

Accelerator Department
BROOKHAVEN NATIONAL LABORATORY
Associated Universities, Inc.

AGS DIVISION TECHNICAL NOTE

No. 6

J.C. Schuchman
October 11, 1965

A HOLLOW METAL O-RING AS A VACUUM SEAL FOR THE AGS

The hollow metal O-ring gasket shows good promise as a reliable direct replacement for the elastomer seals in the present AGS.

A comparison with the machined gaskets such as the "K" and "V" seals show that the metal O-ring is much less expensive, and more important, it can be shaped to fit any type flange or groove. In addition to circular gaskets it can replace the oval gasket on the split flange end of the AGS vacuum chamber. A machined gasket ("K" and "V") is only available in circular form.

The metal O-ring possesses the desired characteristics which are shown in previous work (see AADD-82); namely a resilient base metal plated with a softer metal. The plating flows into the surface irregularities and actually does the sealing while the ring material maintains the sealing force.

A problem associated with the metal O-ring is maintaining a uniform cross section at the welded butt joint. This section is frequently "necked down" and does not seal. An attempt is being made to resolve this by striking the entire ring between two parallel flat plates before plating. This procedure produces a slight flat on either side of the ring resulting in a ring of uniform height with parallel sealing surfaces.

Hollow metal O-rings of different cross sections are now being tested. If the initial tests are good a few metal O-rings will be installed in the AGS.

Distribution:

A. van Steenberg
J. Grisoli
C. Gould
V. Buchanan
D. Hooper
I. Polk