

## IUPAC Task Group on Atmospheric chemical Kinetic Data Evaluation – Data Sheet VI.A4.3 HET\_SL\_3

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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>			
$7.8 \times 10^{-4}$	270 - 300	Baldwin and Golden, 1979	Knudsen-MS (a)

### Comments

- (a) After evacuating the Knudsen reactor containing the concentrated  $\text{H}_2\text{SO}_4$  sample, the remaining substrate was suggested to contain less than 5 % water.

### Preferred Values

Parameter	Value	T/K
$\gamma$	$7.8 \times 10^{-4}$	270 - 300
<i>Reliability</i>		
$\Delta \log \gamma$	0.5	

### Comments on Preferred Value

The single published study of the uptake of  $\text{H}_2\text{O}_2$  to sulphuric acid agrees with unpublished data (obtained using a Knudsen reactor) carried out using 60 wt. %  $\text{H}_2\text{SO}_4$  at 203-223 K (Myhre and Nielsen, 1998) who derived values of  $\gamma$  in the range  $(0.69 - 3.8) \times 10^{-4}$  with the lower values obtained at the lowest temperature. There appears to be no information regarding the products of the interaction. We therefore recommend the uptake coefficient of Baldwin and Golden (1979) with expanded error limits.

### References

- Baldwin, A. C. and Golden, D. M.: Science 206, 562-563, 1979.  
Myhre, C. E. L. and Nielsen, C. J.: Polar Stratospheric Ozone 1997, Proceedings of the Fourth European Ozone Symposium, Schliersee, Bavaria, Germany, Harris, N.R.P., Kilbane-Dawe, T. and Amantidis, G.T., (eds.), pg. 589, European Communities, 1998.