

## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet SOx66

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This data sheet updated: 20<sup>th</sup> November 2001.



### Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i> $\leq 1 \times 10^{-15}$	300	Kukui <i>et al.</i> , 2000 <sup>1</sup>	(a)

### Comments

- (a) Discharge flow of Cl/CH<sub>3</sub>SH/NO<sub>2</sub> reaction mixtures using MS/LIF detection at 13 mbar He and 300 K. The fluorescence of both CH<sub>3</sub>O and SO<sub>2</sub> were recorded as a function of time and the temporal profiles were fitted to obtain  $k$  using an upper limit of 50 s<sup>-1</sup> for the lifetime of CH<sub>3</sub>SO<sub>2</sub> with respect to dissociation into CH<sub>3</sub> + SO<sub>2</sub>.

### Preferred Values

$k \leq 1 \times 10^{-15} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$  at 300 K.

#### *Comments on Preferred Values*

$k$  is independent of pressure whose upper limit depends on the lifetime of CH<sub>3</sub>SO<sub>2</sub> and the absolute yield of SO<sub>2</sub> approaching unity at long reaction times.

### References

- <sup>1</sup> A. Kukui, V. Bossoutrot, G. Laverdet and G. Le Bras, *J. Phys. Chem. A* **104**, 935 (2000).