

INTISARI

Korosi merupakan kerusakan material logam yang disebabkan reaksi antara logam dengan lingkungannya yang menghasilkan oksida logam dan sulfide logam atau hasil reaksi lainnya yang lebih dikenal sebagai “Pengkaratan”. Masalah tersebut mendorong peneliti untuk melakukan penelitian uji laju korosi material *seamless carbon steel* Baja API 5L Grade B digunakan sebagai material pipa saluran *boiler* yang ada di industri. Penelitian dilakukan dengan menggunakan metode eksperimen serta analisis data menggunakan metode kuantitatif. Secara kuantitatif dihitung berdasarkan kehilangan berat (*Weight Gain Loss*). Spesimen yang diuji adalah *Seamless Carbon Steel* untuk mengetahui bagaimana pengaruh media air *aquadest* yang cenderung basa menggunakan larutan KOH terhadap tingkat ketahanan korosi pada material yang diuji dengan menggunakan aliran air dan proses pencelupan guna pengujian *weight gain loss* selama 504 jam. Hasil penelitian ini diperoleh nilai laju korosi yang menunjukkan hubungan antara laju korosi dan kadar pH dalam larutan KOH selama 504 jam, dimana diperoleh nilai *mpy* pada kadar pH dalam larutan KOH 11,7; 12,3; 12,8; 13,2; dan 13,4 yaitu 34,999; 36,068; 37,609; 41,877; dan 42,931. Pada lingkungan PT SEID adanya beberapa kandungan logam pada air tanah seperti besi, mangan, klorida, seng dan sebagainya dengan pH 8,12 sehingga dapat mempercepat proses laju korosi.

Kata Kunci : laju korosi, *seamless carbon steel*, *weight gain loss*, waktu

ABSTRACT

Corrosion is damaged to metal material caused by the reaction between the metal and its environment which produces metal oxides and metal sulfides or other reaction products better known as "Rusting". These problems encourage researchers to research the corrosion rate test of seamless carbon steel materials API 5L Grade B steel is used as a boiler duct pipe material in the industry. The study was conducted using experimental methods and data analysis using quantitative methods. The quantitatively calculated based on weight loss (Weight Gain Loss). The specimens tested were Seamless Carbon Steel to find out how the influence of aquadest water media which tends to be alkaline using KOH solution to the level of corrosion resistance in the material tested using water flow and dyeing process to test weight gain loss for 504 hours. The results of this study obtained the value of corrosion rate which shows the relationship between corrosion rate and pH level in KOH solution for 504 hours, which is obtained by my value of pH levels in KOH solution 11.7; 12.3; 12.8; 13.2; and 13.4 i.e. 34.999; 36,068; 37,609; 41,877; and 42,931. In the PT SEID environment, there are several metal contents in groundwater such as iron, manganese, chloride, zinc and so on with a pH of 8.12 to accelerate the corrosion rate process.

Keywords: corrosion rate, seamless carbon steel, weight loss, time