectional study design carried out in Gresik ceramic industry. The method used was the approach from health risk assessment. The number of samples in this study were 16 workers in material preparation unit.

The result showed that 68.75% of workers were at risk of experiencing non-carcinogenic respiratory disorders and there was an increased risk for workers exposed to respirable dust cumulatively. Also as many as 100% of workers were at risk of experiencing carcinogenic respiratory disorders and there was an increased risk for workers who were cumulatively exposed.

The conclusion is that the exposure of respirable dust at work environment is now indicating the level of unsafe risk and control efforts and risk management need to be done. Efforts that can be done include engine repairs, local exhaust ventilation, regular cleaning of the work environment, medical or health check up, and providing the mask in accordance with the type and size of existing dust in the workplace.

Keywords: risk assessment, respirable dust, ceramics

ABSTRAK

Debu respirabel merupakan partikel debu yang berukuran 0,5-4 mikrometer yang dapat terhirup saat bernapas dan masuk sampai ke alveoli paru. Debu respirabel dapat berada di berbagai tempat sebagai limbah atau hasil dari suatu proses salah satunya di industri keramik. Sumber debu respirabel di industri keramik berasal dari bahan baku berupa tanah liat dan bubuk *coco brown* serta dari proses *crushing* keramik genteng yang tidak lolos *quality control* untuk dijadikan bahan baku kembali. Paparan debu respirabel secara terus menerus di tempat kerja dapat menyebabkan gangguan saluran pernapasan baik yang bersifat non karsinogen maupun karsinogen. Salah satu upaya dalam mencegah efek paparan debu respirabel yaitu dengan melakukan *risk assessment* terhadap paparan debu respirabel. Tujuan dari penelitian ini adalah untuk melakukan *risk assessment* (penilaian risiko) paparan debu respirabel pada pekerja unit *material preparation*.

Penelitian ini merupakan penelitian deskriptif dengan desain studi *cross sectional* yang dilakukan di industri keramik Gresik. Metode yang digunakan adalah metode pendekatan *health risk assessment*. Jumlah sampel dalam penelitian ini sebanyak 16 orang pekerja pada unit *material preparation*.

Hasil penelitian menunjukkan bahwa 68,75% pekerja berisiko mengalami gangguan pernapasan non karsinogenik dan terdapat peningkatan risiko pada pekerja yang terpapar debu respirabel secara kumulatif. Serta sebanyak 100% pekerja berisiko mengalami gangguan pernapasan yang bersifat karsinogenik dan terdapat peningkatan risiko pada pekerja yang terpapar secara kumulatif.

Kesimpulan dari penelitian ini bahwa paparan debu respirabel di tempat kerja saat ini telah menunjukkan risiko tidak aman sehingga perlu dilakukan upaya pengendalian dan manajemen risiko. Upaya yang dapat dilakukan antara lain perbaikan mesin, ventilasi lokal, pembersihan lingkungan kerja secara teratur, pemeriksaan kesehatan pekerja, dan pemberian masker sesuai jenis dan ukuran debu di tempat kerja.

Kata kunci: *risk assessment*, debu respirabel, keramik