

IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet SO_x24

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This data sheet updated: 19th November 2001.

HO₂ + H₂S → products

Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$(5 \pm 1) \times 10^{-12}$	298	Bulatov <i>et al.</i> , 1990 ¹	FP-A (a)
$<3 \times 10^{-15}$	298	Mellouki and Ravishankara, 1994 ²	DF-LMR

Comments

- (a) HO₂ radicals were monitored by intracavity laser absorption in the near IR.

Preferred Values

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

Comments on Preferred Values

This upper limit is taken from the study of Mellouki and Ravishankara.² It is consistent with the upper limits reported for the corresponding reactions of HO₂ with CH₃SH and CH₃SCH₃. This upper limit is three orders of magnitude lower than the value reported by Bulatov *et al.*¹ from a flash photolysis study using intracavity laser absorption in the near infrared to monitor HO₂. The results of the more direct study² are preferred.

References

- ¹ V. P. Bulatov, S. I. Vereschuk, F. N. Dzegilenko, O. M. Sarkisov, and V. N. Khabarov, *Khim Fiz.* **9**, 1214 (1990).
- ² A. Mellouki and A. R. Ravishankara, *Int. J. Chem. Kinet.* **26**, 355 (1994).