

SPECTRAL ANALYSIS OF A METHYLAMINE AND OZONE MIXTURE

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Aminomethanol is predicted to be present in the interstellar medium (ISM) as a reaction product of radical chemistry in ice mantles on interstellar grains. Aminomethanol is of particular interest as it is a precursor molecule in the reaction predicted to form glycine, the simplest amino acid, in the ISM. Under terrestrial conditions, aminomethanol is unstable and thus must be produced in a supersonic expansion for spectral characterization. Previous work in our lab has used the photolysis of ozone to form electronically excited oxygen atoms, $O(^1D)$, which insert into a C-H bond in methylamine to form aminomethanol. Analysis of this spectrum, however, has proved difficult due to a significant number of transitions present in the spectrum as a result of the reaction of ozone with methylamine. We have performed a study collecting the spectra of methylamine and ozone mixtures under dark conditions to determine the reaction products and assign the spectra in order to clarify the spectral measurements under photolysis conditions. We will report on this analysis, including the assignment of previously unassigned vibrationally excited states of methylamine up to 1 THz.