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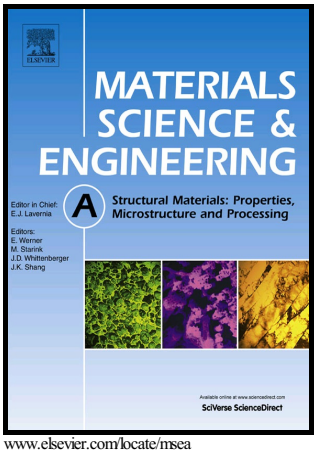

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PII: S0921-5093(17)31637-4
DOI: https://doi.org/10.1016/j.msea.2017.12.041
Reference: MSA35883

To appear in: *Materials Science & Engineering A*

Received date: 21 July 2017
Revised date: 4 December 2017
Accepted date: 11 December 2017

Cite this article as: Yong Lian, Jinfeng Huang, Jin Zhang, Chao Zhao, Wen Gao, Zunjun Zhang and Minyu Ma, Effects of cold rolling on the microstructure and properties of Fe-Cr-Ni-Mo-Ti maraging steel, *Materials Science & Engineering A,* https://doi.org/10.1016/j.msea.2017.12.041

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Abstract

The effects of cold deformation on the evolution of the microstructure and mechanical properties of Fe-Cr-Ni-Mo-Ti maraging steel were investigated. The microstructural changes during cold rolling were observed using optical microscopy (OM), electron back-scattered diffraction (EBSD), transmission electron microscopy (TEM) and X-ray diffraction (XRD), which were related to the mechanical properties as measured by micro-hardness and tensile testing. The remaining austenite in the as-quenched specimens was found to transform into martensite during cold deformation. High-density dislocations were produced in the martensite matrix by plastic deformation, which accelerate the aging response by promoting the formation of η-Ni_3Ti precipitates. The strain hardening was partially conserved due to