

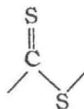
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CONTRIBUTION FROM BELL LABORATORIES,
MURRAY HILL, NEW JERSEY 07974**Pressure-Induced Polymerization and
Decomposition of Carbon Subulfide**

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At pressures of about 45 kbars and temperatures in the range 165–235° or at 27 kbars and 220–280°, carbon disulfide slowly transforms into a black polymer $(CS_2)_x$ which gives a broad, diffuse X-ray diffraction pattern.^{1,2} The infrared spectrum of the black solid is consistent with the presence of the repeating unit



A black polymeric solid is also slowly formed by carbon subulfide at atmospheric pressure and room temperature.³ This has the stoichiometry $(C_3S_2)_x$, and an infrared investigation⁴ has shown the presence of $\nu(C=C)$ bands at almost the same frequencies as in the carbon suboxide polymer $(C_3O_2)_x$. Bands due to $\nu(C=S)$ and $\nu(C-S)$ are also reported to be present. Since we had available considerable quantities of liquid carbon subulfide from our study of its use as a ligand for transition metals,⁵ it appeared to be of interest to examine the effect of pressure on its polymerization and decomposition.

Experimental Section

Infrared spectra were measured with a Perkin-Elmer Model

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