

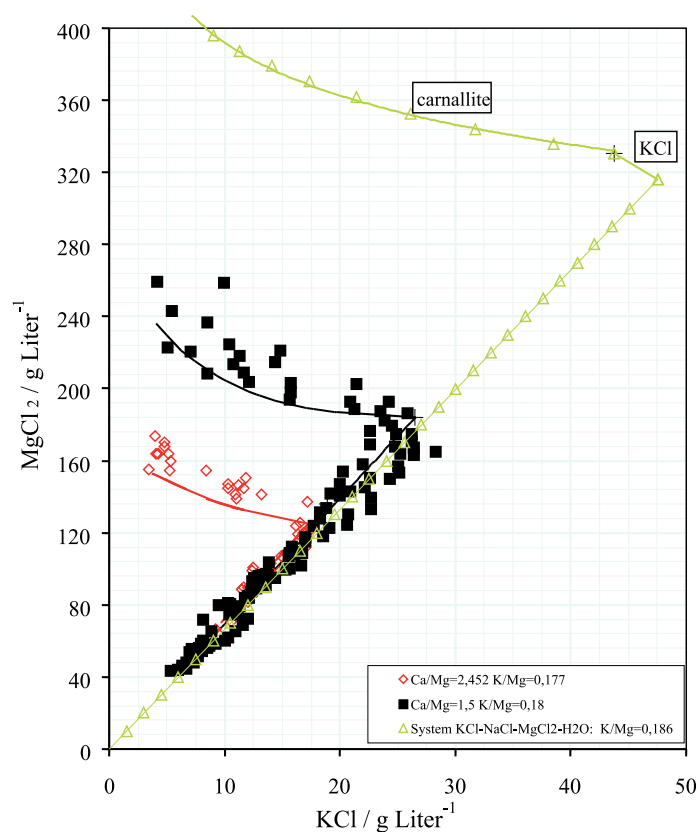
Modelling of solar evaporation in a quasi-continuously driven small pilot plant

Objectives

- Erection and assessment of a small indoor pilot plant
- Performance of solar evaporation processes
- Modelling of fractional crystallisation processes by solar evaporation
- Evaluation of industrial solar evaporation-crystallisation processes

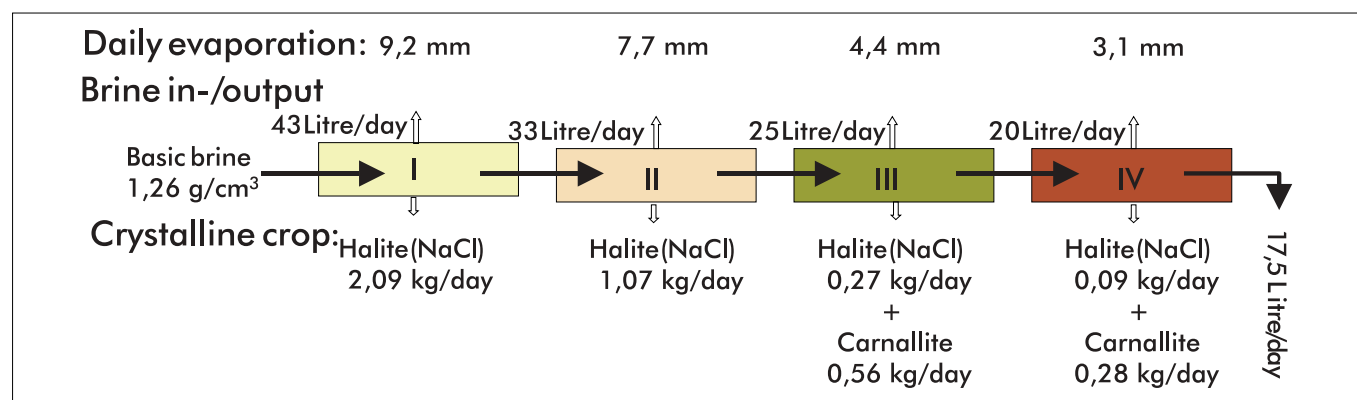


Results



- The input brine is saturated with NaCl. Therefore sodium chloride crystallizes immediately with the beginning evaporation.
- During the evaporation process the component KCl at first becomes enriched to a maximum concentration of 21 kg/m³.
- Above a brine density = 1,38 g/cm³ carnallite-crystallisation starts, potassium chloride becomes impoverished to 5 kg/m³.
- The Potash yield is about 78%.
- The higher the Ca-concentration is, the lower is the Mg-concentration with respect to the KCl-concentration for settling carnallite.
- There is a pretty well coincidence with the results of the natural process

Mass-flow of the indoor process



Conclusion

These results can be used for the determination of the required area and the production-regime of a solar pond system in Central Iran