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## Atmospheric chemistry of trans-CF<sub>3</sub>CH=CHF: products and mechanisms of hydroxyl radical and chlorine atom initiated oxidation

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**Abstract.** Smog chamber/FTIR techniques were used to study the products and mechanisms of OH radical and Cl atom initiated oxidation of trans-CF<sub>3</sub>CH=CHF in 700 Torr of N<sub>2</sub>/O<sub>2</sub> diluent at 295±1 K. Hydroxyl radical initiated oxidation leads to the formation of CF<sub>3</sub>CHO and HC(O)F in yields which were indistinguishable from 100% and were not dependent on the O<sub>2</sub> partial pressure. Chlorine atom initiated oxidation gives HC(O)F, CF<sub>3</sub>CHO, CF<sub>3</sub>C(O)Cl, and CF<sub>3</sub>C(O)CHFCl. The yields of CF<sub>3</sub>C(O)Cl and CF<sub>3</sub>C(O)CHFCl increased at the expense of HC(O)F and CF<sub>3</sub>CHO as the O<sub>2</sub> partial pressure was increased over the range 5–700 Torr. The results are discussed with respect to the atmospheric chemistry and environmental impact of trans-CF<sub>3</sub>CH=CHF.

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