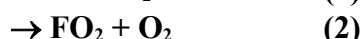


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet iFOx10

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This datasheet last evaluated: June 2014; last change in preferred values: September 2003.



$$\Delta H^\circ(1) = -172 \text{ kJ}\cdot\text{mol}^{-1}$$

$$\Delta H^\circ(2) = -226 \text{ kJ}\cdot\text{mol}^{-1}$$

Rate coefficient data ($k = k_1 + k_2$)

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$<1.2 \times 10^{-12}$	298	Sehested et al., 1994	PR-UVA (a)
$<1 \times 10^{-14}$	298	Li et al., 1995	DF-MS (b)

Comments

- (a) Pulse radiolysis-UV absorption spectroscopy technique at 18 bar total pressure. FO_2 radicals and O_3 were monitored in absorption at 220 nm and 288 nm, respectively.
- (b) Discharge flow-mass spectrometric technique at 1 mbar total pressure. FO radicals were produced in the reaction of F atoms with excess O_3 . No appreciable decay of FO radicals was observed, only a small increase in FO_2 radical concentrations was detected, and the concentration of O_3 was unchanged, allowing the upper limit to k tabulated above to be derived.

Preferred Values

Parameter	Value	T/K
$k / \text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$<1 \times 10^{-14}$	298

Comments on Preferred Values

The recommended upper limit to the rate coefficient is based on the results of Li et al. (1995). A much higher upper limit was reported by Sehested et al. (1994). A much lower upper limit was derived by Colussi and Grela (1994) from a re-analysis of data that had been reported by Staricco et al. (1962) for ozone destruction quantum yields in the F_2 -photosensitized decomposition of ozone. Results of the recent, more direct study of Li et al. (1995) are preferred over the much earlier results reported by Staricco et al. (1962).

References

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