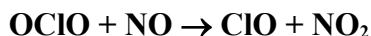


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet iClOx40

Website: <http://iupac.pole-ether.fr>. See website for latest evaluated data. Data sheets can be downloaded for personal use only and must not be re-transmitted or disseminated either electronically or in hard copy without explicit written permission.

This data sheet updated: 23th July 2003.



$$\Delta H^\circ = -50.0 \text{ kJ}\cdot\text{mol}^{-1}$$

Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$(3.4 \pm 0.5) \times 10^{-13}$	298	Bemand, Clyne, and Watson, 1973 ¹	DF-MS
$1.04 \times 10^{-13} \exp[(347 \pm 58)/T]$	220-367	Li, Wuebbles, and Pylawka, 2002	DF-MS
$(3.55 \pm 0.3) \times 10^{-13}$	298		

Preferred Values

$$k = 3.6 \times 10^{-13} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1} \text{ at } 298 \text{ K.}$$

$$k = 1.1 \times 10^{-13} \exp(350/T) \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1} \text{ over the temperature range } 220 - 370 \text{ K.}$$

Reliability

$$\Delta \log k = \pm 0.15 \text{ at } 298 \text{ K.}$$

$$\Delta(E/R) = \pm 200.$$

Comments on Preferred Values

The two available studies of this reaction,^{1,2} both using the same method, show good agreement at the common temperature, 298 K, and the recommendation at this temperature is the average result. The recommended temperature dependence is provided by the study of Li *et al.*² with a slight correction to the preexponential factor to match the preferred value at 298 K.

References

- ¹ P. P. Bemand, M. A. A. Clyne, and R. T. Watson, *J. Chem. Soc. Faraday Trans. 1*, **69**, 1356 (1973).
- ² Z. Li, R. D. Wuebbles, and N.J. Pylawka, *Chem. Phys. Lett.* **354**, 491 (2002).