IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet iFOx1

The citation for this data sheet is: Atkinson, R., Baulch, D. L., Cox, R. A., Crowley, J. N., Hampson, R. F., Hynes, R. G., Jenkin, M. E., Rossi, M.J., and Troe, J.: Atmos. Chem. Phys., 7, 891, 2007; IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, http://iupac.pole-ether.fr.
This datasheet last evaluated: June 2014; last change in preferred values: June 1997.

$$O + FO \rightarrow O_2 + F$$

$\Delta H° = -279$ kJ·mol^{-1}

Rate coefficient data

k/cm^3 molecule^{-1} s^{-1}	Temp./K	Reference	Technique/ Comments
Absolute Rate Coefficients			
$(2.7 \pm 0.2) \times 10^{-11}$	298	Bedzhanyan et al., 1993	DF-LMR (a)

Comments

(a) Pseudo-first-order decays of FO radicals in the presence of excess O(^{3}P) atoms were monitored by LMR. O(^{3}P) atom concentrations were determined by EPR.

Preferred Values

Parameter	Value	T/K
k /cm^3 molecule^{-1} s^{-1}	2.7×10^{-11}	298
Reliability		
$\Delta \log k$	± 0.3	298

Comments on Preferred Values

The preferred value is based on the results of the study of Bedzhanyan et al. (1993) the sole study of this reaction. The temperature dependence of the rate constant is expected to be small for such an atom-radical process, as for the analogous ClO radical reaction.

References

Bedzhanyan, Yu. R., Markin, E. M., Politenkova, G. G. and Gershenzon, Yu. M.: Kinet. Catal. 33, 797, 1993; original pages 998-1003, 1992.