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Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

THE MEDIUM EFFECTS IN THE SULPHONATION OF POLYCYCLIC AROMATIC HYDROCARBONS

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To cite this Article Kachurin, Olep I. , Velichko, Ljubov I. and Zarajskii, Anatolil P.(1979) 'THE MEDIUM EFFECTS IN THE SULPHONATION OF POLYCYCLIC AROMATIC HYDROCARBONS', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 6: 1, 153

To link to this Article: DOI: 10.1080/03086647908080350

URL: <http://dx.doi.org/10.1080/03086647908080350>

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THE MEDIUM EFFECTS IN THE SULPHONATION
OF POLYCYCLIC AROMATIC HYDROCARBONS

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Both the relative reactivities and the initial isomer distributions in the sulphonation of polycyclic hydrocarbons were found to be strongly dependent on the composition of reaction medium.

At high sulphuric acid contents in its nitrobenzene solutions the positional reactivities of biphenyl, naphthalene, phenanthrene and fluoranthene are in reasonable accordance with the theoretical predictions, whereas dilution of the systems with nitrobenzene causes more or less full failure of this regularity. The partial rate factors for some of positions (2-naphthalene, 3- and 2-phenanthrene, 1-pyrene and 8-fluoranthene) in the diluted systems seems to be anomalously high. It was proved that such medium effects are not accompanied by the change of kinetic law and hence, of reaction mechanism; thus they are based just on the solvation. Besides of nucleophylic and electrophylic solvation, for polycyclic hydrocarbons it may have a great importance non-specific solvation which determines the degree of induction interactions contribution in the free energy of activation.