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High pressure cells for neutron scattering

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A number of high pressure clamp cells (HPCC) was made magnetic and nonmagnetic for diffraction, inelastic and SANS at RT and LT down to 100mk and H up to 10Tesla. For HPCC from TiZr alloy for powder diffraction the maximum pressure rise is 15 kbar. The 2-layer nonmagnetic HPCC up to 40kbar for studying single crystal by polarized neutrons were used. The maximum pressure of 2-layer and 3-layer HPCCs for inelastic neutron scattering studies on powder is 17kbar and for single crystals is 33 kbar. Today, the nonmagnetic HPCC for SANS have max. P of 14 kbar. Pressure mediums used Fluor inert : FC77, FC75 and FC84/87-mixture. Some of the HPCCs have hard steel outer support and hard inner thin cylinder [1]. Other HPCCs made from hard Al, CuBe, TiZr,Ti and NiCrAl alloys [2].

1. SADYKOV R.A., GRUZIN P.L., SUHOPAROV V.A. High Pressure Research, 1995, Vol.14, pp.199-202.
2. R. A. Sadykov, Th. Strassle, A. Podlesnyak, L. Keller, B. Fak, J. Mesot. Journal of Physics: Conf. Series 941 (2017) 012082 doi :10.1088/1742-6596/941/1/01208

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