CONFORMATIONAL STUDY OF SECONDARY ORGANIC AEROSOL PRECURSORS CONTAINING INTERNAL ROTATIONS: CASES OF METHYL ANISOLE ISOMERS

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Methyl anisole (MA), also known as methoxytoluene, exists as three isomers with the ring methyl group in ortho, meta, and para position relative to the methoxy group. Despite the similarity of their chemical properties, the effect of methyl internal rotation which often depends on the steric and electronic surroundings can be completely different. In the other hand, This species is very important as a secondary organic aerosol precursor.

In our present study, we focus on the millimeter wave studies on ortho, meta and para-methyl anisole in the 70-330 GHz frequency domain in order to complete the previous microwave studies between 2-40 GHz on the ground state [a, b, c] and to determine internal rotation higher order parameters by analysis of the rotational structures in the excited states. Our millimeter wave spectra are measured at room temperature, which allow observing rotational structures in the ground and low-energy vibrationally excited states. Thus, we could determine precisely the V_6 potential barriers and evaluate their contributions.

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