Pengendalian Pencemaran Air Permukaan oleh Limbah Cair *Home Industry* Batik dengan Metode AOP - GAC di Kalurahan Wijirejo, Kepanewon Pandak, Kabupaten Bantul, Daerah Istimewa Yogyakarta

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INTISARI

Air bersih merupakan kebutuhan dari seluruh aspek kehidupan untuk memenuhi kebutuhan hidupnya sehari – hari. Kalurahan Wijirejo, Kepanewon Pandak, Kabupaten Bantul, Daerah Istimewa Yogyakarta merupakan salah satu daerah yang memproduksi sentra batik skala rumah tangga di DIY. Indikasi yang ada di lokasi penelitian yaitu bau dari lilin yag digunakan dan perubahan warna pada air. Air limbah yang dihasilkan saat ini hanya ditampung di bak ekualisasi dan dialirkan menuju Sungai Bedog dengan drainase. Tujuan penelitian ini yaitu mengetahui karakteristik dari limbah cair batik dan air Sungai Bedog, menganalisis status mutu air sungai dan mengevaluasi standar stream Sungai Bedog, dan merancang desain IPAL dengan metode *Advanced Oxidation Process/Granular Active Carbon*.

Jenis penelitian yang dilakukan secara kualitatif dan kuantitatif. Penelitian ini menggunakan metode survey lapangan dan pemetaan yang hasilnya berupa data primer dan data sekunder. Metode analisis yang dilakukan yaitu sampel limbah cair dan air sungai di uji di Laboratorium BBTKLPP. Metode matematis, yaitu dengan penentuan status mutu air, evaluasi standar *stream* dan rancangan unit IPAL skala lapangan. Metode rancangan percobaan dilakukan untuk mengetahui apakah hasil pengolahan metode yang direncakan dengan berbagai variasi percobaan efektif untuk mengolah limbah batik. Variasi percobaan yang dilakukan yaitu dengan variasi injeksi ozon dengan ozon generator yang menghasilkan 2 mg/h dan proses adsorpsi dengan variasi media karbon aktif.

Hasil analisis laboratorium dan rancangan percobaan menunjukkan bahwa kualitas limbah cair batik adalah BOD_5 8,960 mg/L, COD 44,095 mg/L, Fenol 17,37 mg/L, dan total chrom <0,0095 mg/L. Karakteristik air sungai yang melebihi baku mutu adalah parameter BOD_5, COD, dan Fenol. Status kualitas air di Sungai Bedog tergolong tercemar ringan – sedang. Hasil evaluasi baku mutu aliran yang melebihi baku mutu adalah parameter COD dan Fenol. Petunjuk pengolahan yang diterapkan di lokasi penelitian adalah pembuatan IPAL dengan sistem ozonasi ukuran (2 m x 1 m x 1,5 m) dan ukuran adsorpsi (2 m x 1 m x 1,5 m).

Kata kunci: Air Permukaan, Limbah cair batik, *Advanced Oxidation Process*

CONTROL OF SURFACE WATER POLLUTION BY LIQUID WASTE OF HOME INDUSTRY BATIK WITH AOP – GAC METHOD IN KALURAHAN WIJIREJO, KEPANEWON PANDAK, BANTUL REGENCY, YOGYAKARTA SPECIAL REGION

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ABSTRACT

Clean water is a necessity for all aspects of life to meet their daily needs. Wijirejo Village, Kepanewon Pandak, Bantul Regency, Special Region of Yogyakarta is one of the areas that produces batik on a household scale in DIY. The indications at the research location are the smell of the wax used and the change in color of the water. The waste water produced is currently only stored in an equalization tank and channeled to the Bedog River with drainage. The aims of this study were to determine the characteristics of batik wastewater and Bedog River water, to analyze the status of river water quality and to evaluate the Bedog River stream standard, and to design an WWTP design using the Advanced Oxidation Process/Granular Active Carbon method.

This type of research is carried out qualitatively and quantitatively. This study uses field survey and mapping methods, the results of which are primary data and secondary data. The method of analysis carried out is that samples of liquid waste and river water were tested at the BBTKLPP Laboratory. Mathematical methods, namely by determining the status of water quality, evaluating stream standards and designing field scale WWTP units. The experimental design method was carried out to determine whether the results of the planned method processing with various variations of the experiment were effective for treating batik waste. Variations of the experiment were carried out with variations in ozone injection with an ozone generator which produced 2 mg/h and the adsorption process with variations in activated carbon media.

The results of the laboratory analysis and experimental design showed that the quality of batik liquid waste was BOD_5 8,960 mg/L, COD 44,095 mg/L, Phenol 17,37 mg/L, and total chromium <0.0095 mg/L. The characteristics of river water that exceed the quality standard are BOD_5, COD, and Phenol parameters. The status of water quality in the Bedog River is classified as mild - moderately polluted. The results of the evaluation of stream standards that exceed the quality standards are COD and Phenol parameters. The processing instructions applied at the research site were the manufacture of WWTP with a size ozonation system (2 m x 1 m x 1.5 m) and adsorption size (2 m x 1 m x 1.5 m).

Keywords: *Surface Water, Batik Liquid Waste, Advanced Oxidation Process*