OBSERVATION OF VINOXY (CH_2CHO) RADICAL IN OZONOLYSIS REACTIONS OF 2-BUTENES USING CAVITY RING-DOWN SPECTROSCOPY

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Ozonolysis reactions of alkenes are important oxidation pathways of alkenes in the atmosphere, and they are also significant sources of tropospheric hydroxyl radicals. In this work, ozone reactions with *trans*- and *cis*-2-butene are studied using cavity ring-down spectroscopy (CRDS). Vinoxy (CH_2CHO) radical, a proposed co-product of OH from dissociation of Criegee intermediates following the primary ozonolysis of 2-butenes, is observed. The vinoxy formation is found to decrease drastically with increasing pressure. These results, along with quantum chemistry studies, suggest that the Criegee intermediate *syn*-CH_3CHOO, produced from dissociation of the 2-butene primary ozonides, could isomerize to CH_2CHOOH and then dissociate into the CH_2CHO + OH products.