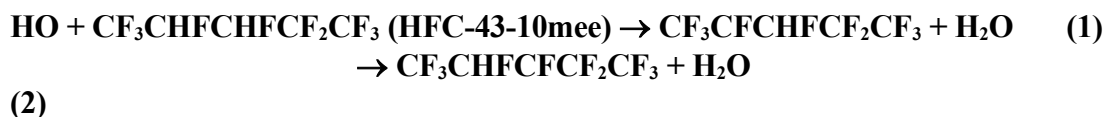


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation - Data Sheet of FOx81; VII.A1.10

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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/K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$4.21 \times 10^{-13} \exp[-(1400 \pm 180)/T]$	250-400	Zhang et al. (1992)	FP-RF (a)
$(3.87 \pm 0.38) \times 10^{-15}$	295		
$6.46 \times 10^{-13} \exp[-(1600 \pm 50)/T]$	251.5-375	Schmoltner et al. (1993)	PLP-LIF (b)
$(2.88 \pm 0.20) \times 10^{-15}$	296		

Comments

- (a) HO radicals were produced by the flash photolysis ($\lambda \geq 165 \text{ nm}$) of H_2O in 35 Torr (47 mbar) of argon diluent.
- (b) HO radicals were produced by the flash photolysis ($185 \text{ nm} \geq \lambda \geq 165 \text{ nm}$) of H_2O .

Preferred Values

Parameter	Value	T/K
$k / \text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	3.3×10^{-15}	298
$k / \text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$5.68 \times 10^{-13} \exp(-1534/T)$	240-400
<i>Reliability</i>		
$\Delta \log k$	0.15	298
$\Delta E/R$	± 300	240-400

Comments on Preferred Values

The rate coefficients measured by Schmoltner et al. (1993) are approximately 20% lower than, but consistent with the experimental uncertainties with, those reported by Zhang et al. (1992). The temperature dependence of the rate coefficients reported by Schmoltner et al. (1993) and Zhang et al. (1992) are in good agreement. There being no obvious reason to prefer either study we have fit the Arrhenius expression to the combined data set from Zhang et al. (1992) and Schmoltner et al. (1993) to give the recommended expression.

References

- Zhang, Z., Saini, R.D., Kurylo, M.J., and Huie, R. E.: Chem. Phys. Lett., 200, 230, 1992.
- Schmoltner, A. M., Talukdar, R. K., Warren, R. F., Mellouki, A., Goldfarb, L., Gierczak, T., McKeen, S. A., and Ravishankara, A. R.: J. Phys. Chem., 97, 8976, 1993.

