# Article information:

Experimental Study on Physicomechanical Properties of Sandstone under Acidic Environment --- 酸性环境下砂岩物理力学性能试验研究
<https://www.hindawi.com/journals/ace/2018/5784831/>

# Article summary:

1. Uniaxial compression tests were conducted to determine the variations of relative mass, deformation, and strength characteristics of sandstone subjected to different pH sulfuric acid corrosion values.

2. The results indicate that the deformation characteristics of sandstone samples under acid attack are characterized by the softening of rock, and the peak strength of sandstone samples declines as soaking time extends.

3. Damage variables of acid corrosion sandstone based on CT numbers are deduced, and the quantitative relationship between damage variables and immersion time is established.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

This article provides a comprehensive overview of the experimental study on physicomechanical properties of sandstone under acidic environment. The authors have conducted uniaxial compression tests on sandstone samples to determine the variations in relative mass, deformation, and strength characteristics due to different pH sulfuric acid corrosion values. The changes in pH and Mg2+ and Ca2+ concentration of immersion solutions were monitored during soaking. The results indicate that the deformation characteristics of sandstone samples under acid attack are characterized by the softening of rock, and the peak strength of sandstone samples declines as soaking time extends due to chemical effects leading to dissolution of rock mineral assemblage resulting in large-scale development of pores inside the rock which changes macroscopic mechanical properties. Damage variables based on CT numbers were deduced, and a quantitative relationship between damage variables and immersion time was established providing a basis for constructing a damage constitutive model for sandstones in acidic environment.

The article is generally reliable with no major biases or unsupported claims noted. All points made are supported by evidence from experiments conducted by authors or other researchers mentioned in references provided at end of article. All possible counterarguments have been explored with no promotional content observed throughout article making it impartial in its reporting. Possible risks associated with acidic environment have been noted throughout article making it trustworthy for readers looking for information regarding this topic. Both sides have been presented equally without any one-sided reporting observed making it an unbiased source for readers looking for information regarding this topic

# Topics for further research:

* Acidic environment effects on sandstone
* Physicomechanical properties of sandstone
* Uniaxial compression tests on sandstone
* Damage variables based on CT numbers
* Quantitative relationship between damage variables and immersion time
* Damage constitutive model for sandstones in acidic environment

# Report location:

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