

Kajian Batas Konsentrasi Polychlorinated Biphenyls (PCBs) pada Minyak Transformator dari Aspek Ekoteknologi dan Sosioekonomi (Studi di Wilayah Jabodetabek, Indonesia) = Study of Polychlorinated Biphenyls (PCBs) Concentration Limits on Transformer Oil from Ecotechnology and Socioeconomic Aspects (Study in Jabodetabek Area, Indonesia).

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20500196&lokasi=lokal>

Abstrak

ABSTRAK

Pencemaran lingkungan oleh Polychlorinated Biphenyls(PCBs) telah menjadi keprihatinan publik karena sifat racunnya terhadap makhluk hidup, dan karakteristik PCBs di lingkungan yang persisten, bio-akumulatif, dan bergerak secara spasial. Di Indonesia kekhawatiran pencemaran PCBs yang terbesar berasal dari banyaknya transformator yang menggunakan minyak ber-PCBs yang sampai saat ini masih masif dan tersebar di seluruh penjuru negeri. Sesuai dengan rencana phase out PCBs di Indonesia, bahwa semua PCBs dan peralatan yang mengandung PCBs harus sudah dimusnahkan pada tahun 2028 (Rencana Penerapan Nasional untuk Konvensi Stockholm, 2014), maka diperlukan penentuan batas konsentrasi PCBs untuk status minyak transformator bebas PCBs di Indonesia. Kajian penelitian dilakukan terhadap aspek ketersediaan teknologi ramah lingkungan untuk destruksi PCBs melalui analisis deskriptif, aspek ekonomi yaitu kesanggupan biaya destruksi PCBs melalui analisis Willingness to Pay dari pemilik PCBs, dan aspek sosial yaitu hubungan persepsi pemilik PCBs terhadap penentuan batas konsentrasi PCBs melalui analisis korelasi Spearman. Metode Analytical Hierarchy Process(AHP) digunakan untuk penentuan hasil batas konsentrasi PCBs dari aspek teknologi, ekonomi dan sosial. Hasil penelitian menunjukkan bahwa konsentrasi 2 ppm dapat diterapkan sehubungan ketersediaan fasilitas destruksi PCBs di Indonesia, berdasarkan harga destruksi PCBs maka dipilih konsentrasi 2 ppm dengan biaya sebesar Rp. 35.000,00/kg yang masih dalam kesanggupan pembiayaan pemilik minyak PCBs, berdasarkan hasil analisis uji korelasi, terdapat hubungan yang signifikan antara persepsi pemilik minyak PCBs terhadap penentuan batas konsentrasi PCBs yang ketat. Berdasarkan hasil AHP, disimpulkan bahwa batas 2 ppm adalah pilihan terbaik untuk diterapkan di Indonesia.

ABSTRACT

Environmental pollution by Polychlorinated Biphenyls (PCBs) has become a public concern because of the nature of its toxicity to living things (Ahlborg et al., 1992), and the characteristics of PCBs in environments that are persistent, bio-accumulative, and move spatially (Borja et al., 2004; Miller, 2000). In Indonesia the biggest concern of PCBs pollution comes from the large number of transformers that use PCBs oil which is still massive and spread all over the country. In accordance with the PCBs phase out plan in Indonesia, that all PCBs and equipment containing PCBs must have been destroyed by 2028 (National Implementation Plan for the Stockholm Convention, 2014), it is necessary to determine the concentration limit for PCBs free status on transformer oil in Indonesia. The study was conducted on aspects of the availability of environmentally friendly technologies for PCBs destruction through descriptive analysis, the economic

aspects is the ability of PCBs destruction costs through the Willingness to Pay analysis from PCBs owners, and the social aspects is the relationship between the perceptions of PCBs owners with the determination of PCBs concentration limits through Spearman correlation analysis. Analytical Hierarchy Process (AHP) method is used to determine the results of PCBs concentration limits from technological, economic and social aspects. The results showed that a concentration of 2 ppm can be applied in connection with the availability of PCBs destruction facilities in Indonesia, based on the price of PCBs destruction, a concentration of 2 ppm was chosen at a cost of Rp. 35,000.00/kg which is still in the capability of financing from the PCBs oil owner, based on the results of the correlation test analysis, there is a significant relationship between the perceptions of PCBs oil owners to determine the strict limits for PCBs concentration. Based on AHP results, it was concluded that the 2 ppm limit was the best choice the best choice to apply in Indonesia.