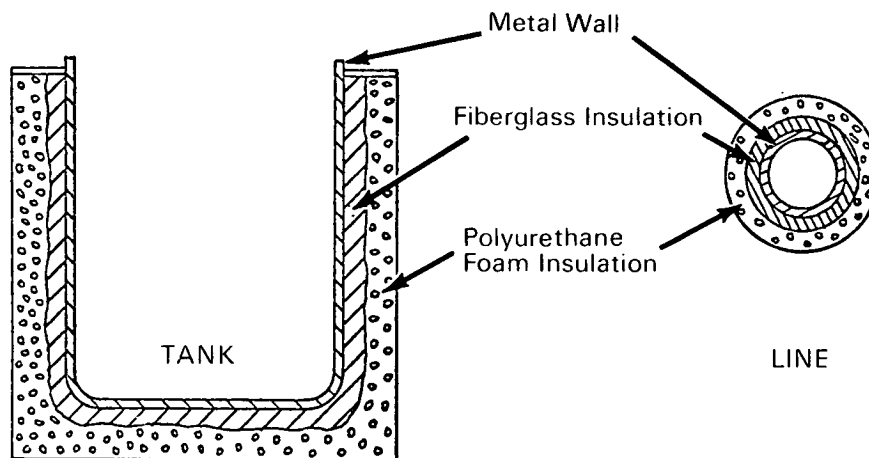


NASA TECH BRIEF



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Fiberglass Prevents Cracking of Polyurethane Foam Insulation on Cryogenic Vessels



Polyurethane foam applied as insulation on metal cryogenic vessels (lines and tanks) tends to separate from the metal surfaces as the result of differential shrinkage when the vessel is cooled to cryogenic temperatures. Voids between the separated polyurethane insulation and the metal surfaces become filled with moisture and air (in liquid or gaseous states, depending on temperature) and cause excessive cracking of the insulation.

The shrinkage problem can be prevented by interposing a layer of fiberglass insulation between the polyurethane foam insulation and the outer surfaces of the cryogenic lines and tanks. The fiberglass material retains its resilience at cryogenic temperatures and provides an expansion layer between the metal surfaces and the polyurethane foam, preventing cracking of the latter.

Note:

No additional documentation is available. Questions may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B68-10406

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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Category 02