Supplemental information for "Secondary organic aerosol yields of 12-carbon alkanes"

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Contains Tables S1-3 and Figure S1.

Table S1: CO^+-to-CO_2^+ ratios calculated from "W-mode" used in HR-AMS fragmentation table.

Expt.	CO^+/CO_2^+	Change in CO^+ from $CO^+ = CO_2^+$ (%)
ML1	1.0	0
ML2	1.0	0
ML3	N/A[a]	N/A
DL1	N/A[a]	N/A
DL2	1.0	0
HL1	1.0	0
HL2	1.7	4-8
CL1	1.0	0
CL2	2.3	10-15
CL3	2.6	10-15
DH1	0.45	-(5-10)
DH2	1.0[b]	0
DH3	1.0[b]	0
MH1	3.5	30
MH2	1.4	3-7
HH1	1.3	4-5
HH2	1.3	3-5
CH1	1.9	10-15
CH2	2.4	10-15

[a]The AMS was not run on this experiment.
[b]The AMS was run in "V-mode" only. A ratio of unity was used.

Table S2: Low-NO_x experimental details for combined experiments.

Expt.	Irradiation (h)	Alkane	Seed vol. (μm^3 cm^{-3})	HC_o (ppbv)
ML2a	18	2-methylundecane	16.7 ± 5.0	27.3 ± 0.9
ML2b	36	2-methylundecane	15.5 ± 4.5	29.8 ± 1.0
DL2a	18	dodecane	12.1 ± 3.6	33.0 ± 1.1
DL2b	36	dodecane	13.1 ± 3.9	34.9 ± 1.1
HL1a	18	hexylcyclohexane	11.2 ± 3.4	16.2 ± 0.5
HL2b	36	hexylcyclohexane	4.2 ± 1.3	14.9 ± 0.5
CL2a	18	cyclododecane	15.3 ± 4.6	9.8 ± 0.3
CL2b	36	cyclododecane	15.8 ± 4.7	11.0 ± 0.4

Table S3: Mass-to-charge ratios (m/z) monitored using the CIMS, and their proposed chemical assignments.

m/z	Ion	Molecular Wt.	Formula	Family
123	$[R{\cdot}F]^-$	104	$C_4H_8O_3$	$C_nH_{2n}O_3$
135	$[R{\cdot}F]^-$	116	$C_6H_{12}O_2$	$C_nH_{2n}O_2$
149	$[R{\cdot}F]^-$	130	$C_7H_{14}O_2$	$C_nH_{2n}O_2$
151	$[R{\cdot}F]^-$	132	$C_6H_{12}O_3$	$C_nH_{2n}O_3$
163	$[R{\cdot}F]^-$	144	$C_8H_{16}O_2$	$C_nH_{2n}O_2$
165	$[R{\cdot}F]^-$	146	$C_7H_{14}O_3$	$C_nH_{2n}O_3$
177	$[R{\cdot}F]^-$	158	$C_9H_{18}O_2$	$C_nH_{2n}O_2$
191	$[R{\cdot}F]^-$	172	$C_{10}H_{20}O_2$	$C_nH_{2n}O_2$
204	$[R{\cdot}CF_3O]^-$	119	$C_3H_5NO_4$	$C_nH_{2n-1}NO_4$
205	$[R{\cdot}F]^-$	186	$C_{11}H_{22}O_2$	$C_nH_{2n}O_2$
206	$[R{\cdot}CF_3O]^-$	121	$C_3H_7NO_4$	$C_nH_{2n+1}NO_4$
218	$[R{\cdot}CF_3O]^-$	133	$C_4H_7NO_4$	$C_nH_{2n-1}NO_4$
220	$[R{\cdot}CF_3O]^-$	135	$C_4H_9NO_4$	$C_nH_{2n+1}NO_4$
232	$[R{\cdot}CF_3O]^-$	147	$C_5H_9NO_4$	$C_nH_{2n-1}NO_4$
246	$[R{\cdot}CF_3O]^-$	161	$C_6H_{11}NO_4$	$C_nH_{2n-1}NO_4$
248	$[R{\cdot}CF_3O]^-$	163	$C_6H_{13}NO_4$	$C_nH_{2n+1}NO_4$
260	$[R{\cdot}CF_3O]^-$	175	$C_7H_{13}NO_4$	$C_nH_{2n-1}NO_4$
262	$[R{\cdot}CF_3O]^-$	177	$C_7H_{15}NO_4$	$C_nH_{2n+1}NO_4$
276	$[R{\cdot}CF_3O]^-$	191	$C_8H_{17}NO_4$	$C_nH_{2n+1}NO_4$
288	$[R{\cdot}CF_3O]^-$	203	$C_9H_{17}NO_4$	$C_nH_{2n-1}NO_4$
290	$[R{\cdot}CF_3O]^-$	205	$C_9H_{19}NO_4$	$C_nH_{2n+1}NO_4$
302	$[R{\cdot}CF_3O]^-$	217	$C_{10}H_{19}NO_4$	$C_nH_{2n-1}NO_4$
304	$[R{\cdot}CF_3O]^-$	219	$C_{10}H_{21}NO_4$	$C_nH_{2n+1}NO_4$

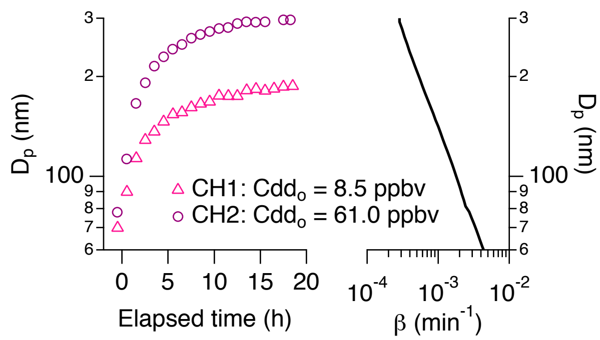

Figure S1: Comparison of size distribution peak diameter for two cyclododecane high-NO_x experiments (left panel). Also shown is the size-dependent particle wall loss rate constant, β, measured in a separate calibration experiment (right panel).