

26th National Symposium on Cryogenics and Superconductivity

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Theatrical and experimental evaluation of the thermal conductivity of perlite for cryogenic insulation (300K to 77K)

Content :

Increasing use of cryogenics from energy, transportation, medical application to the aerospace, has lead to practical problems of storing and handling cryogens in liquid form. Hence it is necessary to develop efficient insulation for cryogenic systems and applications. A double guarded cylindrical boil off calorimeter is developed to measure the apparent thermal conductivity of different insulation material in temperature range from 300 K to 77 K. This calorimeter is used to test apparent thermal conductivity for different insulation materials like perlite powder, foam, EPS beads and rice husk. Effective thermal conductivity of Perlite is predicted and compared with performance carried out with boil off calorimeter. These results are helpful to select insulation material for a particular cryogenic application.

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