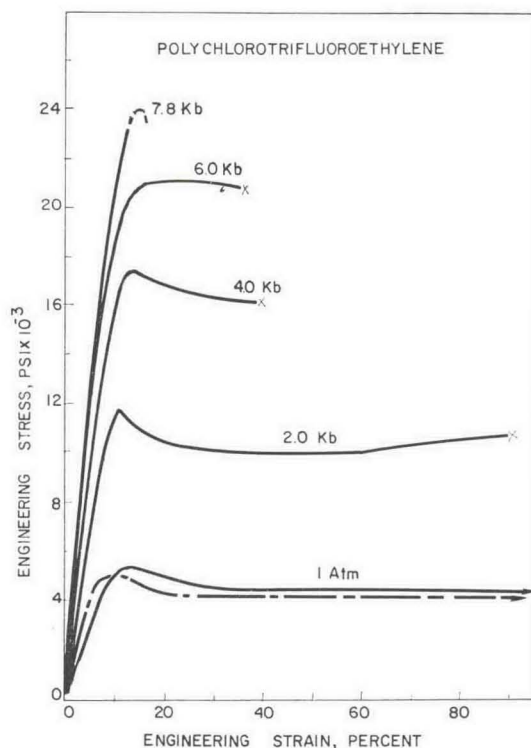


The low-temperature nominal stress-strain curves for polycarbonate are presented in fig. 5. Again there was a general increase of modulus, yield stress and strain, and a decrease of fracture strain, which was quite drastically reduced in the small region between 273°K and 253°K, unlike the high-pressure results.

Fig. 3



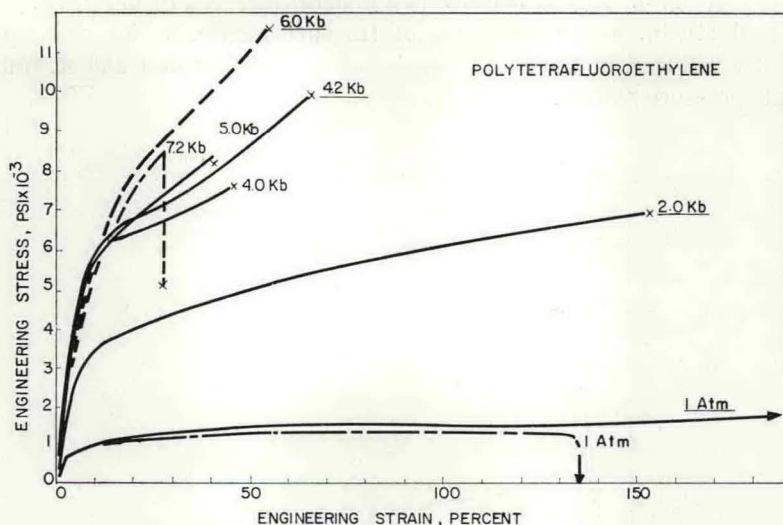
Engineering tensile stress-strain curves for polychlorotrifluoroethylene at various pressures.

3.2.1. Yield criteria

Applied mathematical formulations using relevant parameters have been constructed to predict the failure in any definable stress state. These rely on the condition that when a particular parameter reaches some 'critical' value by application of a system of stresses, the specimen will fail. For yielding, the most useful parameters are the maximum and octahedral shear stresses, τ_{\max} and τ_{oct} †, respectively. If the critical value of this

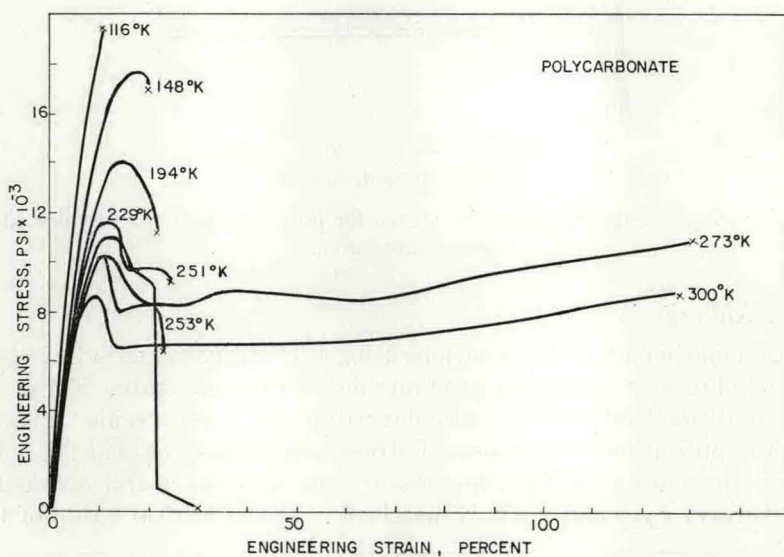
† The magnitude of the maximum shear stress τ_{\max} is calculated as $(\sigma_1 - \sigma_3)/2$, where σ_1 and σ_3 are the algebraically largest and smallest principal normal stresses, respectively. The octahedral shear stress is equal to $[(\sigma_1 - \sigma_2)^2 + (\sigma_2 - \sigma_3)^2 + (\sigma_3 - \sigma_1)^2]^{1/2}/3$.

Fig. 4



Engineering tensile stress-strain curves for polytetrafluoroethylene at various pressures.

Fig. 5



Engineering tensile stress-strain curves for polycarbonate at various temperatures.