

# OVERVIEW OF ENVIRONMENTAL DUST LEVELS, WORKER CHARACTERISTICS, AND RESPIRATORY HEALTH COMPLAINTS AT PT. SELO ADIKARTO, KULON PROGO REGENCY

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## ABSTRACT

**Background:** Dust generated from the construction service industry, which operates as a general contractor and asphalt mixing plant, is one of the physical factors that can cause air pollution, leading to respiratory complaints among workers. Based on observations at PT. Selo Adikarto, there was a significant amount of airborne dust from production activities, and many workers were not wearing masks.

**Purpose:** Describes the level of environmental dust, worker characteristics, and respiratory complaints.

**Method:** This research employs a descriptive method with dust sampling conducted three times at each point using a Low Volume Air Sampler (LVAS), along with data collection on worker characteristics and respiratory complaints through questionnaires.

**Results:** Three-point measurements were conducted with three repetitions. The highest result was recorded in the *jaw crusher primary* area during the first repetition, measuring 11.068 mg/m<sup>3</sup>, with an average highest value of 10.386 mg/m<sup>3</sup>. The worker characteristic questionnaire results showed that 8 workers were over 42 years old, 9 workers had more than 13 years of work experience, and 13 workers had a habit of smoking. Mask usage was evenly divided, with 10 workers using masks and 10 workers not using masks. The respiratory symptom questionnaire indicated that 17 workers (85%) did not experience respiratory complaints, while 3 workers (15%) reported symptoms, consisting of 2 workers (10%) experiencing shortness of breath and 1 worker (5%) with productive cough.

**Conclusion:** Environmental dust levels in the *jaw crusher primary* area average 10.386 mg/m<sup>3</sup>, exceeding the Threshold Limit Value (TLV) of 10 mg/m<sup>3</sup> established in Ministerial Regulation No. 5 of 2018. Additionally, three workers (15%) are experiencing respiratory complaints.

**Keyword:** Dust, Worker Characteristics, Respiratory Disease, LVAS

## **GAMBARAN KADAR DEBU LINGKUNGAN, KARAKTERISTIK PEKERJA DAN KELUHAN PENYAKIT PERNAPASAN DI PT. SELO ADIKARTO KABUPATEN KULON PROGO**

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### **ABSTRAK**

**Latar Belakang:** Debu hasil dari proses industri jasa konstruksi yang bergerak dibidang *general contractor* dan *asphal mixing plant* termasuk salah satu faktor fisik yang dapat menyebabkan pencemaran udara sehingga dapat menyebabkan keluhan pernapasan pada pekerja. Berdasarkan hasil obsevasi di PT. Selo Adikarto terdapat banyak debu hasil produksi yang berterbangan dan banyak pekerja yang tidak menggunakan masker.

**Tujuan:** Menggambarkan kadar debu lingkungan, karakteristik pekerja dan keluhan penyakit pernapasan.

**Metode:** Penelitian ini menggunakan metode deskriptif dengan pengambilan sampel debu sebanyak tiga kali pengulangan pada setiap titik menggunakan alat *Low Volume Air Sampler* (LVAS) dan pengumpulan data karakteristik pekerja dan keluhan penyakit pernapasan dengan kuesioner.

**Hasil:** Pengukuran tiga titik dengan tiga kali pengulangan, dengan hasil tertinggi terletak di area *jaw crusher* primer pada pengulangan pertama sebesar 11,068 mg/m<sup>3</sup>, dengan rata-rata tertinggi sebesar 10,386 mg/m<sup>3</sup>. Hasil kuesioner karakteristik pekerja sebesar 8 pekerja berumur >42 tahun, 9 pekerja memiliki masa kerja >13 tahun, 13 pekerja memiliki kebiasaan merokok serta penggunaan masker terbagi seimbang yaitu 10 pekerja menggunakan dan tidak menggunakan masker. Hasil kuesioner keluhan penyakit pernapasan didapatkan 17 pekerja (85%) tidak mengalami keluhan pernapasan sedangkan 3 pekerja (15%) mengalami keluhan dengan rincian 2 pekerja (10%) sesak napas serta 1 pekerja (5%) batuk berdahak.

**Kesimpulan:** Kadar debu lingkungan tertinggi terdapat di area *jaw crusher* primer dengan rata-rata 10,386 mg/m<sup>3</sup>, melebihi Nilai Ambang Batas (NAB) 10 mg/m<sup>3</sup> yang ditetapkan dalam Permenaker No 5 Tahun 2018. Terdapat 3 pekerja (15%) yang mengalami keluhan penyakit pernapasan.

**Kata Kunci:** Debu, Karakteristik Pekerja, Penyakit Pernapasan, LVAS