IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet HOx_VOC46

This data sheet last evaluated: 2nd August 2007; no revision of preferred values.

HO + $CH_3CH_2C(O)CH_2ONO_2$ → products

Rate coefficient data

k/cm^3 molecule^{-1} s^{-1}	Temp./K	Reference	Technique/ Comments
Relative Rate Coefficients $(8.21 \pm 1.38) \times 10^{-13}$	298 ± 2	Zhu et al., 1991	RR (a)

Comments

(a) HO radicals were generated by the photolysis of CH_3ONO-NO-N_2-O_2 mixtures at 1 bar pressure. The concentrations of $CH_3CH_2C(O)CH_2ONO_2$ and *n*-butane were measured during the experiments by GC, and the measured rate constant ratio of k(HO + $CH_3CH_2C(O)CH_2ONO_2$)/k(HO + *n*-butane) = 0.357 ± 0.060 is placed on an absolute basis by use of a rate coefficient of k(HO + *n*-butane) = 2.3×10^{-12} cm^3 molecule^{-1} s^{-1} (IUPAC, current recommendation).

Preferred Values

$k = 8.2 \times 10^{-13}$ cm^3 molecule^{-1} s^{-1} at 298 K.

Reliability

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

Comments on Preferred Values

The preferred value is based on the sole study of Zhu et al. (1991), but with a higher uncertainty.

References

IUPAC,: http://iupac.pole-ether.fr, 2013.

Zhu, T., Barnes, I. and Becker, K. H.: J. Atmos. Chem. 13, 301, 1991.