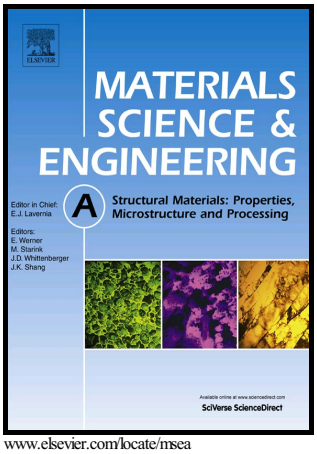
Managing Both Strength and Ductility in Duplex Stainless Steel with Heterogeneous Lamella Structure

Lin Xie, Tianlin Huang, Ling Zhang, Wenquan Cao, Guilin Wu, Xiaoxu Huang



www.elsevier.com/locate/msea

PII: S0921-5093(18)31295-4
DOI: https://doi.org/10.1016/j.msea.2018.09.085
Reference: MSA36966

To appear in: *Materials Science & Engineering A*

Received date: 13 July 2018
Revised date: 21 September 2018
Accepted date: 22 September 2018

Cite this article as: Lin Xie, Tianlin Huang, Ling Zhang, Wenquan Cao, Guilin Wu and Xiaoxu Huang, Managing Both Strength and Ductility in Duplex Stainless Steel with Heterogeneous Lamella Structure, *Materials Science & Engineering A,* https://doi.org/10.1016/j.msea.2018.09.085

Managing Both Strength and Ductility in Duplex Stainless Steel with Heterogeneous Lamella Structure

Lin Xie [a], Tianlin Huang [a], Ling Zhang [a]*, Wenquan Cao [b], Guilin Wu [a]**[1], Xiaoxu Huang [a, c]

[a] International Joint Laboratory for Light Alloys (MOE), College of Material Science and Engineering, Chongqing University, Chongqing 400044, China

[b] Special Steel Institute, Central Iron and Steel Research Institute, Beijing 100081, China

[c] Department of Mechanical Engineering, Technical University of Denmark, DK-2500 Lyngby, Denmark

Email: wugl@cqu.edu.cn

wugl@cqu.edu.cn (G. Wu)

*Corresponding author: Guilin Wu (G. Wu) Address: College of Material Science and Engineering, Chongqing University, Shazhengjie 174, Shapingba District, Chongqing 400044, China

** Corresponding author:

Abstract

A commercial 2507 duplex stainless steel with heterogeneous lamella structures was prepared by cold-rolling and appropriate annealing. A yield strength of 800 MPa, a tensile strength of 1000 MPa and a uniform elongation of 20% were achieved in the sample after 90% cold rolling following by annealing at 900°C for 1 min. The origin of the excellent

[1] Authors' contributions: G. Wu and X. Huang designed the experiments. L. Xie, T. Huang and L. Zhang did the experiment and analysed experimental data. W. Cao provided the material. L. Xie, G. Wu and X. Huang wrote the manscript. All authors contributed the discussions.