

ABSTRACT

GRAFTING CYSTEINE-CITRIC ACID TO AEROGEL CELLULOSE AS ANTI CORROSION

By

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Pineapple waste was produced by industry of Indonesia. Pineapple waste contains cellulose. Cellulose can be modified by cysteine-citric acid become anti corrosion coating material as aerogel. Cellulose was modified in 10%-10% of cysteine-citric acid mixture solution. Modified cellulose aerogel was synthesized by using Tetraethyl Orthosilicate (TEOS) by ratio 1 gram:5 mL. The functional groups of the synthesise process were observed by Fourier Transform Infrared (FTIR). HCl 5%; 10%; and 15: solution was used as corrosive medium of the stainless steel 304. Coating process applied sol-gel dip coating for 30 seconds. Corrosive medium damage to stainless steel was observed by using Scanning Electron Microscope (SEM). Gravimetric was used to find out the weight change to calculate Inhibitor Efficiency (IE). The results of IE of variation HCl 5%: 10%; and 15 are 23.37%, 21.80%, and 12.81%, respectively.

Keywords: Cellulose; Sol-gel dip coating; FTIR; SEM; Inhibitor Efficiency

ABSTRAK

OKULASI SISTEIN-ASAM SITRAT TERHADAP SELULOSA AEROGEL SEBAGAI ANTI KOROSI

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Limbah nanas diproduksi oleh industry di Indonesia. Limbah nanas mengandung selulosa. Selulosa dapat dimodifikasi dengan sistein-asam sitrat menjadi material anti korosi sebagai aerogel. Selulosa dimodifikasi dengan campuran sistein-asam sitrat sebesar 10%-10%. Selulosa aerogel termodifikas disintesis menggunakan Tetraetil Ortosilikat (TEOS) dengan perbandingan 1 gram:5 mL. Gugus fungsi dari proses sintesis diamati menggunakan *Fourier Transform Infrared* (FTIR). HCl 5%; 10%; dan 15% digunakan sebagai media korosif terhadap baja anti karat 304 Proses pelapisan menggunakan metode pencelupan sol-gel selama 30 detik. Media korosi. Mofrologi baja anti karat diamati menggunakan *Scanning Electron Microscope* (SEM). Metode gravimetri digunakan untuk mengetahui perubahan berat untuk mengetahui Efisiensi Inhibisi. Hasil dari Efisiensi Inhibisi pada varias HCl 5%; 10%; dan 15% adalah masing-masing 23.37%; 21,80%; dan 12,81%

Kata kunci: selulosa, pencelupan sol-gel, FTIR, SEM, Efisiensi Inhibisi