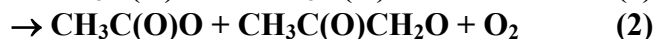


IUPAC Subcommittee on Gas Kinetic Data Evaluation – Data Sheet ROO_29

Website: <http://www.iupac-kinetic.ch.cam.ac.uk/>. 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.

This datasheet updated: 12th November 2002.



$$\Delta H^\circ(1) = -369 \text{ kJ}\cdot\text{mol}^{-1}$$

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>			
$(5.0 \pm 2.0) \times 10^{-12}$	298	Bridier <i>et al.</i> , 1993 ¹	FP-UVAS (a)
$k_1 \leq 4 \times 10^{-12}$	298		
<i>Branching Ratios</i>			
$k_2/k = (0.5 \pm 0.2)$	298	Jenkin <i>et al.</i> , 1993 ²	P-FTIR-AS (b)

Comments

- (a) Flash photolysis of Cl_2 in the presence of $\text{CH}_3\text{C}(\text{O})\text{CH}_3\text{-CH}_3\text{CHO-N}_2$ mixtures at a total pressure of 1 bar (760 Torr). The rate coefficient k was derived from a kinetic analysis of absorption-time profiles measured at 210 nm, 220 nm, 230 nm and 245 nm, using the value of $k_2/k = 0.5$ determined by Jenkin *et al.*²
- (b) Steady-state photolysis of Cl_2 in the presence of $\text{CH}_3\text{C}(\text{O})\text{CH}_3\text{-N}_2$ mixtures at a total pressure of 930 mbar (700 Torr). The branching ratio was deduced from measurements of the concentrations of the HCHO and $\text{CH}_3\text{C}(\text{O})\text{CHO}$ products by long-path FTIR spectroscopy and long-path UV-VIS diode- array spectroscopy.

Preferred Values

$$k = 5.0 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1} \text{ at } 298 \text{ K.}$$

$$k_2/k = 0.5 \text{ at } 298 \text{ K.}$$

Reliability

$$\Delta \log k = \pm 0.3 \text{ at } 298 \text{ K.}$$

$$\Delta(k_2/k) = \pm 0.2 \text{ at } 298 \text{ K.}$$

Comments on Preferred Values

The preferred values of the rate coefficient and the branching ratio are from the studies of Bridier *et al.*¹ and Jenkin *et al.*,² and require independent confirmation.

References

- ¹ I. Bridier, B. Veyret, R. Lesclaux, and M. E. Jenkin, *J. Chem. Soc. Faraday Trans.* **89**, 2993 (1993).
- ² M. E. Jenkin, R. A. Cox, M. Emrich, and G. K. Moortgat, *J. Chem. Soc. Faraday Trans.* **89**, 2983 (1993).