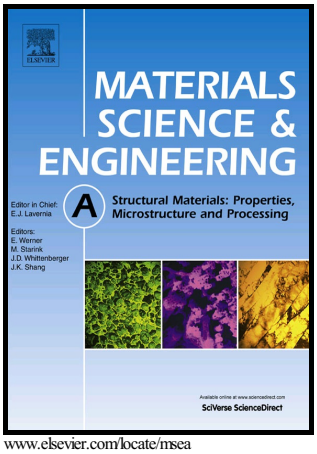
Author's Accepted Manuscript

Effects of carbon content on the tensile and fatigue properties in hydrogen-charged Fe-17Mn-*x*C steels: the opposing trends

Seok Weon Song, Jae-Nam Kim, Hyun Joo Seo, Taekyung Lee, Chong Soo Lee



www.elsevier.com/locate/msea

PII: S0921-5093(18)30484-2
DOI: https://doi.org/10.1016/j.msea.2018.03.117
Reference: MSA36310

To appear in: *Materials Science & Engineering A*

Received date: 25 January 2018
Revised date: 27 March 2018
Accepted date: 28 March 2018

Cite this article as: Seok Weon Song, Jae-Nam Kim, Hyun Joo Seo, Taekyung Lee and Chong Soo Lee, Effects of carbon content on the tensile and fatigue properties in hydrogen-charged Fe-17Mn-*x*C steels: the opposing trends, *Materials Science & Engineering A,* https://doi.org/10.1016/j.msea.2018.03.117

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Effects of carbon content on the tensile and fatigue properties in hydrogen-charged Fe-17Mn-*x*C steels: the opposing trends

Seok Weon Song[1], Jae-Nam Kim[2], Hyun Joo Seo[2], Taekyung Lee[3,*] Chong Soo Lee[2,*]

[1] *Technical Research Laboratories, POSCO, Pohang 37859, Republic of Korea*

[2] *Graduate Institute of Ferrous Technology (GIFT), Pohang University of Science and Technology (POSTECH), Pohang 37673, Republic of Korea*

[3] *School of Mechanical Engineering, Pusan National University, Busan 46241, Republic of Korea*

taeklee@pnu.ac.kr

cslee@postech.ac.kr

[*] *Corresponding author*: Prof. T. Lee, *Tel.:* +82-51-510-2985, *Fax*: +82-51-514-7640

[*] *Corresponding author*: Prof. C.S. Lee, *Tel.:* +82-54-279-9009, *Fax*: +82-54-279-9099

Accepted manuscript

Abstract

This study investigated the effects of carbon content on the tensile and low-cycle fatigue (LCF) properties of hydrogen-charged high-Mn steels. Fe-17Mn-*x*C (*x* = 0.5, 0.7, and 0.9 wt.%) steels were electrochemically hydrogen-charged for this purpose. Interestingly, the carbon content gave rise to opposite hydrogen embrittlement (HE)-resistance trends between monotonic and cyclic loadings; with increasing carbon content, tensile properties deteriorated,

Download English Version:

https://daneshyari.com/en/article/7972556

Download Persian Version:

https://daneshyari.com/article/7972556

Daneshyari.com