

## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation - Data Sheet of FOx92; VII.A5.9

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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> $(9.4 \pm 0.8) \times 10^{-14}$	296	Hurley et al. (2004)	RR (a)

### Comments

- (a) HO radicals were generated by the photolysis of  $\text{CH}_3\text{ONO}$  in 700 Torr (933 mbar) of air. Experiments were performed with  $\text{C}_x\text{F}_{2x+1}\text{CH}_2\text{OH}$  ( $x = 1, 2, 3,$  and  $4$ ). There was no discernable difference in the reactivity of  $\text{C}_x\text{F}_{2x+1}\text{CH}_2\text{OH}$  molecules investigated and the composite data set was analyzed together. A rate coefficient ratio of  $k(\text{HO} + \text{C}_x\text{F}_{2x+1}\text{CH}_2\text{OH})/k(\text{HO} + \text{C}_2\text{H}_2) = 0.12 \pm 0.01$  was reported. Using  $k(\text{HO} + \text{C}_2\text{H}_2) = 7.8 \times 10^{-13} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$  (Atkinson et al., 2006) gives  $k(\text{HO} + \text{C}_4\text{F}_9\text{CH}_2\text{OH}) = (9.4 \pm 0.8) \times 10^{-14} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ .

### Preferred Values

Parameter	Value	$T/\text{K}$
$k / \text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$9.4 \times 10^{-14}$	298
<i>Reliability</i> $\Delta \log k$	$\pm 0.15$	298

### Comments on Preferred Values

The recommendation is based upon the sole study of this reaction by Hurley et al. (2004).

### 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>.  
Hurley, M. D., Wallington, T. J., Andersen, M. P. S., Ellis, D. A., Martin, J. W., and Mabury, S. A.: J. Phys. Chem. A, 108, 1973, 2004.