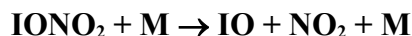


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet iIOx20

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: 6th June 2007.



$$\Delta H^\circ = 79 \text{ kJ}\cdot\text{mol}^{-1}$$

Falloff range

No direct measurements are available.

Preferred Values

$k(1\text{ bar of air}) = 1.1 \times 10^{15} \exp(-12060/T) \text{ s}^{-1}$ over the temperature range 240-305 K.

$k(1 \text{ bar of air}) = 2.9 \times 10^{-3} \text{ s}^{-1}$ at 298 K.

Reliability

$\Delta \log k = \pm 1$ at 300 K.

$\Delta E/R = \pm 500 \text{ K}$.

Comments on Preferred Values

The expression was obtained by Allan and Plane (2002) by inverting an RRKM fit of rate coefficient measurements of the reverse reaction. Measurements of IO profiles at 473 K and 300 Torr indicated the presence of IONO₂ dissociation which is consistent with the proposed rate expression.

References

Allan, B. J. and Plane, J. M. C.: J. Phys. Chem. A, 106, 8634, 2002.