

Comparative study of the corrosion behavior of the high strength steel after thermal and thermomechanical treatments

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Abstract : The corrosion behaviour of X80 steel samples rolled and other quench-tempered in 3.5% NaCl have been studied. Optical microscopy, scanning electron microscopy, potentiodynamic polarization tests and electrochemical impedance measurements are the techniques used to characterize the samples. The results show that the tempered steel has a low corrosion current density compared to the rolled steel. The impedance measurements show the presence of a single capacitive loop attributed to the load transfer phenomenon.

Keywords : HSLA grade steel X80, corrosion, structure, thermomechanical treatment.