

Geochemical Aspects of Water Rock Interactions in Salt

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Abstract

This paper is a continuation and an updating of a first part of the results presented in the paper "Results of the Geochemical Survey Programme accompanying the flooding of the Potash Salt Mine Hope in Northern Germany". That paper written by Herbert, Sander (GSF) and Panzer (KBB) was presented at the SMRI Autumn Meeting 1986 in Amsterdam.

The geochemical measurements in the flooded Hope mine were part of a large scale chemical investigation program designed to assess the processes activated in an incident scenario involving inflow of water into a final repository for radioactive waste in salt formations. The geochemical in-situ test determined the dissolution and precipitation processes of the charged sodium chloride solution in contact with exposed sylvinite, hard salt and rock salt.

The paper presents a comparison between the predicted and the measured chemical reactions as well as the results of the geochemical modeling of observed chemical changes in the solutions. The observed chemical changes in the solution were used to quantify the dissolution processes within the mine during the time intervall 1984 (beginning of the mine flooding) and 1988 (end of observation).