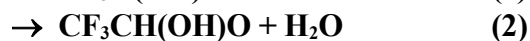
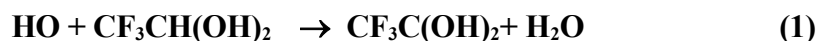


## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation - Data Sheet of FOx96; VII.A5.15

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The citation for the preferred values in this data sheet is: IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, <http://iupac.pole-ether.fr>.

This datasheet last evaluated: June 2015; last change in preferred values: June 2009.



### Rate coefficient data ( $k = k_1 + k_2$ )

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$T/\text{K}$	Reference	Technique/ Comments
<i>Relative Rate Coefficients</i>			
$(1.18 \pm 0.11) \times 10^{-12}$	296	Andersen et al. (2006)	RR (a)
$(1.14 \pm 0.12) \times 10^{-12}$	296		

### Comments

- (a) HO radicals were generated by the photolysis of  $\text{CH}_3\text{ONO}$  in 700 Torr (933 mbar) of air. Separate experiments were performed using  $\text{C}_2\text{H}_2$  and  $\text{C}_2\text{H}_4$  as references. Rate coefficient ratios of  $k(\text{HO}+\text{CF}_3\text{CH}(\text{OH})_2)/k(\text{HO}+\text{C}_2\text{H}_2) = 0.146 \pm 0.015$  and  $k(\text{HO}+\text{CF}_3\text{CH}(\text{OH})_2)/k(\text{HO}+\text{C}_2\text{H}_4) = 0.0149 \pm 0.0014$  were reported. Using  $k(\text{HO}+\text{C}_2\text{H}_2) = 7.8 \times 10^{-13}$  and  $k(\text{HO}+\text{C}_2\text{H}_4) = 7.9 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$  (Atkinson et al., 2006) gives  $k(\text{HO}+\text{CF}_3\text{CH}(\text{OH})_2) = (1.14 \pm 0.12) \times 10^{-13}$  and  $(1.18 \pm 0.11) \times 10^{-13} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ .

### Preferred Values

Parameter	Value	T/K
$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$1.2 \times 10^{-13}$	298
<i>Reliability</i>		
$\Delta \log k$	0.20	298

### Comments on Preferred Values

The recommendation is based upon the average of the two determinations by Andersen et al. (2006). Andersen et al. (2006) reported that the chlorine atom initiated oxidation of  $\text{CF}_3\text{CH}(\text{OH})_2$  in 700 Torr (933 mbar) of air gives  $\text{CF}_3\text{C}(\text{O})\text{OH}$  in a molar yield of  $101 \pm 6\%$ . The HO radical initiated of  $\text{CF}_3\text{CH}(\text{OH})_2$  is expected to give  $\text{CF}_3\text{C}(\text{O})\text{OH}$  in essentially 100% yield.

### References

- Andersen, M. P. S., Nielsen, O. J., Hurley, M. D., Ball, J. C., Wallington, T. J., Ellis, D. A., Martin, J. W., and Mabury, S. A.: *J. Phys. Chem. A*, 109, 1849, 2005.
- 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>.