IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet oFOx108

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This data sheet last evaluated: September 2011; last change in preferred values: September 2011.

$Cl + CHF_2CH_2CF_3$ (HFC-245fa) $\rightarrow CF_2CH_2CF_3 + HCl$ (1)

$\rightarrow CHF_2CHCF_3 + HCl$ (2)

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

k/cm^3 molecule^{-1} s^{-1}	T/K	Reference	Technique/ Comments
Relative Rate Coefficients			
$(6.89 \pm 0.81) \times 10^{-15}$	297	Chen et al. (1997)	(a)

Comments

(a) Cl atoms were generated by the photolysis of Cl_2 in $CHF_2CH_2CF_3/CF_3CHClF/Cl_2$ mixtures in 700 Torr (933 mbar) of N_2. The decays of $CHF_2CH_2CF_3/CF_3CHClF$ were measured by FTIR spectroscopy. The measured rate coefficient ratio of $k(Cl+CHF_2CH_2CF_3)/ k(Cl+CF_3CHClF) = 2.55 \pm 0.30$ was placed on an absolute basis using $k(Cl+CF_3CHClF) = 2.7 \times 10^{-15}$ cm^3 molecule^{-1} s^{-1} (Atkinson et al., 2008).

Preferred Values

Parameter	Value	T/K
k /cm^3 molecule^{-1} s^{-1}	6.9×10^{-15}	298
Reliability		
$\Delta \log k$	± 0.15	298

Comments on Preferred Values

The recommended value is based on the study by Chen et al. (1997).

References

Atkinson, R., Baulch, D. L., Cox, R. A., Crowley, J. N., Hampson, R. F., Hynes, R. G., Jenkin, M. E., Rossi, M. J., Troe, J., and Wallington, T. J.: Atmos. Chem. Phys., 9, 4141, 2008; IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, http://iupac.pole-ether.fr.

Chen, J., Young, V., Niki, H., and Magid, H.: J. Phys. Chem., A, 101, 2648, 1997.