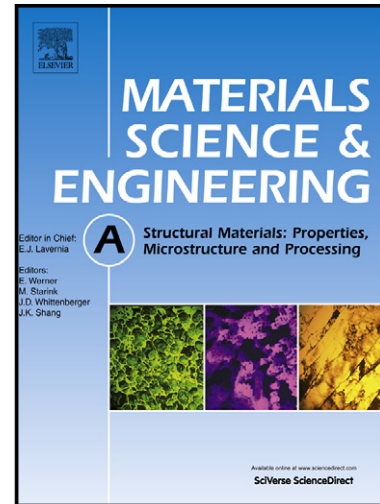


# Author's Accepted Manuscript

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PII: S0921-5093(14)00680-7  
DOI: <http://dx.doi.org/10.1016/j.msea.2014.05.068>  
Reference: MSA31174

To appear in: *Materials Science & Engineering A*

Received date: 11 March 2014  
Revised date: 12 May 2014  
Accepted date: 26 May 2014

Cite this article as: I. de Diego-Calderon, M.J. Santofimia, J.M. Molina-Aldareguia, M.A. Monclus, I. Sabirov, Deformation behavior of a High strength multiphase steel at macro- and microscales, *Materials Science & Engineering A*, <http://dx.doi.org/10.1016/j.msea.2014.05.068>

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## Deformation behavior of a high strength multiphase steel at macro- and microscales

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### *Abstract*

Advanced high strength steels via quenching and partitioning (Q&P) process are a mainstream trend in modern steel research. This work contributes to a better understanding of their local mechanical properties and local deformation behavior at the micro scale in relation with their local microstructure. A low alloyed steel was subjected to Q&P heat treatments leading to the formation of complex multiphase microstructures. Nanoindentation tests were performed to measure nanohardness of individual phases and to generate 2D maps showing nanohardness distribution on the surface of the material. To study local in-plane plastic strain distribution during deformation, *in-situ* tensile tests were carried out using the digital image correlation

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