

Mass Exchange in an Underground Reservoir at the Manifestation of Salt Flow and Brine Infiltration

by

V. P. Maljukov
PROMGAZ

Referat

When building underground reservoirs for the storage of hydrocarbons in rock salts, involving the injection of the solvent through the well, various mass exchange processes occur. Experimental, full-scale and analytical studies of mass-transfer processes have been carried out.

1. Introduction

The mass transfer processes in an underground reservoir (UR) are characterized by the following factors: the displacement of the contour during construction in the course of dissolution of the rock salt; back shift of the contour due to the creep of the rock salt (the ability of salt to deform inelastically and to flow in the least pressure direction) -convergency; probably, the simultaneously running processes of convergency and infiltration of the brine into rock salt mass near the contour; as well as the physicochemical, thermobaric and hydrodynamical conditions at different technological stages.

Experimental study of rock salt mass transfer during the dissolution of full-scale samples and cores has been carried out, the samples having been taken from the UR interval. The method and theory for experimental study of the dissolution surface of rock salt have been developed. A full-scale investigation of changing in the strained state of the rock mass in the vicinity of a mine working has been carried out.