

Variation of dissolution rate with temperature – Theory and experimental procedure

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Abstract :

Salt dissolution rate is highly dependent on temperature ; when decreasing temperature from 30°C to 15°C the dissolution rate is divided by two. SMRI sponsored a research project in the early 80's that was concluded by research report #83-0002-SMRI⁴. Unfortunately, because of the size and shape of salt sample required, the procedure used for measurements was not applicable for most real sites where we only have cores from drilling.

In this paper, we present a new experimental procedure for measuring the dissolution rate of a core sample at a given temperature. The mathematical procedure to get the dissolution rate value from the measured curve is also described.

Key words : Cavern Dissolution Modeling, Salt Dissolvers, Salt Properties,

1 Gaz de France, St Ouen, France

2, Gaz de France, Mareuil sur Ourcq, France

3 Salins, Varangéville, France

4 “A dissolution/temperature relation for vertical salt surfaces dissolved in saline solutions”
July 1983 by A. Saberian & associates