PERFORMANCE IMPROVEMENT OF THERMOSYPHON HEAT EXCHANGERS
BY USING TWO KINDS OF WORKING FLUIDS

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In this study, the concept of introducing two-fluid thermosyphons in examined Calculations were performed for both low and high temperature ranges with parallel and counter-flow arrangements. For lower-temperature application, $125^\circ\mathrm{C} > T_{hi} > 75^\circ\mathrm{C}$, use of ammonia in some rows and water in the rest of the thermosyphon can slightly improve the associated heat transfer performance for balanced counter-flow arrangement. However, for balanced parallel flow arrangement in both low-and high temperature applications, the concept of using two fluid thermosyphons may not be feasible. The use of two-fluid thermosyphons is especially advantageous for high temperature applications. For instance, in the range of $375^\circ\mathrm{C} > T_{hi} > 350^\circ\mathrm{C}$, the two-fluid thermosyphons (Dowtherm A-water) shows a 15-99% increase of heat transfer performance relative to Dowtherm A alone.