



Application of chemical equilibrium modeling in concentration process for strontium recovery from SWRO brine

Taebum Ahn^a, Hyunwoo Lee^b, Jeong-ki Moon^{a,*}

^a*Energy & Environment Research Division, Research Institute of Industrial Science & Technology (RIST), Pohang-si, Gyeongsangbuk-do, Zip Code – 37673, Republic of Korea, Tel. +82-54-279-6602; Fax: +82-54-279-6688; email: jgmoon6602@rist.re.kr (J.-k. Moon)*

^b*Materials Research Division, Research Institute of Industrial Science & Technology (RIST), Pohang-si, Gyeongsangbuk-do, Zip Code – 37673, Republic of Korea*

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ABSTRACT

In this study, the simulation of concentration process was conducted by PHREEQC software for evaluation of strontium recovery in various concentration steps with gradient evaporation experiment by seawater reverse osmosis brine. The results of modeling were similar to experiment in majority of ions but strontium was a quite different. Magnesium, potassium and boron were concentrated up to 7 times and sodium and calcium were slightly different from them, it causes influence of co-precipitation on deposition of sodium chloride and concentration of chloride for counter ion which strontium and calcium. Therefore, the proper concentration factor for strontium recovery is 3 times such as pre-concentration.

Keywords: Strontium; Metal extraction; PHREEQC; Valuable resource recovery; Seawater desalination concentration; Seawater reverse osmosis brine

* Corresponding author.