# PROBING THE CONFORMATIONAL BEHAVIOR OF THE $C_3$ ALKYL-SUBSTITUTED CRIEGEE INTERMEDIATES BY FTMW SPECTROSCOPY

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Carbonyl oxides ($R_1R_2COO$), often called Criegee intermediates (CIs), have been assumed as intermediates generated by the ozonolysis reaction of alkenes, and are thought to play important roles in atmospheric chemistry. After the first laboratory observation of the simplest CI, $CH_2OO$, their experimental characterization has been drastically progressing. Especially alkyl-substituted CIs have attracted much attention. Here we report rotational spectra of alkyl-substituted CIs with three carbon atoms in the substituent groups, named $C_3$ alkyl-substituted CIs. This group includes methyl-ethyl-ketone oxide or 2-butanone oxide ($C_2H_5CCH_3OO$) and its structural isomers n-butyraldehyde oxide ($C_3H_7CHOO$) and isobutyraldehyde oxide ($(CH_3)_2CHCHOO$). These molecules have been produced in the discharge plasma of diiodo-alkyl-derivative/$O_2$ gas mixtures, and characterized by Fourier-transform microwave spectroscopy. For the first of them, $C_2H_5CCH_3OO$, four different conformers were observed coexisting in the supersonic expansion. Spectra of the four species show small splittings due to the threefold methyl internal rotation which made possible to determine their respective barrier heights of the hindered methyl rotation. Preliminary results of the ongoing investigation of $C_3H_7CHOO$ and $(CH_3)_2CHCHOO$ molecules are also presented.