

AN IN-SITU SYNCHROTRON RADIATION DIFFRACTION STUDY OF MECHANICAL STABILITY OF REVERTED AUSTENITE IN A 18% NI MARAGING STEEL UNDER EXTERNAL LOADING

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Maraging steels offer a unique combination of high strength and good toughness. These properties are achieved through aging heat treatment. Depends on aging temperature and time intermetallic particles and reverted austenite can be formed influencing physical and mechanical properties. In this work, a number of heat treatments were applied to produce different volume fractions of reverted austenite in 18% Ni maraging steel. Mechanical stability of reverted austenite under external loading was studied using in-situ synchrotron radiation. In addition, a microstructural characterisation of material was conducted.

Keywords: Maraging steels. Reverted austenite. Thermomechanical treatment.