IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet II.A5.112 RO_13

This data sheet last evaluated: 4th June 2009. Last change in preferred values: 12th June 2003.

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n-C_3H_7O + NO + M → n-C_3H_7ONO + M

High-pressure rate coefficients
Rate coefficient data

$k_{\infty 1}$/cm^3 molecule^{-1} s^{-1}	Temp./K	**Reference**	Technique/ Comments
Absolute Rate Coefficients			
$(3.8 \pm 0.1) \times 10^{-14} (T/300)^{-1.2}$	289-380	Fittschen *et al.*, 1999[2]	PLP-LIF (a)

Comments

(a) Measurements over the range 39-132 mbar of He. Results assumed to be in the high pressure range. The observed T-dependence may be the result of falloff effects.

Preferred Values

$k_{\infty 1} = 3.8 \times 10^{-11}$ cm^3 molecule^{-1} s^{-1} at 298 K.

Reliability

$\Delta \log k_{\infty 1} = \pm 0.3$ at 298 K.

Comments on Preferred Values

The only available measurement from ref. 1 gives similar results as for i-C_3H_7O + NO + M → i-C_3H_7ONO + M. The apparent temperature coefficient may be due to falloff effects (its origin needs to be clarified).

References

[1] C. Fittschen, A. Frenzel, K. Imrik, and P. Devolder, Int. J. Chem. Kinet. **31**, 800 (1999).