

## Cl-initiated oxidation of alkyl acetates in the troposphere

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Oxygenated volatile organic compounds (OVOC) have been widely released into the atmosphere by evaporation during their use in industrial activities, and are also known as products of atmospheric oxidation of VOCs. Among the OVOCs, esters are well-known as their industrial applications such as organic solvents in paints and adhesives. Esters are also found as products of the oxidation of ethers. The increase uses of ether in the automobile fuel additives and the development of biofuel are increasing the concern about the atmospheric degradation process of esters.

In the current study, the reactions of seven alkyl acetates with chlorine atoms were subjected and the degradation rate constants of the acetates were investigated by both absolute and relative kinetic measurement. The absolute measurement was conducted in Kyoto Univ. by using pulsed laser photolysis / vacuum ultraviolet laser-induced fluorescence(PLP/VUV-LIF) technique in nitrogen diluent at 2-7 Torr, while the relative rate measurement was done in Ford Motor Company by using FT-IR absorption in nitrogen diluent at 700 Torr. Results from both techniques have excellent agreements. Reaction mechanisms and their atmospheric implication will be discussed at the presentation.