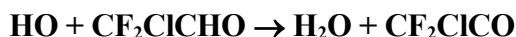


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet oClOx67

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This datasheet last evaluated: June 2015; last change in preferred values: November 2003.



Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$(9.5 \pm 0.5) \times 10^{-13}$	298 ± 2	Scollard et al., 1993	PLP-RF
<i>Relative Rate Coefficients</i>			
$(6.9 \pm 0.5) \times 10^{-13}$	298 ± 2	Scollard et al., 1993	RR (a)

Comments

- (a) HO radicals were generated by the photolysis of CH₃ONO or C₂H₅ONO in CH₃ONO (or C₂H₅ONO)-CF₂ClCHO-ethanol-air mixtures at 987 ± 13 mbar pressure. The concentrations of CF₂ClCHO and ethanol were measured by GC and/or FTIR spectroscopy. Scollard et al. (1993) did not report a value for the rate coefficient ratio $k(\text{HO} + \text{CF}_2\text{ClCHO})/k(\text{HO} + \text{ethanol})$. Dividing the reported value of $k(\text{HO} + \text{CF}_2\text{ClCHO})$ by the value of $k(\text{HO} + \text{ethanol})$ used by Scollard et al. (1993) gives $k(\text{HO} + \text{CF}_2\text{ClCHO})/k(\text{HO} + \text{ethanol}) = 0.214 \pm 0.015$ which is placed on an absolute basis in the table above using a rate coefficient of $k(\text{HO} + \text{ethanol}) = 3.2 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ at 298 K (Atkinson et al., 2006).

Preferred Values

Parameter	Value	T/K
$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	8.2×10^{-13}	298
<i>Reliability</i>		
$\Delta \log k$	± 0.25	298

Comments on Preferred Values

The preferred value is an average of the absolute and relative rate coefficients of Scollard et al. (1993).

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 Task Group on Atmospheric Chemical Kinetic Data Evaluation, <http://iupac.pole-ether.fr>
Scollard, D. J., Treacy, J. J., Sidebottom, H. W., Balestra-Garcia, C., Laverdet, G., LeBras, G.,

MacLeod, H. and Téton, S.: J. Phys. Chem., 97, 4683, 1993.