

# **SOLUTION MINING RESEARCH INSTITUTE**

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**Meeting  
Paper**



## **Numerical Simulation of Brine Injection into Reservoirs**

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# Numerical Simulation of Brine Injection into Reservoirs

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*[Abstract] This paper presents a 3D finite element program (MEFAC) for simulating the injection of brine into reservoirs, such as aquifers or depleted gas fields. The aim of this injection is to evacuate the brine during the leaching of salt caverns. The characteristics of brine injection simulation in related to the conventional reservoir simulation are the difference between brine temperature and reservoir temperature, and the variation of brine concentration in reservoir during the injection. A compositional and non isothermal flow simulator is required to examine the above characteristics. This simulator can take into account the variation of fluid thermodynamic parameters, such as density and viscosity, according to the temperature and concentration. In practice, this simulator can be used to predict the brine injection flow rate if the pressure is imposed, or the well head pressure if the brine flow rate is given. Some simulation examples are also presented in this paper.*

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