NASA TECH BRIEF

Optimizing Insulation Weight on Cryogenic Storage Tanks

A mathematical model has been developed for approximating the optimum weight of insulation to be used on cryogenic storage tanks.

The model uses key parameters, including boil-off rate, insulation density, tank surface area, performance level, and mission requirements to permit the designer to arrive at approximate insulation requirements during the early phase. Other parameters, such as tank weight, storage pressure and the weight of the pressurization system are not included in this first-approximation model.

The techniques of this mathematical model may also be applied to ground cryogenic storage tanks. In this application, where weight considerations may not be particularly important, the mathematical model could be used to provide optimum cost information relative to design economy.

Note:

Requests for further information may be directed to:
Technology Utilization Officer
Kennedy Space Center
Kennedy Space Center, Florida 32899
Reference: TSP70-10102

Patent status:

No patent action is contemplated by NASA.

Source: L. A. Safar of
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