

# **Studies on the Copolymer Composition of Sulphur dioxide and Phenylacetylene**

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## **ABSTRACT**

The polysulfones synthesized from liq. SO<sub>2</sub> and phenylacetylene in the presence of tert-Bu hydroperoxide at low temp. always had an alternating structure which was independent of solvent, temp., and feed ratio. At a relatively high temp. (50°) the phenylacetylene/SO<sub>2</sub> system initiated by AIBN gave copolymers with a 1:1 mol ratio. The free radical initiators H<sub>2</sub>O<sub>2</sub>, m-chloroperbenzoic acid, and Ph<sub>2</sub>O<sub>2</sub> were inert at low temps. PhC≡CH/SO<sub>2</sub> system with (CH<sub>3</sub>)<sub>3</sub>COOH at low temp. was more reactive than PhCH=CH<sub>2</sub>/SO<sub>2</sub> but with AIBN at high temp. the reactivities were reversed. These observations suggested that different mechanisms should operate on the 2 systems.