IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet SOx28

This data sheet last evaluated: 28th July 2007; no revision of preferred values.

$NO_3 + H_2S \rightarrow$ products

Rate coefficient data

k/cm^3 molecule^{-1} s^{-1}	Temp./K	Reference	Technique/ Comments
Absolute Rate Coefficients			
$\leq 3 \times 10^{-14}$	298 ± 2	Wallington et al., 1986	FP-A
$<8 \times 10^{-16}$	298	Dlugokencky and Howard, 1988	F-LIF
Relative Rate Coefficients			
$<2.4 \times 10^{-14}$	298	Cantrell et al., 1987	RR (a)

Comments

(a) NO_3 radicals were generated by the thermal decomposition of N_2O_5, and the rate coefficient placed on an absolute basis by use of an equilibrium constant for the $NO_3 + NO_2 \leftrightarrow N_2O_5$ reactions of 2.75 x 10^{-11} cm^3 molecule^{-1} at 298 K (IUPAC, 2007).

Preferred Values

$k < 1 \times 10^{-15}$ cm^3 molecule^{-1} s^{-1} at 298 K.

Comments on Preferred Values

The preferred upper limit to the rate coefficient is based upon the absolute rate coefficient study of Dlugokencky and Howard (1988).

References

Cantrell, C. A., Davidson, J. A., Shetter, R. E., Anderson, B. A. and Calvert, J. G.: J. Phys. Chem. 91, 6017, 1987.
Dlugokencky, E. J. and Howard, C. J.: J. Phys. Chem. 92, 1188, 1988.
IUPAC: http://iupac.pole-ether.fr, 2007.
Wallington, T. J., Atkinson, R., Winer, A. M. and Pitts Jr., J. N.: J. Phys. Chem. 90, 5393, 1986.