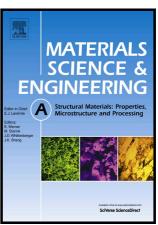
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Effects of cold rolling on the microstructure and properties of Fe-Cr-Ni-Mo-Ti maraging

steel

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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-Ni₃Ti precipitates. The strain hardening was partially conserved due to

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