

## Analisis performa dan kualitas air menara pendingin sistem tertutup dengan mengaplikasikan ozon = Analysis of water quality and performance of cooling tower closed system by applying ozone

Randa Kelvin, author

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### Abstrak

Dalam dunia industri, menara pendingin merupakan salah satu peralatan yang digunakan sebagai sirkulasi air pendingin dalam berbagai industri. Penanggulangan kualitas air pendingin yang kurang memadai dapat menyebabkan mesin seperti unit heat exchanger akan mengalami korosi atau terbentuk kerak yang menyebabkan keefektifitasan menara pendingin berkurang. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan ozon terhadap efektifitas kinerja dan kualitas air menara pendingin sistem tertutup bertipe forced draft ndash; cross flow ndash; indirect/closed. Metode yang digunakan dalam penelitian ini adalah menyuntikkan ozon 3gr/hr ke dalam basin menara pendingin sistem tertutup dan melakukan uji laboratorium seperti AAS, Titrimetric, Gravimetrik, dan Spectrophotometric.

Hasil penelitian ini adalah keefektifitasan dari menara pendingin sistem tertutup setelah disuntikkan ozon memiliki nilai terkecil 6.6 dan nilai terbesar 26.7 Nilai Evaporation Loss nilai terkecil 0.03 m /h dan terbesar 0.119 m /h. Ozon terbukti mempengaruhi kualitas air pada basin menara pendingin sistem tertutup tetapi ozon belum dapat dikatakan mempengaruhi performa dari menara pendingin sistem tertutup dalam jangka 10 hari.

.....In the industrial world, cooling towers are one of the equipments used as cooling water circulation in various industries. Inadequate cooling water may cause the machine such as a heat exchanger unit becomes corrosion or crust formation which causes the cooling tower less effective. This study aims to determine the effect of using ozone based on performance and quality of the cooling tower with type forced draft cross flow indirect closed. 3g hr ozone is injected into closed system cooling tower as a method and conducted laboratory tests such as AAS, Titrimetric, Gravimetric, and Spectrophotometric.

As the result, the effectiveness of closed system cooling tower after ozone injection has the smallest value of 6.6 and the largest value of 26.7 . Evaporation Loss value of smallest value 0.03 m h and largest 0.119 m h. The role of ozone in closed system cooling towers affects water quality in the cooling system cooling basin but ozone does not affect the performance of the closed system cooling tower within 10 days.