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Relative rate coefficients of OH radical reactions and Ozone Depletion Potential estimate for CF3CF=CClCF3

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The relative rate method was used to determine the rate coefficients for the reactions of OH radicals with CF3CF=CClCF3 (k). Experiments were carried out at (298 ± 2) K and atmospheric pressure using ultra pure air or ultra pure nitrogen as the gas bath. The k value was measured relative to those of chloroethane and ethane. The rate coefficient derived in units of cm^3 $molecule^{-1}$ s^{-1} was k = (3.3 ± 0.9) 10^{-13}. This is the first experimental determination of k. The rate coefficient was used to estimate the atmospheric lifetime for the studied haloalkene considering the OH-initiated oxidation process. The ozone depletion potential (ODP) for CF3CF=CClCF3 was estimated following a recently-developed technique based on Lagrangian trajectories, which takes into account the time and location of the release of the short-lived halogenated species.