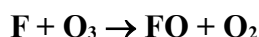


## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet iFOx8

Website: <http://iupac.pole-ether.fr>. See website for latest evaluated data. Datasheets can be downloaded for personal use only and must not be retransmitted or disseminated either electronically or in hardcopy without explicit written permission.

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



$$\Delta H^\circ = -113 \text{ kJ}\cdot\text{mol}^{-1}$$

### Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$2.8 \times 10^{-11} \exp[-(226 \pm 200)/T]$	253-365	Wagner, et al., 1972	DF-MS (a)
$1.3 \times 10^{-11}$	298		
$(6.2 \pm 0.3) \times 10^{-12}$	298	Bedzhanyan, et al., 1993	DF-LMR (b)

### Comments

- (a) MS detection of  $\text{O}_3$  decay in the presence of an excess of F atoms. The temporal profiles of F, FO, and  $\text{O}_3$  were monitored by MS.
- (b) Discharge flow system with excess of  $\text{O}_3$  over F atoms. Rate of formation of FO radicals was monitored by LMR.

### Preferred Values

Parameter	Value	T/K
$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$1.0 \times 10^{-11}$	298
$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$2.2 \times 10^{-11} \exp(-230/T)$	250-370
<i>Reliability</i>		
$\Delta \log k$	$\pm 0.25$	298
$\Delta E/R$	$\pm 200$	

### Comments on Preferred Values

The preferred room temperature value is the average of the 298 K values from the two studies of Wagner et al. (1972) and Bedzhanyan et al. (1992). The temperature dependence is taken from Wagner et al. (1972) and the  $A$ -factor is fitted to the preferred 298 K value. The preferred value at room

temperature is supported by values of  $k$  derived indirectly in studies of the reactions of  $\text{CF}_3\text{O}$  and  $\text{CF}_3\text{O}_2$  radicals with  $\text{O}_3$  by Nielsen and Sehested (1993) and Maricq and Sente (1993).

### References

- Bedzhanyan, Yu. R., Markin, E. M. and Gershenson, Yu. M.: Kinet. Catal. 33, 594, 1993; original pages 744-752, 1992.
- Maricq, M. M. and Sente, J. J.: Chem. Phys. Lett. 213, 449, 1993.
- Nielsen, O. J. and Sehested, J.: Chem. Phys. Lett. 213, 433, 1993.
- Wagner, H. Gg., Zetsch, C. and Warnatz, J: Ber. Bunsenges. Phys. Chem. 76, 526, 1972.