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LATTICE PROPERTIES OF pTS AS A FUNCTION  
OF POLYMER CONTENT

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Abstract. I. The unit cell parameters of deuterated pTS have been measured by neutron diffraction from 200 to 300 K and as a function of polymer content X from ~0 to >95%, and the evolution with X of the thermal expansion tensor  $\alpha$  has been calculated. The data yield information on the side groups displacement depending on X, and on the anisotropy of matrix response to chain creation.

$\alpha_b$  does not decrease smoothly with X, and shows a secondary maximum just at the beginning of the autocatalytic range.

The expansion in the (a,c) plane is maximum around X = 30% and the corresponding principal axes rotate by about 20° to become aligned with the perpendicular to the molecule long axis.

II. The monomer compressibility tensor  $\chi$  has been measured. The deformations induced by pressure or thermally are similar, contrary to the case of the polymer. This seems to be due to the evolution of  $\alpha$  with X, and may correspond to the decrease of the side-group libration amplitude in the polymer.