

# ESTIMATED MINERAL DEPOSITS OF INSTALLATIONS WITH GEOTHERMAL WATER TO PREVENT CORROSION

SEBEȘAN Radu, SEBEȘAN Mioara, STĂNĂȘEL Oana

University of Oradea

[rsebesan@uoradea.ro](mailto:rsebesan@uoradea.ro), [msebesan@uoradea.ro](mailto:msebesan@uoradea.ro)

**Keywords:** geothermal water, corrosion processes, mineral deposits.

**Abstract:** Geothermal waters in the Plain of western Romania have rather high temperatures at the mouth of the probe, which determines their use for different purposes: for heating homes, for heating greenhouses, for industrial processes, in fish, for swimming pools etc. Type of mineral deposits that are formed from geothermal water with decreasing temperature depends on their chemical composition and leads to corrosion processes or metal warping installations by circulating geothermal fluids. In this work will be estimated mineral deposits, with a simulation program, for geothermal waters from two wells: 4777 and 507 in Bihor county. Estimation the mineral deposits of geothermal waters can be with the simulation WATCH. The program can be used to predict the behavior of geothermal fluid under different conditions, the reservoir temperature and lower temperatures that occur in the distribution of geothermal water. The Watch uses the chemical composition of geothermal fluid.

The results of the laboratory analyses have been calculated in the Watch simulation program at production temperature and by cooling in steps of 15° C.

In this way it is possible to predict the scaling potential. By the use of the program it was calculated the ionic activity  $Q$  corresponding to different minerals in the brine and it was compared with the theoretical solubility,  $K$ , of the respective minerals.

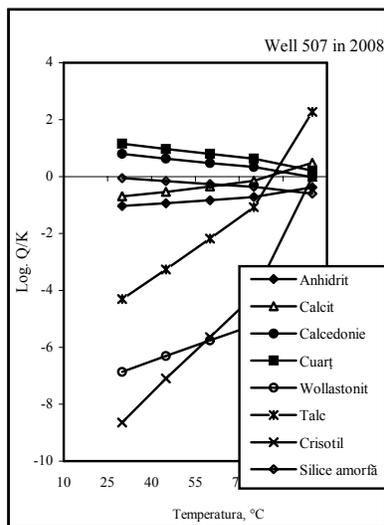


Figure 1. Log. Q/K vs temperature for selected water, winter from well 507.

## BIBLIOGRAPHY

- [1]. Arnorsson, S. (1985). *J. Volc. Geotherm. Res.*; Vol. 23, pp.145.
- [2]. Bjarnason, J.O. (1994). *The speciation program Watch, version 2.1.* Orkustofnun, Reykjavik.
- [3]. Fournier, R.O. (1977). *Geothermics*, Vol 5, pp 49.