IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation

– Data Sheet AQ_OH_49

This datasheet last evaluated: November 2019; last change in preferred values: June 2019

HO (aq) + $HO(CH_2)_6OH$(aq) → products

Rate coefficient data

k/ L mol^{-1} s^{-1}	T/K	pH	I/ mol L^{-1}	Reference	Technique/ Comments
Relative Rate Coefficients					
4.6×10^9	294	9	-	Anbar et al., 1966	PR / UV-Vis (a)

$\Delta G_R°$ (aq): Aqueous phase thermochemical data not available. As well, gas phase thermochemical data $H_R°$ (g) are not available.

Comments

(a) Reference reaction: HO + PNDA (p-nitrosodimethylaniline); reference rate constant was determined versus ethanol with k(HO + ethanol) = 1.10×10^9 $M^{-1}s^{-1}$; a recalculation of the rate coefficient was performed using the newly recommended value for the reference reaction (1.88×10^9 $M^{-1}s^{-1}$); no values given for initial concentrations; air saturated solutions; all experiments were repeated at least four times and the coefficient of variation was less than ± 10%; as no temperature is given, for room temperature T = 294 K is assumed.

Preferred Values

Parameter	Value	*T*/K
k / L mol^{-1} s^{-1}	4.6×10^9	294
Reliability		
Δ log k	±0.15	294

Comments on Preferred Values

The recalculation of the only available kinetic data leads to a rate coefficient which is slightly lower than the original value. The uncertainty of the recommended rate constant is estimated as ±33 % or Δ log k = ±0.15. It should be noted that this rate coefficient refers to room temperature, which is estimated as T = 294 K.

References

Anbar, M., Meyerstein, D. and Neta, P.: J. Chem. Soc. B, 742-747, 1966.

Buxton, G. V., Greenstock, C. L., Helman, W. P. and Ross, A. B.: J. Phys. Chem. Ref. Data, 12(2), 513 – 886, 1988.