

TRANSPORT PHENOMEN A & FLUID MECHANICS

混合制冷剂蒸发态沸腾的传热研究

赵耀华^a, 刁彦华^a, 鹤田隆治^b, 西川日出男^b

^a Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing 100080, China

^b Department of Mechanical Engineering, Kyushu Institute of Technology, Kitakyushu 804-8550, Japan

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摘要 Heat transfer coefficients in nucleate pool boiling were measured on a horizontal copper surface for refrigerants, HFC-134a, HFC-32, and HFC-

125, their binary and ternary mixtures under saturated conditions at 0.9MPa. Compared to pure components, both binary and ternary mixtures showed lower heat transfer coefficients. This deterioration was more pronounced as heat flux was increased. Experimental data were compared with some empirical and semi-empirical correlations available in literature. For binary mixture, the accuracy of the correlations varied considerably with mixtures and the heat flux. Experimental data for HFC-32/134a/125 were also compared with available correlated equation obtained by Thome. For ternary mixture, the boiling range of binary mixture composed by the pure fluids with the lowest and the medium boiling points, and their concentration difference had important effects on boiling heat transfer coefficients.

关键词 制冷剂, 气体分离技术, 加热传热模式, 混合物, 沸点

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Heat Transfer in Nucleate Pool Boiling of Binary and Ternary Refrigerant Mixtures

ZHAO Yanhua^a, DIAO Yanhua^a, Takaharu Tsuneta^b, Nishikawa Hideo^b

^a Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing 100080, China

^b Department of Mechanical Engineering, Kyushu Institute of Technology, Kitakyushu 804-8550, Japan

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Key words pool boiling heat transfer, nucleate pool boiling, HFC-134a, HFC-32, HFC-125

通讯作者: 赵耀华 yzhao@mail.etp.ac.cn

作者个人主页: 赵耀华^a, 刁彦华^a, 鹤田隆治^b, 西川日出男^b

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- 赵耀华a
- DiaoH
- 刁彦华a
- tsunet
- 鹤田隆治b
- DiaoH
- 西川日出男b