

## ABSTRAK

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VARIASI PELARUT DESTRUKSI BASAH PADA KADAR TIMBAL URIN  
PETUGAS KEBERSIHAN JALAN DI WILAYAH GUBENG SURABAYA

1x + 92 halaman + 9 Tabel + 13 Lampiran

Salah satu faktor utama penyebab terjadinya pencemaran udara adalah aktivitas makhluk hidup, khususnya manusia dengan dampak buruk yang banyak ditimbulkan seperti cemaran asap kendaraan, asap pabrik, asap rokok, dan lain-lain. Penyumbang terjadinya polusi udara paling besar adalah meningkatnya sektor transportasi, yang menyebabkan polusi logam berat salah satunya timbal (Pb) berakibat pada efek keracunan akut dan keracunan kronis. Timbal memasuki tubuh lewat saluran pernapasan, sistem pencernaan, dan kontak kulit. Penelitian ini bertujuan untuk mengetahui variasi pelarut destruksi basah pada kadar timbal (Pb) pada urin petugas kebersihan jalan di wilayah Gubeng. Penelitian ini ialah eksperimental laboratorium memakai teknik analisa kuantitatif. Sampel yang digunakan adalah 8 sampel urin petugas kebersihan jalan di Dinas Lingkungan Hidup Gubeng, Kota Surabaya yang memenuhi kriteria inklusi yaitu sudah bekerja minimal 3 tahun, berusia minimal 25 tahun, dan sedang bekerja pada hari pengambilan sampel. Pemeriksaan kadar timbal dalam tubuh dapat menggunakan metode SSA (Spektrofotometri Serapan Atom) dan sampel berupa larutan dilakukan destruksi basah terlebih dahulu agar kadar timbal pada sampel dapat terbaca. Destruksi basah biasanya menggunakan asam seperti HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, dan H<sub>2</sub>O<sub>2</sub>. Dari hasil penelitian didapatkan nilai rata-rata pada metode destruksi basah urin menggunakan variasi pelarut HNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> (3:2) sebesar 4,603 µg/L, variasi pelarut HNO<sub>3</sub> + HCl (3:1) nilai rata-rata sebesar 8,866 µg/L, dan variasi pelarut HNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> + HCl (6:2:1) dengan nilai rata-rata 3,209 µg/L. Maka dari itu, bisa disimpulkan jika penelitian ini memiliki pengaruh pada variasi pelarut kadar timbal dalam urin dan variasi pelarut terbaik dalam destruksi basah untuk penentuan kadar timbal yaitu variasi pelarut HNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> + HCl (6:2:1).

**Kata Kunci:** Timbal (Pb), Urin, Petugas Kebersihan Jalan, Variasi Pelarut, Spektrofotometri Serapan Atom

## ABSTRACT

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VARIATION OF WET DESTRUCTION SOLVENTS ON LEAD LEVELS OF URINE OF STREET CLEANING OFFICERS IN GUBENG AREA, SURABAYA

1x + 92 pages + 9 Tables + 13 Attachments

One of the main factors causing air pollution is the activity of living things, especially humans with many adverse impacts such as pollution from vehicle exhaust fumes, factory smoke, cigarette smoke, and others. The largest contributor to air pollution is the increasing transportation sector, which causes heavy metal pollution, one of which is lead (Pb), resulting in acute and chronic poisoning effects. Lead enters the body through the respiratory tract, digestive system, and skin contact. This study aims to determine the variation of wet destruction solvents on lead (Pb) levels in the urine of street cleaners in the Gubeng area. This study is a laboratory experiment using quantitative analysis techniques. The samples used were 8 urine samples of street cleaners at the Gubeng Environmental Service, Surabaya City who met the inclusion criteria, namely having worked for at least 3 years, being at least 25 years old, and working on the day the sample was taken. Examination of lead levels in the body can use the SSA (Atomic Absorption Spectrophotometry) method and samples in the form of solutions are first subjected to wet destruction so that the lead levels in the sample can be read. Wet destruction usually uses acids such as HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, and H<sub>2</sub>O<sub>2</sub>. From the research results, the average value of the urine wet destruction method using a solvent variation of HNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> (3:2) was 4.603 µg/L, a solvent variation of HNO<sub>3</sub> + HCl (3:1) the average value was 8.866 µg/L, and a solvent variation of HNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> + HCl (6:2:1) with an average value of 3.209 µg/L. Therefore, it can be concluded that this study has an influence on the variation of solvents for lead levels in urine and the best solvent variation in wet destruction for determining lead levels is the variation of solvents HNO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> + HCl (6:2:1).

**Keywords:** Lead (Pb), Urine, Street Cleaners, Solvent Variations, Atomic Absorption Spectrophotometry