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New Cross Section Data for the $^{10}B(d,n_0)^{11}C$ Reaction Below 160 keV[1] S. STAVE, M.W. AHMED, M.A. BLACKSTON, A.S. CROWELL, S.S. HENSHAW, C.R. HOWELL, P. KINGSBERRY, B.A. PERDUE, H.R. WELLER, Duke U. & TUNL, B.L. DOYLE, P. ROSSI, A.J. ANTOLAK, Sandia National Lab, R.M. PRIOR, M.C. SPRAKER, NGCSU & TUNL — New data were taken recently at TUNL to investigate the plausibility of using low energy deuterons and the $^{10}B(d,n)^{11}C$ reaction as a source of 6.3 MeV neutrons. A preliminary analysis of the data at and below incident deuteron energies of 160 keV indicates an n_0 neutron cross section that is lower than previous estimates by at least two orders of magnitude. In separate runs, deuterons with three different energies (160, 140 and 120 keV) impinged on a thin layer of ^{10}B and were stopped in the target. The resulting 6.3 MeV n_0 neutrons were detected at 8 angles between 0° and 150°. The angle integrated yields were used to determine the astrophysical S factor for this reaction assuming a constant value for the S factor. The reported cross sections below 160 keV are calculated using the extracted value of the S factor.

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