

IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet X_VOC26

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Cl + 1-C₄H₉ONO₂ → products

Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Relative Rate Coefficients</i>			
$(8.54 \pm 0.20) \times 10^{-11}$	298	Nielsen <i>et al.</i> , 1991 ¹	RR (a)

Comments

- (a) Cl atoms were generated by the photolysis of Cl₂ in Cl₂-*n*-butyl nitrate-C₂H₆-N₂ mixtures at 1 bar pressure. Concentrations of *n*-butyl nitrate and C₂H₆ were measured by GC, and the rate coefficient ratio placed on an absolute basis by use $k(\text{Cl} + \text{C}_2\text{H}_6) = 5.9 \times 10^{-11} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1.2}$

Preferred Values

$k = 8.5 \times 10^{-11} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ at 298 K.

Reliability

$\Delta \log k = \pm 0.3$ at 298 K.

Comments on Preferred Values

Based on the sole study of Nielsen *et al.*,¹ with expanded uncertainty limits.

References

- ¹ O. J. Nielsen, H. W. Sidebottom, M. Donlon, and J. Treacy, *Chem. Phys. Lett.* **178**, 163 (1991).
² IUPAC (2013), <http://iupac.pole-ether.fr>