

**PENGGUNAAN TEKNOLOGI PLASMA CORONA DISCHARGE UNTUK
MENURUNKAN KADAR WARNA, COD DAN TSS PADA LIMBAH CAIR INDUSTRI
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ABSTRACT

The soft drink production process resulting waste water contains high color, COD and TSS quality. General treatment for soft drink waste water usually using conventional method but this method became inefficient since highly cost on operational. Recent alternative method for waste water treatment is using plasma technology to decreasing the high quality of color, COD and TSS. Plasma formed in a reactor that comprises two electrodes which one connected with high voltage. The reactor resulting active species with high oxidation potential i.e. •OH, •O, •H, O₃ and H₂O₂, and it have important role to removing organic compounds. This study is to discover the affectivity of plasma technology to degrade the quality of color, COD an TSS in soft drink waste water. Soft drink waste water treated in a rector with high voltage (16, 17, 18 kV) and circulation variation (1-6 times). The voltage and circulation variation influences the degradation of color, COD and TSS in waste water. The degradation of color, COD an TSS increases with higher voltage and more amount of circulation. The highest degradation of color, COD and TSS was attained in 18 kV with 6 circulations. The degradation percentages are 99,91 %, 98,72 % dan 98,66 whereas waste water pH before treatment reached 8 and in the end of treatment positioned around 7. The energy requirement to obtain this efficiency is 0, 0968 kWh with electrical cost is Rp. 1.473/m³.

Key Word: corona discharge plasma, oxidation, active species, voltage, circulation.