

ABSTRAK

PENGARUH *OUTPUT* VENTURI TERHADAP FENOMENA *MICROBUBBLE* GENERATOR UNTUK PENGOLAHAN LIMBAH CAIR

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(2025: xiii + 63 Halaman, 31 Gambar, 10 Tabel, 7 Lampiran)

Penelitian ini bertujuan untuk mengetahui pengaruh output Venturi terhadap fenomena *microbubble* generator dalam proses pengolahan limbah cair medis. Metode yang digunakan adalah eksperimen dengan tiga variasi desain output Venturi (Spesimen 16,5mm, 26,5mm, dan 36,5mm) yang diuji pada interval waktu 15, 30, 45, dan 60 menit. Parameter yang diamati adalah kadar dissolved oxygen (DO) dan total volume fluida. Hasil penelitian menunjukkan bahwa Spesimen 3 menghasilkan peningkatan DO tertinggi hingga 9,4 mg/l dalam 60 menit dengan laju kenaikan 3,7 mg/l per jam. Efisiensi aerasi pada Spesimen ke 3 mencapai 37% dibandingkan standar aerasi konvensional. Temuan ini menunjukkan bahwa penggunaan *microbubble* generator berbasis Venturi dapat meningkatkan efisiensi transfer oksigen dan homogenisasi fluida dalam proses pengolahan limbah cair medis.

Kata kunci: Venturi, *microbubble* generator, aerasi, pengolahan limbah cair medis

ABSTRACT

THE EFFECT OF VENTURI OUTPUT ON THE *MICROBUBBLE* GENERATOR PHENOMENON FOR LIQUID WASTE TREATMENT

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(2025: xiii + 63 pp., 31 Figures, 10 Tables, 7

Attachments)

This study aims to determine the effect of Venturi output on the phenomenon of a microbubble generator in medical liquid waste treatment processes. The method used was experimental, involving three variations of Venturi output design (Spesimen 16,5mm, 26,5mm, and 36,5mm) tested at time intervals of 15, 30, 45, and 60 minutes. The observed parameters were dissolved oxygen (DO) concentration and total fluid volume. The results showed that Spesimen 3 achieved the highest DO increase, reaching 9.4 mg/l within 60 minutes with a growth rate of 3.7 mg/l per hour. The aeration efficiency in Spesimen 3 reached 37% compared to conventional aeration standards. These findings indicate that using a Venturi-based microbubble generator can improve oxygen transfer efficiency and fluid homogenization in medical liquid waste treatment processes.

Keywords: Venturi, microbubble generator, aeration, medical liquid waste treatment