

Creep damage behavior of red sandstone after high temperature

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May 15, 2021

Abstract

This work discusses the results from tests conducted to investigate the uniaxial compression and creep behavior of red sandstone. The original untreated sample and the 800 treated sample have been selected to carry out the experiments. It has been found that high temperature has obvious influence on the mechanical properties of red sandstone. The relationship between creep strain and instantaneous strain, as well as instantaneous deformation modulus and creep viscosity coefficient have been analyzed. It has been found that high temperature reduces the ability of red sandstone to resist instantaneous deformation and creep deformation. Acoustic emission (AE) technology has been also used in the loading process of uniaxial compression and creep tests, providing a powerful means for damage evolution analysis of red sandstone.

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