Influence of heat-treatment conditions on tensile properties of triple-phase steel

Amir Talebi[1], Mehdi Ghobeiti-Hasab[2,*]

[1] Sama technical and vocatinal training college, Islamic Azad University, Dezful Branch, Dezful, Iran.
[2] Department of Metallurgical and Materials, Faculty of Engineering, Dezful Branch, Islamic Azad University, Dezful, Iran

Received: July 2016, Revised: August 2016, Accept: September 2016

[DOR: 20.1001.1.20089813.1395.3.2.2.3]

Abstract

In this research, first, 4140 steel specimens were heated at 850˚C for 1 hour. Then, they were placed at 720˚C for 3 min and transferred into a salt bath with different temperatures of 380¸ 400¸ 420 and 450˚C for 4 min and finally were quenched in water. Tensile test revealed that increasing the salt bath temperature (austempering temperature) decreases the yield strength, the ultimate tensile strength and the elongation. Fractography of the tensile specimens by stereo microscope showed that with increasing the austempering temperature, the fracture surface changes from ductile to brittle.

[*] **Corresponding author:** ghobeiti@iaud.ac.ir

Keywords: Bainite, Martensite, Yield Strength, Ultimate Tensile Strength, Fracture Surface.

You can cite the paper as:

A. Talebi, M. Ghobeiti-Hasab, Influence of heat-treatment conditions on tensile properties of triple-phase steel, *Journal of Energy Conversion*, 1(4)(2016)11-15 [In Persian]