

3. A Thermal Analysis of the Membrane Type LNG Carrier during Ballast Voyage

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For developing self-supporting design of LNG carrier and construction technics of it, and for promoting interest of ship builder they need the evaluation method of heat transfer characteristics of tank and compartment system including thermal conductivity of insulations.

Therefore, the thermal analysis during the voyage in ballast condition is important and the evaluation tools by using the computer program are to be developed. For that purpose, the M-III membrane type LNG carrier, which is being constructed and will be engaged in trade, is taken for the study on the basis of ambient design condition stipulated in IMO I.G.C code and the real environmental condition in the trade route from Korea to the Gulf area in the Middle East and Asia.

By this study, A computer program for prediction of three-dimensional temperature distribution, heat flux infiltration in cargo tank and compartment, boil-off gas quantity and boil-off ratio in cargo tank is developed.

