

THERMAL CHARACTERISTICS OF ANISOTROPIC MEDIA WITH INCLUSIONS

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Summary. The problem of determining the effective thermal conductivity of a heterogeneous medium, which may be represented by a model of a matrix comprising non-interacting ellipsoidal inclusions, is examined. Theoretical results calculated for porous sandstones on the basis of this model are compared with experimental data. Results are presented showing the variation of effective thermal conductivity with porosity, shape of inclusions, mineral composition of sandstones and the type of symmetry of the model. The problem of distinguishing porous rocks saturated with different liquids (e.g., oil and water) is analyzed.

Key words: effective parameters, heterogeneous medium, thermal conductivity.