

# **Effet du traitement de vieillissement sur l'évolution microstructurale et le comportement électrochimique des aciers inoxydables 2101, 2205 et 2507.**

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**Abstract:** this work, the effect of ageing treatment on the microstructural evolution, morphology and potential distribution of LDX2101, SDX2205 and SDSS 2507 stainless steels is investigated. The heat treatment is carried out in two stages: solution treatment for one hour, then water quenching followed by ageing at 750°C for 2101 and 850°C for 2205 and 2507, for 24 hours holding time. Metallographical characterization is conducted using optical microscopy and scanning electron microscopy (SEM) as well as XRD analysis to identify the phases and precipitates formed after treatment. In order to study the effect of ageing on the morphological changes, magnetic behavior and potential distribution on the surfaces of the treated steels, different modes of atomic force microscopy (AFM) are used. The results showed a clear increase in roughness with a very heterogeneous potential distribution due to microstructural changes as a result of the formation of precipitates and secondary phases

**Keywords :** LDX2101, SDX2205, SDSS 2507 stainless steels, The heat treatment