ICR0437

Study on the optimum air current distribution of a refrigerated container using two dimensions numerical simulation model.

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Abstract:
In recent years increase of energy consumption has attracted interest because of drying up oil resources and environmental contamination. Especially, global warming due to carbon dioxide that is generated from consumption of fossil energy, we have to work out an improvement plan immediately.

From a numerical analysis method by computers and the experiment, we investigate the basic thermal characteristics of refrigerated container such as optimization of air current distribution, in order to save energy. The numerical simulation was used k-e type two equation turbulence model. As a result, the following became clear after the calculation.

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1) Decrease of heat loss depends on the differences of blow off method.
2) Availability of simulation method and application of 'wall function'.
3) Necessity to consider the radiation flux in this calculation etc.

There are a extremely few examples that analyzed air current distribution of a refrigerated container quantitatively.