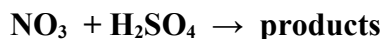


## IUPAC Task Group on Atmospheric chemical Kinetic Data Evaluation – Data Sheet V.A4.6 HET\_SL\_6

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The citation for this data sheet is: IUPAC Task Group on Atmospheric chemical Kinetic Data Evaluation, <http://iupac.pole-ether.fr>.

This data sheet last evaluated: January 2009; last change in preferred values: January 2009.



### Experimental data

<i>Parameter</i>	Temp./K	Reference	Technique/ Comments
<i>Uptake coefficients: <math>\gamma</math></i>			
$< 1 \times 10^{-3}$ (60 – 95 wt. % H <sub>2</sub> SO <sub>4</sub> )	170-200	Fenter and Rossi, 1997	Knudsen-LIF (a)

### Comments

- (a) Uptake of NO<sub>3</sub> ( $10^{10}$  –  $10^{13}$  molecule cm<sup>-3</sup>) to 0 – 95 wt. % H<sub>2</sub>SO<sub>4</sub>. A flow of H<sub>2</sub>O was added to maintain the H<sub>2</sub>SO<sub>4</sub> composition over the course of an experiment. NO<sub>3</sub> was formed in the thermal decomposition of N<sub>2</sub>O<sub>5</sub>. NO<sub>3</sub> losses in the Knudsen reactor were attributed to reaction with a Halocarbon wax coating, so that a value of  $\gamma < (6.0 \pm 6.8) \times 10^{-4}$  was derived for interaction with H<sub>2</sub>SO<sub>4</sub>. The authors quote a final upper limit of  $1 \times 10^{-3}$ .

### Preferred Values

Parameter	Value	T/K
$\gamma$	$< 1 \times 10^{-3}$ (60 – 95 wt. % H <sub>2</sub> SO <sub>4</sub> )	200 - 270

#### *Comments on Preferred Value*

The single study (Fenter and Rossi, 1997) of the interaction of NO<sub>3</sub> with H<sub>2</sub>SO<sub>4</sub> at various concentrations and temperatures derived an upper limit to the uptake coefficient, which we adopt as the preferred value.

### References

Fenter, F. F. and Rossi, M. J.: J. Phys. Chem. 101, 4110-4117, 1997.