PENURUNAN WARNA, COD DAN TSS LIMBAH CAIR INDUSTRI TEKSTIL MENGGUNAKAN TEKNOLOGI *DIELECTRIC BARRIER DISCHARGE* DENGAN VARIASI TEGANGAN DAN *FLOW RATE* OKSIGEN

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ABSTRACT

Textile wastewater consist of colour matter, Chemical Oxygen Demand (COD) and Total Suspended Solid (TSS) in high dosis so that it have potency to pollute environment. Generally, textile wastewater can be treatment by konventional method. But, this method was not efficient because operational cost which is expensive. Discharge technology is new method to textile wastewater treatment. Dielectric Barrier Discharge reactor is discharge reactor to decompose organic matter in wastewater. Discharge was formed in reaktor which was given high voltage current to result active spesies with high oxidation potential, such us $^{\bullet}OH$, $^{\bullet}O$, $^{\bullet}H$, O_3 dan H_2O_2 which are important to organic matter decomposition. This research intends to know capability of discharge which was formed in Dielectric Barrier Discharge reactor to decrease colour matter, COD, and TSS. Textile wastewater was treatment ini the Dielectric Barrier Discharge reactor with variation in voltage (16,17,18 kV) and Oxygen flow rate (0,5;1,5;2,5 l/m). Voltage and oxygen flow rate variation affective to decomposition efficiency of colour, COD and TSS. Decomposition of each pollutant will be higher with voltage increasing and flowrate decreasing. Colour, COD and TSS decreasing was highest when was given maximum Voltage (18 kV) and minimum Oxygen flow rate (0,5 l/m). Percentages of colour, COD and TSS are 47,78%, 76,50% and 70,72%. Even pH in final treatment are between 6-7. Energy input which was needed to maximal treatment is 0,1128 kWh with electrical cost Rp.8,134/l.

Kata kunci : *textile wastewater, Dielectric Barrier Discharge, oxidation, active species.*