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Tests of a Cryogenic Gas Cell for Radioactive Ion Beam Experiments[1] K. CHIPPS, Colorado School of Mines, D. BARDAYAN, J. BLACKMON, Oak Ridge National Laboratory, K. CHAE, University of Tennessee, J. EASTBURG, U. GREIFE, Colorado School of Mines, K.L. JONES, University of Tennessee, R. KOZUB, Tennessee Technological University, R. LIVESAY, Colorado School of Mines, B. MOAZEN, University of Tennessee, C.D. NESARAJA, Oak Ridge National Laboratory, S. PAIN, Rutgers University, M. PORTER-PEDEN, F. SARAZIN, Colorado School of Mines, M.S. SMITH, Oak Ridge National Laboratory — The properties of resonances that dominate thermonuclear reaction rates on proton-rich, unstable nuclei can be probed using transfer reactions like (^{3}He,p). In inverse kinematics, this is achieved with a radioactive ion beam and a ^{3}He gas target. A cryogenic gas cell target for such experiments has been constructed at the Colorado School of Mines and tested at Oak Ridge National Laboratory with a stable ^{17}O beam. The gas cell design has been modified several times, and a number of techniques are being explored to reduce the significant yield from background reactions with the window material. Alternatively, a gas jet target with recycling capability could be a better solution to the long-term problem of using rare gases as targets. Results from our beam tests and future plans will be presented.

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