

Studi laju korosi baja API 5L GRB N di dalam larutan asam sulfat 1M dengan penambahan inhibitor aniline-4-sulfonate = Corrosion rate study of API 5L GRB N steel in M Sulphuric Acid solution with addition of Anlide-4-Sulfonate inhibitor

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Abstrak

Aniline-4-sulfonate merupakan senyawa dengan gugus utama berupa cincin benzen, nitrogen dan sulfonat. Pada penelitian ini, senyawa aniline-4-sulfonate digunakan sebagai inhibitor untuk menekan laju korosi baja API 5L GRB N di dalam larutan asam sulfat 1 M. Potensiostat, alat uji kekerasan, alat uji kekasaran, mikroskop optik dan SEM digunakan untuk analisa jenis korosi, efisiensi inhibisi, mekanisme inhibisi, perubahan kekerasan dan kekasaran permukaan.

Hasil pengujian menggunakan potensiostat memperlihatkan bahwa korosi yang terjadi pada baja API 5L GRB N adalah jenis korosi merata. Penggunaan inhibitor aniline-4-sulfonate dapat menekan laju korosi dengan efisiensi sebesar 60,29% pada konsentrasi $24,06 \times 10^{-3}M$ dan dapat mengurangi kerusakan terhadap kekerasan dan kekasaran melalui suatu mekanisme inhibisi mengikuti isoterm adsorpsi Langmuir dengan akurasi kelinieran (R^2) mendekati 1 (satu).

.....Aniline-4-sulfonate is compound with main groups are benzen ring, ammine, and sulfonate. On this research, aniline-4-sulfonate was used as corrosion inhibitor to reduced corrosion rate on API 5L GRB N steel in 1M sulphuric acid solution. Potensiostat, surface hardness tester, surface roughness tester, optical microscope, and SEM was used for corrosion type analysis, inhibition efficiency, inhibition mechanism, hardness and roughness damage.

Examination using potensiostat showed that corrosion on API 5L GRB N steel was general corrosion type. Application aniline-4-sulfonate as inhibitor can pressed corrosion rate with efficiency 60,29 % at concentration $24,06 \times 10^{-3}M$, reduced hardness and roughness damage with adsorption mechanism followed Langmuir's adsorption isotherm with linearity accuration (R^2) was 0,998.