

## عنوان مقاله:

Effect of Overage Hardening Heat Treatment on the Micro Structure and Hardness of Nickel-based Super Alloy Rene-80

## محل انتشار:

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## خلاصه مقاله:

Rene-80 nickel-base superalloy as an alloy for production of the jet turbine blades shows high mechanical properties as well as microstructure stability during the high temperature engine operation. In this research, age hardening heat treatment cycle was done on the as-cast Rene-80 superalloy. In the following, microstructure, elemental analysis of phases and macro-hardness of the alloy before and after of heat treatment were compared together with scanning electron microscopy (SEM) observation, X-ray spectrometry (EDS) and hardness test, respectively. The obtained results showed that  $\gamma'$  carbide particles in the as-cast alloy had cubic morphology, while these particles showed more spherical morphology after heat treatment and also the amount of this phase was reduced after heat treatment. Based on hardness test results, hardness of as-cast sample was reduce from 38.17 to 35.01 HRC after age hardening heat treatment, which can be due to the reduction of carbide particles and their morphological modification.

## کلمات کلیدی:

Rene-80 Nickel-base Superalloy, Age Hardening Heat Treatment, Microstructure, Hardness

## لینک ثابت مقاله در پایگاه سیویلیکا:

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