Ministry of Health Polytechnic of Bandung
Undergraduate Program of Environmental Sanitation
Thesis, July 2021

Abstract

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THE EFFECTIVENESS OF *MELT BLOWN* FILTER CARTRIDGE AND UV-C LIGHT ON THE REDUCTION OF TOTAL *COLIFORM* IN PRODUCTION PROCESS WATER AT PT. X

viii + 87 page + 18 table + 9 picture + 7 attachment

Water is a basic need for humans, water related to the results of the food processing industry must have the quality standards required for drinking water. PT. X is an industry engaged in the production of bread. Production process water is sourced from artesian wells and through a physical treatment process. The results of microbiological examination of the total *Coliform* parameters not eligible 8.6 APM/100ml with a quality standard of 0 APM/100ml. Regulation the minister of Health RI 492 of 2010 Drinking Water Quality Requirements, therefore it is necessary to treat the production process water using a Melt Blown filter cartridge and UV-C light. The purpose of this study was to reduce the total *Coliform* and determine the effectiveness of the Melt Blown filter cartridge and UV-C light with variations of the Melt Blown filter cartridge 10" 1 micron, 3 micron, and 5 micron. This type of research is an experimental research with a pretest-posttest without control research design. The sample in this study was water from the chiller reservoir Building B. The average total *Coliform* after being treated using a Melt Blown filter was 1 micron 2.95 APM/100ml, 3 microns 3.61 APM/100ml, 5 microns was 7.31 APM/100ml with percentage reduction of 100%, 94.5% and 82.4%, respectively. The average total *Coliform* after being treated with ultraviolet-c light resulted in a decrease of 1 micron and UV-C 2.95 APM/100ml, 3 microns and UV-C 3.95 APM/100ml, 5 microns and UV-C 8, 88 APM/100ml with a percentage reduction of 100%, 100%, 100%. Data analysis was performed using One Way Anova with p value 0.001. The effective variations are 1 micron and UV-C light.

KEYWORDS : *Melt Blown Filter Cartridge,* Ultraviolet-C, Total *Coliform*

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Skripsi, Juli 2021

Abstrak

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EFEKTIVITAS MELT BLOWN FILTER CARTRIDGE DAN SINAR UV-C TERHADAP PENURUNAN TOTAL COLIFORM PADA AIR PROSES PRODUKSI DI PT. X

viii + 87 halaman + 18 tabel + 9 gambar + 7 lampiran

Air merupakan kebutuhan dasar bagi manusia, air yang berhubungan dengan hasil industri pengolahan pangan harus memenuhi setidaknya standar mutu yang diperlukan untuk air minum. PT. X merupakan industri yang bergerak di bidang produksi roti. Air proses produksi bersumber dari sumur artesis dan melalui proses pengolahan secara fisik. Hasil pemeriksaan mikrobiologi parameter total *Coliform* tidak memenuhi syarat yaitu 8,6 APM/100ml dengan baku mutu 0 APM/100ml menurut Permenkes RI No. 492 Tahun 2010 Tentang Persyaratan Kualitas Air Minum, maka diperlukan pengolahan air proses produksi dengan menggunakan *Melt Blown filter cartridge* dan sinar UV-C. Tujuan penelitian ini untuk menurunkan total *Coliform* dan mengetahui efektifitas *Melt Blown filter cartridge* dan sinar UV-C dengan variasi *Melt Blown filter cartridge* 10" 1 mikron, 3 mikron, dan 5 mikron. Jenis penelitian ini adalah penelitian eksperimen dengan desain penelitian *pretest-posttest without control.* Sampel pada penelitian adalah air yang berasal dari *reservoir chiller* Gedung B. Rata-rata total *Coliform* setelah dilakukan perlakuan menggunakan *Melt Blown filter* didapatkan hasil penurunan 1 mikron 2,95 APM/100ml, 3 mikron 3,61 APM/100ml, 5 mikron adalah 7,31 APM/100ml dengan masing-masing persentase penurunan 100%, 94,5% dan 82,4%. Rata-rata total *Coliform* setelah dilakukan perlakuan disertai sinar Ultraviolet-C hasil penurunan 1 mikron dan UV-C 2,95 APM/100ml, 3 mikron dan UV-C 3,95 APM/100ml, 5 mikron dan UV-C 8,88 APM/100ml dengan persentase penurunan yaitu 100%, 100%, 100%. Analisis data dilakukan menggunakan *One Way Anova* dengan *p value* 0,001. Variasi yang efektif adalah 1 mikron dan sinar UV-C.

KATA KUNCI : *Melt Blown Filter Cartridge,* Sinar Ultraviolet-C, *Total Coliform*