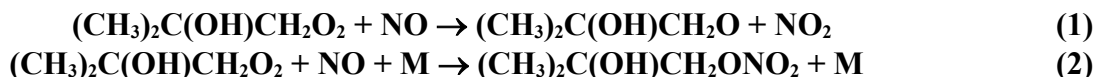


IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet ROO_38

Website: <http://iupac.pole-ether.fr>. See website for latest evaluated data. Data sheets can be downloaded for personal use only and must not be retransmitted or disseminated either electronically or in hardcopy without explicit written permission. The citation for this data sheet is: IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation, <http://iupac.pole-ether.fr>.

This data sheet last evaluated: June 2010; last change in preferred values: June 2010.



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> $(4.9 \pm 0.9) \times 10^{-12}$	296	Langer et al., 1994	PR-UVA (a)

Comments

- (a) $(\text{CH}_3)_2\text{C}(\text{OH})\text{CH}_2\text{O}_2$ generated from the pulsed radiolysis of SF_6/t -butanol/ O_2 mixtures at 1 bar. k was investigated in experiments in which excess NO was added, and was determined from the formation kinetics of NO_2 as a function of NO concentration.

Preferred Values

No recommendation

Comments on Preferred Values

Although the sole investigation of Langer et al. (1994) provides an indication of the magnitude of k , the determination is indirect and potentially complicated by delayed secondary sources of NO_2 in the system (e.g., the reaction of HO_2 with NO). Confirmatory determinations are therefore required before a recommendation can be made. It is noted that the wider kinetics database of reactions of NO with alkyl and β -hydroxyalkyl RO_2 radicals, generally show little sensitivity of the kinetics to the size or structure of the organic group, with values of k of about $(8-10) \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$ typically reported (e.g., Miller et al., 2004, and references therein).

References

Langer, S., Ljungström, E., Sehested, J. and Nielsen, O. J.: Chem. Phys. Lett., 226, 165, 1994.

Miller, A. M., Yeung, L. Y., Kiep, A. C. and Elrod, M. J.: Phys. Chem. Chem. Phys., 6 , 3402
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