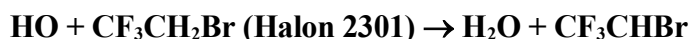


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet oBrOx7

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 retransmitted or disseminated either electronically or in hardcopy without explicit written permission.

This data sheet updated: 29th March 2005.



Rate coefficient data

| $k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ | Temp./K | Reference | Technique/Comments |
|--|---------|----------------------------|--------------------|
| <i>Absolute Rate Coefficients</i> | | | |
| $8.5 \times 10^{-13} \exp[-(1113 \pm 35)/T]$ | 298-460 | Orkin and Khamaganov, 1993 | DF-EPR |
| $(2.05 \pm 0.16) \times 10^{-14}$ | 298 | | |
| $1.39 \times 10^{-12} \exp[-(1350 \pm 195)/T]$ | 280-353 | Nelson et al., 1993 | DF-LIF |
| $(1.45 \pm 0.13) \times 10^{-14}$ | 294 | | |

Preferred Values

$k = 1.6 \times 10^{-14} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ at 298 K.

$k = 1.4 \times 10^{-12} \exp(-1340/T) \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ over the temperature range 280-460 K.

Reliability

$\Delta \log k = \pm 0.2$ at 298 K.

$\Delta(E/R) = \pm 300$ K.

Comments on Preferred Values

The rate coefficients of Nelson et al. (1993) are ~15-25% lower than those of Orkin and Khamaganov (1993) over the temperature range common to both studies (298-353 K). A least-squares analysis of the rate coefficients of Orkin and Khamaganov (1993) and Nelson et al. (1993) yields the preferred Arrhenius expression.

References

Nelson Jr., D. D., Zahniser, M. S. and Kolb, C. E.: Geophys. Res. Lett. 20, 197, 1993.

Orkin, V. L. and Khamaganov, V. G.: J. Atmos. Chem. 16, 169, 1993.