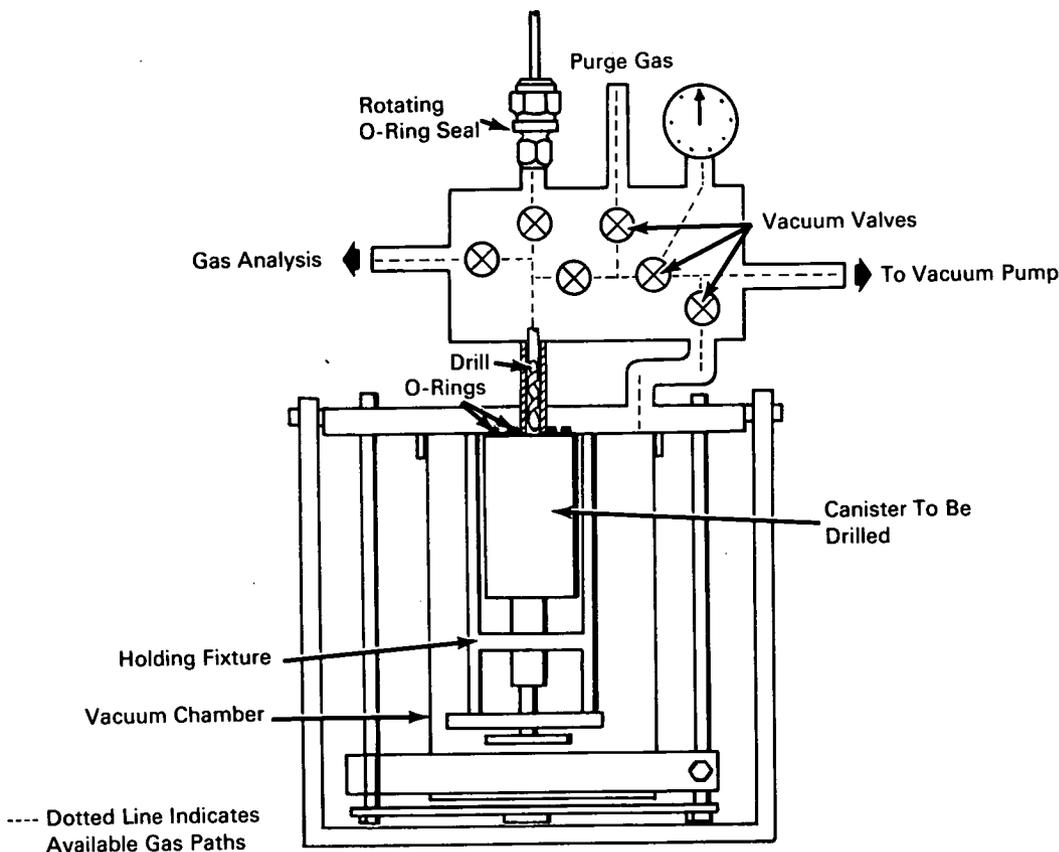


NASA TECH BRIEF



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Irradiated Gases Transferred Without Contamination or Dilution



The problem:

To develop an apparatus for opening sealed canisters of irradiated gases and transferring the contents without contaminating the surrounding area, and without diluting or polluting the contained gases.

The solution:

An apparatus consisting of a vacuum chamber, a

valved piping manifold, and a special drill and sealed drilling access.

How it's done:

The vacuum chamber contains a fixture for holding the canister, positioning it against the drill access hole in the chamber top, and forcing it tightly against the O-ring seals surrounding the drill access hole. The

(continued overleaf)

valved piping manifold is connected to the vacuum chamber and arranged to provide connections with a vacuum pump, a source of purge gas, and a transfer line for the canister contents. Access for the drill is provided by a passage through the piping manifold that is sealed by O-rings and a valve. The special drill has flutes only near the tip; the long shank of the drill is fluteless to provide a smooth positive sealing surface. The sealed canister is placed in the holding fixture in the vacuum chamber and mechanically forced against the O-ring seals around the drill access hole. The purge gas connection and the transfer line are closed off by their respective valves. The vacuum chamber is sealed and evacuated, as is the drill access passage. The valve in the drill passage is opened, and the drill is moved through the valve into contact with the canister. The vacuum line valve is closed and the canister is drilled open. The drill is withdrawn and the drill passage valve is closed. The transfer line valve is opened and the canister's contents are pumped out

and transferred to their destination. The transfer line is then closed off, the apparatus is purged, and the canister removed. The cycle can then be repeated.

Notes:

1. This apparatus can be used for handling other types of hazardous and volatile materials, and materials that cannot be exposed to air, oxygen, or other than closely controlled environments.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
Reference: B67-10044

Patent status:

No patent action is contemplated by NASA.

Source: John L. Bonn and William Kern

(Lewis-278)