

Abstract

This study is to determine the corrosion penetration rate (CPR) of medium carbon steel in selected media and also to analysed the effect of corrosion on the mechanical properties on the steel material. Weight loss experiment was used to determine the corrosion rate and tensile test to conduct the mechanical properties, Ultimate tensile test (UTS), Engineering fracture stress (EFS), Ductility and Yield stress (YS). The study was investigated for a total period of 35days with measurements made at interval of seven days (7), the media used for the research are 0.5mold-3 (H_2SO_4), 0.5mold-3 (HCl), Freshwater, Air and Soil. The result showed that medium carbon steel has a very high failure tendency in acidic media than in the other media. The tensile test result at the end of the analysis showed that there was a great deterioration in the mechanical properties in air as the ultimate tensile test. stress, engineering fracture stress and ductility which were initially 830.130N/mm² ,112.,435 N/mm² and 14.50% before corrosion experienced a decrease in value to 733.38 N/mm² , 830.019 N/mm² and 10.714% respectively. Therefore, we can conclude that medium carbon steel is an unreliable constructional material in H_2SO_4 acid and HCl acid environment due to the effect on their mechanical properties.