

## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet SO<sub>x</sub>42

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This data sheet updated: 19<sup>th</sup> November 2001.

### HSO + NO<sub>2</sub> → products

#### Rate coefficient data

$k/\text{cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
$4 \times 10^{-12}$	293	Bulatov, Kozliner and Sarkisov, 1984 <sup>1</sup>	PLP-A (a)
$(9.6 \pm 2.4) \times 10^{-12}$	298	Lovejoy, Wang and Howard, 1987 <sup>2</sup>	DF-LMR

#### Comments

- (a) HSO radicals monitored by intracavity laser absorption at 583 nm.

#### Preferred Values

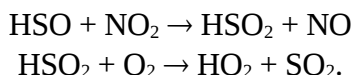
$k = 9.6 \times 10^{-12} \text{ cm}^3 \text{ molecule}^{-1} \text{ s}^{-1}$  at 298 K.

#### Reliability

$\Delta \log k = \pm 0.3$  at 298 K.

#### Comments on Preferred Values

The only two measurements of  $k$  differ by at least a factor of 2. Lovejoy *et al.*<sup>2</sup> have suggested that the relatively high H<sub>2</sub>S concentrations used by Bulatov *et al.*<sup>1</sup> may have led to side reactions regenerating HSO. The value of Lovejoy *et al.*<sup>2</sup> is preferred, but wide error limits are assigned awaiting confirmatory studies. HO<sub>2</sub> was observed as a product of the reaction by Lovejoy *et al.*,<sup>2</sup> which they suggest arises from the reaction sequence:



#### References

- <sup>1</sup> V. P. Bulatov, M. Z. Kozliner, and O. M. Sarkisov, *Khim. Fiz.* **3**, 1300 (1984).  
<sup>2</sup> E. R. Lovejoy, N. S. Wang, and C. J. Howard, *J. Phys. Chem.* **91**, 5749 (1987).