

IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation - Data Sheet of FOx104; VII.A5.23

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Rate coefficient data ($k = k_1$)

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	T/K	Reference	Technique/ Comments
<i>Relative Rate Coefficients</i> $< 5 \times 10^{-16}$	296	Taniguchi et al. (2003)	RR (a)

Comments

- (a) HO radicals were generated by photolysis of ozone at 254 nm in the presence of water vapor in 200 Torr (266 mbar) of helium diluent. The loss of $\text{C}_2\text{F}_5\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$ was measured relative to CH_4 and CH_3Cl . Following the generation of OH radicals in the system, CH_4 and CH_3Cl were observed to decay, but there was no discernible loss (<2%) of $\text{C}_2\text{F}_5\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$ (over and above that ascribed to photolysis). Using $k(\text{HO}+\text{CH}_4) = 6.4 \times 10^{-15}$ (Atkinson et al., 2006) an upper limit of $k(\text{HO}+\text{C}_2\text{F}_5\text{C}(\text{O})\text{CF}(\text{CF}_3)_2) < 5 \times 10^{-16} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ was derived.

Preferred Values

Parameter	Value	T/K
$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$< 5 \times 10^{-16}$	298

Comments on Preferred Values

The recommendation is based on the study by Taniguchi et al. (2008).

References

Atkinson, R., Baulch, D. L., Cox, R. A., Crowley, J. N., Hampson, R. F., Hynes, R. G., Jenkin, M. E., Rossi, M. J., and Troe, J.: Atmos. Chem. Phys., 6, 3625, 2006; IUPAC Subcommittee for Gas Kinetic Data Evaluation, <http://iupac.pole-ether.fr>.

Taniguchi, N., Wallington, T. J., Hurley, M. D., Guschin, A. G., Molina, L. T., and Molina, M. J.: J. Phys. Chem. A., 107, 2674, 2003.