

Accepted Manuscript

A micromechanical model for the effective compressibility of sandstones

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PII: S0997-7538(14)00188-0

DOI: [10.1016/j.euromechsol.2014.12.007](https://doi.org/10.1016/j.euromechsol.2014.12.007)

Reference: EJMSOL 3153

To appear in: *European Journal of Mechanics / A Solids*

Received Date: 7 December 2013

Accepted Date: 14 December 2014

Please cite this article as: Ghabezloo, S., A micromechanical model for the effective compressibility of sandstones, *European Journal of Mechanics / A Solids* (2015), doi: 10.1016/j.euromechsol.2014.12.007.

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1. A micromechanical model is proposed to evaluate the compressibility of sandstone.
2. The sandstone microstructure is modelled by spherical inclusions with imperfect interfaces embedded in a matrix. A self consistent homogenization method is used.
3. The composite sphere model of Herve and Zaoui (1993) is extended to the case of imperfect interfaces between phases to evaluate the strain localisation coefficients.
4. Assuming a stress dependent compliance for the interface between the grains results in stress-dependent rock compressibility.

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