Supplement of

Controlled nitric oxide production via O(\(^{1}\text{D}\)) + N\(_{2}\)O reactions for use in oxidation flow reactor studies

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**Figure S1.** Nitric oxide (NO) depletion inside the NO analyzer due to reaction of 50 ppb initial NO ([NO]i) with O3. NO was introduced from a calibration cylinder, and O3 was introduced from the output of the PAM reactor.

\[
\ln\left(\frac{[\text{NO}]}{[\text{NO}]_i}\right) = -0.0833 - 0.550*[\text{O}_3] \\
R^2 = 0.996
\]

**Figure S2.** Modeled steady-state (a) NO:HO2, and (b) OH:NO3 as a function of [N2O] input to the PAM reactor with mean residence time = 80 sec for: low, medium, and high \(I_{254} = 0.032 \times 10^{15}, 0.64 \times 10^{15} \text{ and } 6.4 \times 10^{15} \text{ ph cm}^{-2} \text{ sec}, \) respectively, at fixed \([H_2O] = 1\% \text{ and } [O_3] = 5 \text{ ppm}.\)
Figure S3. Modeled steady-state (a) NO, (b) NO:HO₂, and (c) OH:NO₃ as a function of [N₂O] input to the PAM reactor with mean residence time = 80 sec for: low, medium, and high [O₃] = 0.5, 5, and 50 ppm respectively, at fixed [H₂O] = 1% and I₂54 = 6.4×10¹⁵ ph cm⁻² s⁻¹.
Figure S4. Modeled steady-state (a) NO, (b) NO:HO₂, and (c) OH:NO₃ as a function of input [N₂O] in the PAM oxidation flow reactor with mean residence time = 80 sec for: low, medium, and high [H₂O] = 0.07, 1, and 2.3% respectively, at fixed [O₃] = 5 ppm and I₂₅₄ = 6.4×10¹⁵ ph cm⁻² s⁻¹.

[Diagram showing modeled steady-state concentrations of NO, NO:HO₂, and OH:NO₃ as a function of [N₂O] with different [H₂O] levels.]
Figure S5. Modeled steady-state (a) OH exposure, (b) [NO], (c) NO:HO\(_2\), and (d) fractional oxidative loss to OH, O\(_3\), and NO\(_3\) as a function of input [N\(_2\)O] corresponding to isoprene oxidation conditions at low OH exposure in the PAM reactor. Error bars represent uncertainty in model outputs (Peng et al., 2015) and in accuracy of N\(_2\)O flow controller.

Figure S6. Modeled steady-state (a) OH exposure, (b) [NO], (c) NO:HO\(_2\), and (d) fractional oxidative loss to OH, O\(_3\), and NO\(_3\) as a function of input [N\(_2\)O] corresponding to isoprene oxidation conditions at high OH exposure in the PAM reactor. Error bars represent uncertainty in model outputs (Peng et al., 2015) and in accuracy of N\(_2\)O flow controller.
Figure S7. Modeled steady-state (a) OH exposure, (b) O$_3$ exposure, (c) [NO], (d) NO:HO$_2$, and (e) fractional oxidative loss to OH, O$_3$, and NO$_3$ as a function of input [N$_2$O] corresponding to α-pinene oxidation conditions at low OH exposure in the PAM reactor. Error bars represent uncertainty in model outputs (Peng et al., 2015) and in accuracy of N$_2$O flow controller.