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Entropy Generation Analysis of Heat Recovery Vapor Generator for Ammonia-Water Mixture

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Abstract : This paper carries out a performance analysis based on the first and second laws of thermodynamics for heat recovery vapor generator (HRVG) of ammonia-water mixture when the heat source is low-temperature energy in the form of sensible heat. In the analysis, effects of the ammonia mass concentration and mass flow ratio of the binary mixture are investigated on the system performance including the effectiveness of heat transfer, entropy generation, and exergy efficiency. The results show that the ammonia concentration and the mass flow ratio of the mixture have significant effects on the system performance of HRVG.

Keywords : entropy, exergy, ammonia-water mixture, heat exchanger
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