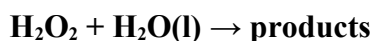


## IUPAC Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet VI.A1.2 HET\_H2OL\_2

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Data sheet last evaluated: December 2011; last change in preferred values: December 2011.



### Experimental data

Parameter	Temp./K	Reference	Technique/ Comments
<i>Accommodation coefficients: <math>\alpha_b</math></i>			
$0.32 \pm 0.02$	260	Worsnop et al., 1989	DT-TDL (a)
$0.18 \pm 0.02$	273		
$0.08 \pm 0.02$	292		

### Comments

- (a) Droplets (pH = 7) with interaction times from 0.7 to 14 ms. Initial  $\text{H}_2\text{O}_2$  densities were in the range  $1.5$  to  $15 \times 10^{12}$  molecule  $\text{cm}^{-3}$ .

### Preferred Values

Parameter	Value	T/K
$\alpha_b$	$1.3 \times 10^{-6} \exp(3230/T)$	260 - 292
<i>Reliability</i>		
$\Delta$ (E/R)	$\pm 500$ K	260-292

### Comments on Preferred Values

We adopt the single dataset of Worsnop et al. as the basis of our recommendation. The temperature dependence of  $\alpha_b$  was suggested to derive from an activation energy necessary to overcome a barrier between a precursor state and the solvated state of  $\text{H}_2\text{O}_2$ . The title reaction therefore represents a complex reaction involving a preequilibrium whose temperature dependence affects the overall T-dependence of the uptake.

### References

Worsnop, D.R., Zahniser, M.S., Kolb, C.E., Gardner, J.A., Watson, L.R., Van Doren, J.M., Jayne, J.T. and Davidovits, P.: J. Phys. Chem., 93, 1159-1172, 1989.