



Analysis of HM processes in the bentonite based engineered barrier

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The contribution is focused on analysis of hydro-mechanical processes in engineered barriers which combine bentonite based blocks and pellets. Such barrier was tested e.g. in the EB experiment run by ENRESA at the Mont Terri Underground Research Laboratory in Switzerland. We describe model which couples flow in the unsaturated barrier, nonlinear elasticity with moduli dependent on deformation state and saturation, swelling and flow in the inter block gaps in either unsaturated or saturated state. The flow in the engineered barrier is described by the Richards equation with input data (retention function, relative permeability) depending on the pore deformation. The EB experiment serves for validation of the model and simulation outputs from implementation in the COMSOL Multiphysics software.