



## **Overpressure and micro fracturing in brittle matrix of dual porous medium**

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Overpressure is the well known phenomenon in ultra low permeable reservoirs (for example oil shales). This phenomenon is the result of various factors and physical processes such as kerogen decomposition in isolated pores. Frequently reservoirs of this type have systems of macroscopic natural or technogenic fractures which divide the massif into low permeable blocks. The common way for simulation of fluid production in this media is the concept of dual porosity. Overpressure can lead to development of secondary fractures in low permeability matrix (natural hydraulic fracturing). In this work a new generalization of the concept of dual porosity is proposed for the case of brittle matrix with microcracks and overpressure. By analyzing the inequality of dissipation, the thermodynamically consistent governing relations and the equation for evolution of the damage parameter in matrix are derived. The problem of fluid flow in considered medium to the long cylindrical well is solved numerically. This work is supported by Russian Foundation for Basic Research grant N19-01-00592