COOLING LOAD ANALYSIS DUE TO HEAT
CONVECTION AND RADIATION ON REEFER
CONTAINER ON CHILLER AND REFRIGERATION
MODE

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Abstract
A Container is a specially designed storage room, with
standardized size and reusable, to store as well as transport
cargoes/goods. By using standardized dimensions, container
loads may be transported with ease through means of land and
sea transportation, hence efficient, fast and safe
operational. Reefer Containers refers to a specialized container
that is used to keep its load lifetime longer for sea transportation
through its refrigerant system.

For operation, Reefer Containers are set beforehand to
adjust its inner temperature for the type of cargo commodity that
it will carry. Next, the commodity may be moved inside the
container with the inner temperature already set, to be
transported while the temperature is kept. This research analyze
the cooling load that results from radiation and convection on the
reefer container, filled with meat and fruits, due to external
factors, while already on the setting temperature required by each
type of commodity. Calculations are made by factoring the effect
of heat on the reefer container through its roof, door, and wall
which is constructed differently from each other. Next, in the
calculation of the effect of convection and radiation due to the
solar heat, we also take the effect of air flow on a sailing ship

Through this research, we know the amount of additional
cooling load that has to be supplied due to radiation and
convection of heat while the reefer container is acting as chiller which is 6,4163 Watt and as refrigerator which is 407,25 Watt.

Key words: Reefer container, cooling load due to convection and radiation.