

IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet oBrOx6

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.

HO + CF₂Br₂ (Halon 1202) → products

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/Comments
<i>Absolute Rate Coefficients</i>			
$< 4.0 \times 10^{-16}$	384-424	Burkholder et al., 1991	DF-LMR/PLP-LIF
$< 5.0 \times 10^{-16}$	298		

Preferred Values

$k < 5.0 \times 10^{-16} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ at 298 K.

$k < 1.0 \times 10^{-12} \exp(-2200/T) \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ over the temperature range 250-460 K.

Comments on Preferred Values

The preferred upper limit is based on the sole study of Burkholder et al. (1991). The preferred upper limit to the rate coefficient at 298 K is confirmed by the values of $k < 4 \times 10^{-16} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ measured at 384 and 424 K. The A-factor for the reaction was estimated to be $\sim 1 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$. The lower limit for E/R was estimated to be >2200 K based on the upper limit value of the rate coefficient determined by Burkholder et al. (1991) at 298 K.

References

Burkholder, J. B., Wilson, R. R., Gierczak, T., Talukdar, R., McKeen, S. A., Orlando, J. J., Vaghjiani, G. L. and Ravishankara, A. R.: J. Geophys. Res. 96, 5025, 1991.