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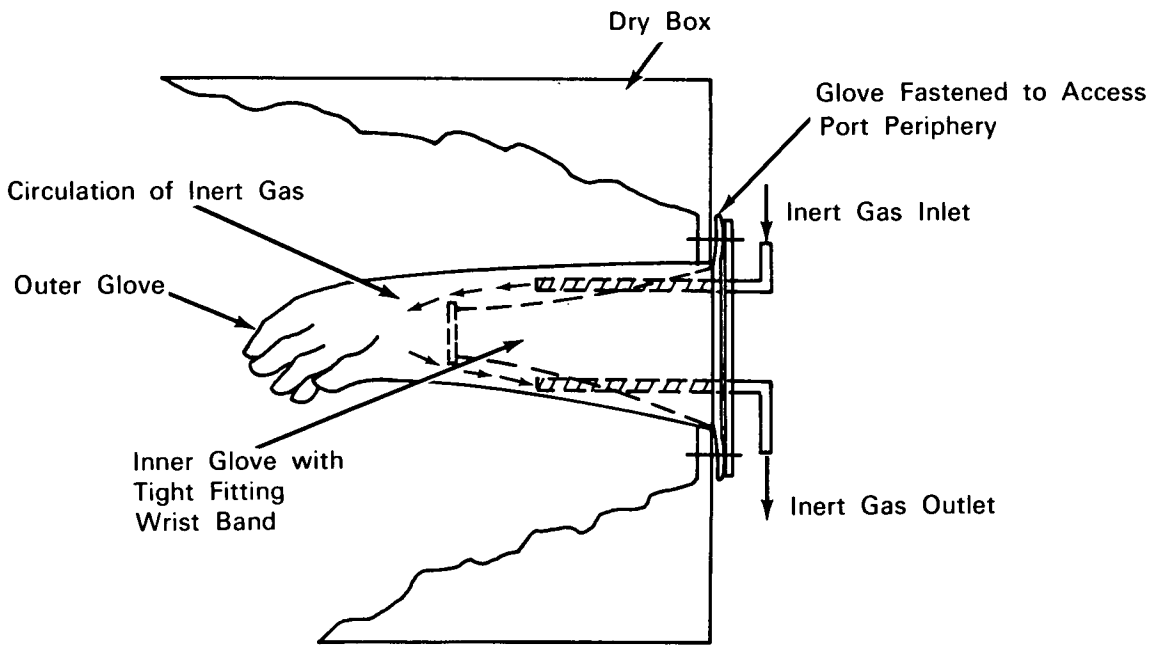
Brief 65-10117

NASA TECH BRIEF

Double Gloves Reduce Contamination of Dry Box Atmosphere



The problem: Hazardous or easily contaminated materials may be safely handled within a dry box fitted with rubber gloves for access. However, the inert atmosphere in the dry box may be contaminated by leakage of undesirable gases, such as water vapor and air, through the glove material.

The solution: A pair of successively encased low permeability hand gloves between which an inert gas is circulated.

How it's done: An outer glove and an open end inner glove are attached to the access opening of the dry box. The arm of the user extends through a tight fitting seal at the open end of the inner glove. Any inert gas, such as argon, that is not harmful to the contents of the dry box is circulated through the void between the two gloves. Preferably the purge gas is the same as the gas within the box. The pressure in the cavity between the two gloves is held equal to or slightly higher than the pressure in the box, but never less than atmospheric pressure. Diffusion of air and water vapor through the glove material is thereby greatly reduced.

Notes:

1. This configuration reduces the water and air content of the box by 50%. Low permeability glove materials, such as butyl rubber or neoprene, may be used for maximum efficiency.

(continued overleaf)

2. Greater hand comfort may be achieved by heating or cooling the purge gas.
3. This innovation is useful for dry boxes designed to handle such materials as submicron powders, alkali metal compounds, liquid metals, and radioactive compounds.
4. Inquiries concerning this invention may be directed to:

   Technology Utilization Officer
   Lewis Research Center
   21000 Brookpark Road
   Cleveland, Ohio, 44135
   Reference: B65-10117

Patent status: NASA encourages the immediate commercial use of this invention. It is owned by NASA, and a patent application has been filed. Royalty-free nonexclusive licenses for its commercial use are available. Inquiries concerning license rights should be made to NASA, Code AGP, Washington, D.C., 20546.

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