IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet SOx69

This data sheet last evaluated: November 2017; last change in preferred values: June 2017.

$CH_3SCH_2O_2 + NO_2 + M \rightarrow CH_3SCH_2O_2NO_2 + M$

Rate coefficient data

k/cm^3 molecule^{-1} s^{-1}	P/mbar	M	Temp./K	Reference	Comments
Absolute Rate Coefficients					
$(9.2 \pm 0.9) \times 10^{-12}$	1000	SF_6	296	Nielsen et al., 1995	(a)
$(7.1 \pm 0.9) \times 10^{-12}$	300	SF_6	296		

Comments

(a) Pulse radiolysis of SF_6-CH_3SCH_3-O_2-NO_2 mixtures with measurement of the rate of decay of NO_2 via its absorption at 400 nm. Insufficient data to obtain k_0 or k_∞, although the reaction was measured near the high-pressure limit.

Preferred Values

$k = 9 \times 10^{-12}$ cm^3 molecule^{-1} s^{-1} at 1 bar and 298 K.

Reliability

$\Delta \log k = \pm 0.5$ at 1 bar and 298 K.

Comments on Preferred Values

The preferred value is based on the sole study of Nielsen et al. (1995). Until further studies confirm this value, we assign large error limits.

References

Nielsen, O. J., Sehested, J. and Wallington, T. J.: Chem. Phys. Lett. 236, 385, 1995.