



Unimolecular Photodissociation Dynamics of Ketene (CHCO): The Singlet/Triplet Branching Ratio and Experimental Observation of the Vibrational Level Thresholds of the Transition-State

By U. S. Department of Energy Office of Scientific and Technical Information (OSTI)

Biblioscholar Jan 2013, 2013. Taschenbuch. Book Condition: Neu. 246x189x13 mm. This item is printed on demand - Print on Demand Neuware - The rotational distributions of CO products from the dissociation of ketene at photolysis energies 10 cm1} below, 56, 110, 200, 325, 425, 1,107, 1,435, 1,720, and 2,500 cm1} above the singlet threshold, are measured in a supersonic free jet of ketene. The CO(v = 0) rotational distributions at 56, 110, 200, 325, and 425 cm1} are bimodal. The peaks at low J`s, which are due to CO from the singlet channel, show that the product rotational distribution of CO product from ketene dissociation on the singlet surface is well described by phase space theory (PST). For CO(v = 0) rotational distributions at higher excess energies, the singlet and triplet contributions are not clearly resolved, and the singlet/triplet branching ratios are estimated by assuming that PST accurately predicts the CO rotational distribution from the singlet channel and that the distribution from the triplet channel changes little from that at 10 cm1} below the singlet threshold. At 2,500 cm1} excess energy, the CO(v = 1) rotational distribution is obtained, and the ratio of CO(v = 1) to CO(v = 0)...



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