

## Task Group on Atmospheric Chemical Kinetic Data Evaluation– Data Sheet HO<sub>x</sub>\_VOC96

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This datasheet last evaluated: June 2015; last change in preferred values: June 2015



### Rate coefficient data (*k*)

<i>k</i> /cm <sup>3</sup> molecule <sup>-1</sup> s <sup>-1</sup>	Temp./K	Reference	Technique/ Comments
<i>Absolute Rate Coefficients</i>			
(1.2 ± 0.3) × 10 <sup>-10</sup>	296	Faragó et al., 2014	LP-LIF/CRD (a)

### Comments

- (a) Experiments conducted at ~73 mbar O<sub>2</sub> bath gas. HO was generated by the 248 nm photolysis of H<sub>2</sub>O<sub>2</sub> and detected by LIF. C<sub>2</sub>H<sub>5</sub>O<sub>2</sub> (excess reactant) was generated by the photolysis of (COCl)<sub>2</sub> in the presence of C<sub>2</sub>H<sub>6</sub> / O<sub>2</sub>. The initial concentration of Cl atoms (and thus C<sub>2</sub>H<sub>5</sub>O<sub>2</sub>) was derived by switching C<sub>2</sub>H<sub>6</sub> for CH<sub>3</sub>OH and monitoring the HO<sub>2</sub> formed via CRDS.

### Preferred Values

#### *Preferred Values*

Parameter	Value	T/K
<i>k</i> /cm <sup>3</sup> molecule <sup>-1</sup> s <sup>-1</sup>	1.2 × 10 <sup>-10</sup>	298
<i>Reliability</i> Δ log <i>k</i>	± 0.2	298

#### *Comments on Preferred Values*

There is only one experimental study of the rate coefficient of this reaction (Faragó et al., 2014). As this is the only study of the reaction to date and the concentration of the excess reactant radical was not measured directly we adopt the rate constant reported by Faragó et al (2014) but extend the error limits. Weak reformation of HO (non-exponential decays) was observed though this was not expected to influence the derivation of the rate coefficient. There are no data on the products formed.

### References

Faragó, E. P., Schoemaeker, C., Viskolcz, B., and Fittschen, C., *Chem. Phys. Lett.*, 619, 196-200, 2015.