

CREEP OF ROCK SALT UNDER SMALL LOADING

J.P. Charpentier, P. Bérest

Laboratoire de Mécanique des Solides, École polytechnique

91128 Palaiseau, France

P.A. Blum

Institut de Physique du Globe de Paris

4, place Jussieu

Paris, France

Abstract

Rock salt cylindrical samples have been tested through small (0.1 MPa) axial loading. Creep strain is measured through high resolution (approximately a nanometer) extensometers. The test was performed in a mine gallery, which favors stable hygrometry and temperature conditions. Relative rotations of the plates are probable, and the average measured creep rate is of the order of 10^{-12} s^{-1} (sample contraction). When the applied stress is reduced by 30%, inverse creep (sample expansion) takes place at a strain rate of $- 5 \cdot 10^{-13} \text{ s}^{-1}$.