Electronic Supplementary Material for PCCP

SUPPLEMENTARY INFORMATION

Reactions used in kinetics modeling of O_3 photolysis

Reaction	**Rate constants**[a]
$O_3 \rightarrow O(^1D) + O_2$	4.5×10^{-5} [b]
$O_3 \rightarrow O(^3P) + O_2$	4.9×10^{-6} [b]
$O(^1D) + O_2 \rightarrow O(^3P) + O_2$	4.0×10^{-11}
$O(^1D) + O_3 \rightarrow 2\ O_2$	1.2×10^{-10}
$O(^1D) + O_3 \rightarrow O_2 + 2\ O(^3P)$	1.2×10^{-10}
$O(^1D) + N_2 \rightarrow O(^3P) + N_2$	3.1×10^{-11}
$O(^3P) + O_2 + M \rightarrow O_3 + M$	1.5×10^{-14}
$O(^3P) + O_3 \rightarrow 2\ O_2$	8.0×10^{-15}
$O(^3P) + HO_2 \rightarrow OH + O_2$	5.9×10^{-11}
$O(^3P) + H_2O_2 \rightarrow OH + HO_2$	1.7×10^{-15}
$O(^1D) + H_2O \rightarrow 2\ OH$	2.0×10^{-10}
$OH + O_3 \rightarrow HO_2 + O_2$	7.3×10^{-14}
$2\ OH + M \rightarrow H_2O_2 + M$	6.3×10^{-12}
$2\ OH \rightarrow O(^3P) + H_2O$	1.8×10^{-12}
$OH + HO_2 \rightarrow O_2 + H_2O$	1.1×10^{-10}
$OH + H_2O_2 \rightarrow HO_2 + H_2O$	1.7×10^{-12}
$2\ HO_2 + M \rightarrow H_2O_2 + M$	5.2×10^{-12}
$HO_2 + O_3 \rightarrow OH + 2O_2$	1.9×10^{-15}
$H_2O_2 \rightarrow 2OH$	2.9×10^{-7} [c]
$O(^3P) + OH \rightarrow O_2 + H$	3.3×10^{-11}
$H + O_2 + M \rightarrow HO_2 + M$	9.3×10^{-13}
$H + O_3 \rightarrow OH + O_2$	2.9×10^{-11}

[a]Reaction rate constants obtained from S. P. Sander, R. R. Friedl, D. M. Golden, M. J. Kurylo, G. K. Moortgat, H. Keller-Rudek, W. P. H., A. R. Ravishankara, C. E. Kolb, M. J. Molina, B. J. Finlayson-Pitts, R. E. Huie and V. L. Orkin, *Chemical Kinetics and Photochemical Data for Use in Atmospheric Studies. Evaluation no. 15*, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, 2006; the units are s^{-1} and cm^3 molecule $^{-1}$ s^{-1} for first and second order reactions, respectively. For termolecular reactions, the rates reported in the table are effective bimolecular rate constants calculated for 1 atm.

[b]Rates constants from best fit to experimental data.

[c]Estimated based on its absorption cross section relative to that of O_3.