عنوان مقاله:

Modeling water lithium bromide absorption chiller with a heat exchanger in EES and ASPEN Plus

محل انتشار:

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خلاصه مقاله:

Nowadays energy and its optimized consumption is one of the important problems of human society. In the many of plants most part of input energy wastes. For this reason, utilizing waste energy and improving the thermal efficiency has been suggested for researchers. Absorption chillers can utilize waste energy of industrial plants for providing cooling or refrigeration, so they are able to improve energy efficiency. In present paper, single effect water/lithium bromide absorption chiller with additional heat exchanger in refrigerant side simulated using EES and ASPEN Plus. The modeling is based on steady state condition. The simulating method is explained and the results obtained from two softwares are compared with each other and with published data to verify the simulation.The results show that COP1 and exergetic efficiency of the cycle with heat exchanger at refrigerant side are higher than conventional absorption cycle. Also with increasing generator temperature (independent of Tcond and Tevap), COP and exergetic efficiency first increases and reaches a peak then COP declined slightly and remained relatively constant but exergetic efficiency reduces. In addition, because of the importance of crystallization risk in these systems, the effect of various operating conditions on the possibility of crystallization is investigated too. The results show that probability of crystallization phenomenon increases with increasing the generator temperature.

کلمات کلیدی:

ASPEN Plus, Absorption chillers, Crystallization, Exergy, Heat Exchanger