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A comment on 'Some Comments on Gas Mixtures  
in Multiwire Ion Chambers and Multiwire Proportional Chambers'  
TM-461, 14 December, 1973, by M. Atac

F. Hornstra

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The author of the above TM recommended, among other things, the use of helium gas mixtures in ion chambers. It is recognized that from the ion chamber physics considerations, helium gas has some desirable properties for high current density incident beams. There is, however, a dominant consideration which precludes the widespread use of helium in most of the SWIC's and ion chambers at NAL, and that is the following. These chambers typically reside in a retractable anti-vacuum box in the vacuum system. Any diffusion or leakage of helium from these boxes will render the helium leak detection system useless everywhere in the system. Consequently, it is strongly suggested not to use helium or any helium mixture in chambers interfacing the vacuum system.