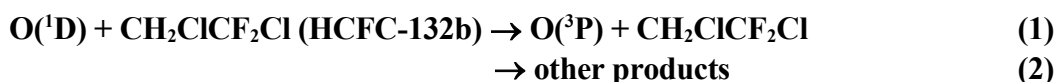


## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet IV.A2.80 oClOx6

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. 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., Troe, J., and Wallington, T. J.: Atmos. Chem. Phys., 8, 4141, 2008; IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, <http://iupac.pole-ether.fr>. This data sheet last evaluated: June 2015; last change in preferred values: November 2003.



$$\Delta H^\circ(1) = -190 \text{ kJ mol}^{-1}$$

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

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Relative Rate Coefficients</i>			
$k_2 = (1.6 \pm 0.6) \times 10^{-10}$	297	Green and Wayne, 1976	RR (a)

### Comments

- (a) O(<sup>1</sup>D) produced by photolysis of NO<sub>2</sub> at 229 nm. Δ(CH<sub>3</sub>CF<sub>3</sub>)/Δ(N<sub>2</sub>O) monitored by IR absorption spectroscopy. Measured rate coefficient ratio of  $k_2/k(\text{O}(^1\text{D}) + \text{N}_2\text{O}) = 1.4 \pm 0.3$  is placed on an absolute basis using  $k(\text{O}(^1\text{D}) + \text{N}_2\text{O}) = 1.16 \times 10^{-10} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$  (Atkinson et al., 2008). The cited rate coefficient refers to chemical reaction only and does not include physical quenching.

### Preferred Values

Parameter	Value	T/K
$k / \text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	$1.6 \times 10^{-10}$	298
<i>Reliability</i>		
Δ log $k$	± 0.5	298

### Comments on Preferred Values

The preferred value of  $k_2$  is derived from the relative rate results reported by Green and Wayne (1976) in the only published study of this reaction. It should be noted that this rate coefficient refers to chemical reaction only and does not include physical quenching of O(<sup>1</sup>D).

### References

- Atkinson, R., Baulch, D. L., Cox, R. A., Crowley, J. N., Hampson, R. F., Hynes, R. G., Jenkin, M. E., Rossi, M. J., Troe, J., and Wallington, T. J.: Atmos. Chem. Phys., 8, 4141, 2008; IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, <http://iupac.pole-ether.fr>.  
Green, R. G. and Wayne, R. P.: J. Photochem., 6, 371, 1976.