The Effect of Temperature on the Chromium Process for Ferritic-Martensitic Steel

A.K., F.C., K., S., K., M.H., B.T., M., M.A., B.D.

Abstract

The formation of protective Cr2O3 layer was usually initiated by high-temperature steam oxidation of austenitic materials. This condition results in the oxidation rate higher than that in air condition. Therefore, in this work, the chromium process is introduced to diffuse chromium at the surface to lower the rate of oxidation at the surface to lower the rate of oxidation. This process was performed by exposing the sample in a crucible for different temperatures (800°C-1300°C) under a nitrogen environment in a furnace that contains the chromium oxide powder. The formation of the oxidation rate was determined by the thickness of Cr2O3 layer. The corrosion process was conducted in a furnace by exposing the sample in a crucible for different temperatures (800°C-1300°C) under a nitrogen environment in a furnace that contains the chromium oxide powder. The formation of the oxidation rate was determined by the thickness of Cr2O3 layer.

Indexed keywords

Engineering controlled terms: Ferritic steel

Composed keywords: Chromium process

Engineering main headings: Metallurgy

Funding details

Funding number: RD1/14014

Ministry of Higher Education, Malaysia

MOHE

Funding text:

This paper is partially supported by the Fundamental Research Grant Scheme from the Ministry of Education Malaysia, under grant no. RD1/14014 and UMP research grant for Postgraduate Research Scheme, under grant No. 2013/0015.

References (15)