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[摘要]

噴淋式蒸發器中冷媒是藉由薄膜蒸發與池沸騰兩種方式被汽化，而滿溢式蒸發器的熱傳機制爲強制對流與核沸騰兩
综合分析文獻中關於噴淋式蒸發器的熱傳理論，以「單元式e-NTU法」爲運算架構，並整合現有的理論與經驗公式
式。此方式的優點在於先判斷出每一個區塊的冷媒乾度，依照乾度情形區分爲飽和或過熱狀態，並判斷出流體在不
相較於使用管集平均熱傳性能的整段計算法來計算熱傳性能更加準確；而對於蒸發器而言，由於沸騰性能與管壁過
整理出三種不同熱傳管(光滑管、Tu-B、Gewa-B3)的核沸騰經驗式，並加入程式中以提供蒸發器設計上之選擇。
由本研究所開發之性能預測程式，經過與工研院所提供的實測數據比較，證實其預測誤差在11%以內。本程式模擬
條件，發現與實測數據的最大誤差爲10.57 %；而模擬一台噴淋式蒸發器滿載狀態下，各種蒸發溫度與不同冰水入
噴淋式部分(75%)負載下的19筆數據中最大誤差則爲11.6%。
本研究利用此性能預測程式計算各種管排設計之蒸發熱傳性能，以作爲噴淋式蒸發器的輔助設計工具；並由程式所
於冷媒側熱傳性能之影響。

[英文摘要]

In the present study, a critical literature review regarding spray evaporator and falling film evaporation is presente
flooded evaporator and spray-type evaporators were evaluated. This study also developed a computer code, wh

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