

**STUDI EKSPERIMENTAL PENGARUH PENAMBAHAN CAIRAN
COOLANT DALAM MEDIA AIR TAWAR TERHADAP LAJU KOROSI
PADA BAJA KARBON RENDAH**

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Abstrak

Penelitian ini mempunyai tujuan untuk mengetahui pengaruh penambahan *coolant* pada media air tawar terhadap laju korosi pada baja karbon, dalam penelitian ini dilakukan percobaan perendaman spesimen uji plat baja karbon rendah dengan direndam pada air tawar dan variasi penambahan *coolant* dari 1%-10% pada air tawar. Metode penelitian ini adalah metode eksperimen dalam ruang dengan media air tawar dalam cawan. Pengambilan data dilakukan sebelum spesimen uji di rendam dengan diambil data berat awal nya dan dilakukan lagi setelah spesimen uji di rendam selama 30 hari, dan diambil data berat akhir dari spesimen uji setelah mengalami korosi, kemudian dihitung berat yang hilang yaitu berat awal dikurangi berat akhir. Perhitungan laju korosi dari data berat yang hilang pada masing-masing variasi percobaan. Hasil yang diperoleh bahwa ada perbedaan yang signifikan atas penambahan *coolant* pada media air tawar terhadap laju korosi yang terjadi. Pada media air tawar dengan penambahan *coolant* 0% sampai 10% terjadi penurunan laju korosi dari 0,102 mmpy sampai 0,036 mmpy, Namun penurunan laju korosi menjadi landai mendekati datar (slop enya) pada 6% -10% presentase *coolant*. Terjadi kenaikan laju korosi ketika media air tawar tanpa *coolant* yaitu menjadi 0,102 mmpy. Untuk Efisiensi inhibitor pada media air tawar tanpa coolant tercapai nilai sebesar 0,123 dan pada penambahan *coolant* 1% efisiensi naik ke 0,331, ketika ditambahkan *coolant* sampai 10% efisien naik menjadi 0.651.

Kata kunci : Laju Korosi, *Coolant*, Efisiensi, Inhibitor

EXPERIMENTAL STUDY OF THE INFLUENCE OF ADDING COOLANT LIQUID IN FRESH WATER MEDIA ON CORROSION RATE IN LOW CARBON STEEL

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Abstract

This study aims to determine the effect of adding coolant to fresh water media on the corrosion rate of carbon steel, in this study an experiment was conducted on immersing a low carbon steel plate test specimen immersed in fresh water and variations in the addition of coolant from 1% -10% in fresh water. . This research method is an experimental method in a room with fresh water media in a cup. Data retrieval was carried out before the test specimen was immersed with the initial weight data taken and carried out again after the test specimen was soaked for 30 days, and the final weight data was taken from the test specimen after experiencing corrosion, then the lost weight was calculated, namely the initial weight minus the final weight. Calculation of the corrosion rate from the lost weight data in each experimental variation. The results obtained that there is a significant difference in the addition of coolant in fresh water media to the corrosion rate that occurs. In fresh water media with the addition of 0% to 10% coolant, there was a decrease in the corrosion rate from 0.102 mmpy to 0.036 mmpy, but the decrease in the corrosion rate became sloping close to flat (slope) at 6% -10% coolant percentage. There was an increase in the corrosion rate when the fresh water medium without coolant was 0.102 mmpy. For inhibitor efficiency in fresh water media without coolant reached a value of 0.123 and with the addition of 1% coolant the efficiency increased to 0.331, when added coolant up to 10% the efficiency increased to 0.651.

Keywords: Corrosion Rate, Coolant, Efficiency, Inhibitor

