

# Generation of ozone in Dielectric Barrier Discharge and Its Application for Water Treatment

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A dielectric barrier discharge (DBD) type ozone generator was designed with oxygen /air as a feed gas. The discharge was generated by using high voltage power supply operating at line frequency (50Hz). The effect of gas flow rate and applied voltage on the concentration of the ozone was investigated. The flow rate was varied from 1 lit/min to 5 lit/ min for electrode area  $A=143.56 \text{ cm}^2$  and  $107.67 \text{ cm}^2$  and two values of gap space between electrodes  $d= 1 \text{ mm}$  and  $2 \text{ mm}$ . The applied voltage was varied from (5- 18 kV) for the same gap space and electrode area. It was found that the concentration of ozone produced increases with increasing voltage, and decreases with increasing flow rate for fixed applied voltage. The ozone thus produced was used for the treatment of water. Various physical, chemical and micro-biological parameters were analyzed on the samples before and after the treatment by ozone. Our results indicated that ozone does not alter the physical properties significantly, namely pH, conductivity and turbidity of water. However, the treatment leads to a remarkable reduction in the number of fecal coliform in the samples of water.

## Summary

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