ABSTRAK

PENGARUH PERENDAMAN PENUH (*TOTAL IMMERSION*) MAGNESIUM AZ31B DALAM LARUTAN *RINGER LAKTAT* TERHADAP PERILAKU KOROSI DAN KEKUATAN TARIK

Oleh
Maherariyat

Penelitian ini bertujuan untuk mengkaji pengaruh perendaman paduan magnesium AZ31B dalam larutan Ringer laktat, yang menyimulasikan cairan tubuh, terhadap perilaku korosi dan kekuatan tariknya. Pengujian laju korosi dilakukan setelah perendaman selama 8 jam, 16 jam, dan 24 jam. Uji tarik statis dilakukan pada spesimen yang dipotong searah dan berlawanan arah sebelum dan setelah pengkorosan selama 24 jam. Morfologi permukaan patahan diperiksa menggunakan *scanning electron microscopy* (SEM). Hasil menunjukkan bahwa sifat tarik seperti kekuatan tarik maksimum, kekuatan mulur, modulus Young, dan perpanjangan raw material AZ31B bervariasi tergantung arah pemotongan. Setelah pengkorosan 24 jam, sifat tariknya sedikit berbeda tapi perubahannya tidak signifikan. Laju korosi setelah perendaman 8 jam adalah 0,05655 mmpy, 16 jam 0,03799 mmpy, dan 24 jam 0,02305 mmpy. Hasil korosi yang diamati berupa korosi pitting, korosi intergranular, korosi tegangan, dan korosi celah. Secara keseluruhan, AZ31B memiliki ketahanan korosi yang baik dengan laju korosi 0,02-0,1 mmpy.

Kata kunci : ***Mg AZ31B, korosi, perbedaan arah pemotongan, perlakuan permukaan, tarik statis.***

ABSTRACT

THE INFLUENCE OF TOTAL IMMERSION OF MAGNESIUM AZ31B IN RINGER LACTATE SOLUTION ON CORROSION BEHAVIOR AND TENSILE STRENGTH

By

Maherariyat

This study investigates the effects of immersing magnesium alloy AZ31B *in Ringer's lactate solution, which simulates body fluid, on its corrosion behavior and tensile strength. Corrosion rate tests were conducted for* 8, 16, *and* 24 *hours, and static tensile tests were performed on samples before and after* 24 *hours of corrosion, with specimens cut in different directions. Scanning electron microscopy (SEM) was used to examine the fracture surface morphology. The study found that the tensile strength, yield strength, Young's modulus, and elongation values for the raw* AZ31B *material varied depending on the cutting direction. After* 24 *hours of corrosion, the tensile properties of the material were slightly different, but the changes were not significant. The corrosion rates for* 8, 16, *and* 24 *hours of immersion were* 0.05655 mmpy, 0.03799 mmpy, *and* 0.02305 mmpy, *respectively. The corrosion results showed pitting corrosion, intergranular corrosion, stress corrosion cracking, and crevice corrosion. Overall,* AZ31B *material exhibited good corrosion resistance, with corrosion rates ranging from* 0.02 *to* 0.1 mmpy.

Keywords:* Mg AZ31B*, corrosion, different cutting directions, surface treatment, static tensile.