

## **Geochemistry of brine and fluid inclusions of the Permian salt formations, Pricaspian Basin**

**ANISSIMOV, L.A., MOSCOWSKY G.A.** Saratov State University, Saratov 410026, Russia

There are three causes to study geochemistry of brine and fluid inclusions entrapped in salt rocks:

- fluids may inherit the salts of the ancient basins and reflect the evolution of chemical composition of the ocean;
- inclusions are the tracer of hydrocarbons migrated from subsalt formations and they can use to predict subsalt prospects;
- fluid inclusions can change the mechanical properties of salt rocks significantly, it needs to assess salt rocks for waste and product storage.

Distribution and chemical composition of fluid inclusions in the Permian salt rocks of the Pricaspian Basin have been studied to solve these problems. Different populations of inclusions consist of brine, gas and petroleum, they differ by composition, geometry and distribution. Identifying the type of inclusion can help to classify them by origin and mechanism of transformation.

Most inclusions were trapped during evaporating processes and their composition (Mg-rich brines,  $N_2$  domination) reflects active diagenesis during the sedimentation. Petroleum inclusions as well as gas vacuoles with  $CH_4$  and  $H_2S$  were trapped on migration routes from the overpressured subsalt carbonate reservoirs. Abundance of such types of inclusions creates some technological problems during construction of storage facilities in the Pricaspian Region.