



Contribution ID: 1147

Type: **Poster Presentation**

C2Po1F-06 [36]: A new heat transfer correlation for flow boiling of R50 in a horizontal tube

Tuesday 23 July 2019 09:00 (2 hours)

With the growing concern of environment problems, there are urgent demands for environment-friendly refrigerants in the refrigeration industry. As a natural refrigerant, Methane (R50) has zero ozone depletion potential and quite low global warming potential. What's more, it is also the major cryogenic refrigerant of the Mixture Joule-Thomson Refrigeration cycle (MJTR). Therefore, accurate knowledge of two phase heat transfer of R50 is necessary for the nature gas liquefaction technologies, especially in LNG industry. In this paper, flow boiling heat transfer experimental data of R50 from several individual investigations were collected. Several classical flow boiling heat transfer correlations have been compared with the collected experimental data and each correlations were also evaluated. The results presented the best heat transfer correlation to predict the flow boiling heat transfer of R50. Finally, based on the analysis of mechanisms in heat transfer process, a new heat transfer correlation was proposed which could accurately predict the experimental data of R50.

Authors: Dr YANG, Zhi-Qiang (Shanghai Marine Diesel Engine Research Institute); Dr HUANG, Huanming (Shanghai Marine Diesel Engine Research Institute); Prof. LIN, Zhimin (Shanghai Marine Diesel Engine Research Institute); Dr MEN, Qiming (Shanghai Marine Diesel Engine Research Institute); Prof. WANG, Xiaowu (Shanghai Marine Diesel Engine Research Institute); Prof. FENG, Huihua (Shanghai Marine Diesel Engine Research Institute)

Presenter: Dr YANG, Zhi-Qiang (Shanghai Marine Diesel Engine Research Institute)

Session Classification: C2Po1F - Heat Transfer