

IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet R_Oxygen_7

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High-pressure rate coefficients

Rate coefficient data

$k_\infty/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
Absolute Rate Coefficients			
$(7.5 \pm 1.4) \times 10^{-12}$	300	Lenhardt, McDade and Bayes, 1980 ¹	FP-MS (a)

Comments

- (a) 1-Butyl radicals were generated by the flash photolysis of 1-butyl iodide and detected by MS. No pressure dependence of the rate coefficients was observed over the range 1.3 mbar to 5.3 mbar of He.

Preferred Values

$$k_\infty = 7.5 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1} \text{ at } 298 \text{ K.}$$

Reliability

$$\Delta \log k_\infty = \pm 0.5 \text{ at } 298 \text{ K.}$$

Comments on Preferred Values

The preferred value is based on the study of Lenhardt *et al.*¹ Because this is the only study of this reaction, we assign large error limits. This reaction should be close to the high pressure limit at atmospheric pressure.

References

- ¹ T. M. Lenhardt, C. E. McDade, and K. D. Bayes, *J. Chem. Phys.* **72**, 304 (1980).