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Gas Chromatography PATRICK HANSEN, C. STEVEN WHISNANT — To prepare frozen-spin HD targets for photonuclear physics at JLab, high purity HD is required. Commercially available gas is only ∼98% HD. To reach the purity required to make nuclear targets, the gas is distilled at low temperature to remove the H_2 and D_2 impurities. To monitor the distillation process and correlate the gas purity with the spin relaxation times, a low temperature gas chromatograph system has been developed that produces good separation of H_2, HD and D_2. The system uses a PLOT 5A column in a mixture of LN_2 and i-pentane at temperatures between 110K and 135K. With this system, the relative concentrations can be determined with uncertainties of ∼10%. The chromatography process and the resulting chromatograms will be discussed.

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