RADICAL PRODUCTION IN THE RADIOLYSIS OF BENZENE

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Benzene is the prototypical aromatic compound and yet the radiation chemistry of the radicals formed in its radiolysis is not well understood. Temporal information on the yield of phenyl radical, the major radical produced in the radiolysis, is important for understanding the radiation chemistry of many other types of aromatic compounds including some polymers. The effects of track structure on the production of phenyl radicals have been examined using iodine-scavenging techniques. The variation of the yields of iodobenzene and the other major molecular products such as biphenyl as a function of iodine concentration gives a good indication of the competition kinetics occurring in particle tracks. Experimental results of the scavenger experiments will be shown and their implications in the radiolysis of condensed hydrocarbons will be discussed.