atmosphere

Supplementary Materials: Effect of Humidity on the Reactive Uptake of Ammonia and Dimethylamine by Nitrogen-Containing Secondary Organic Aerosol

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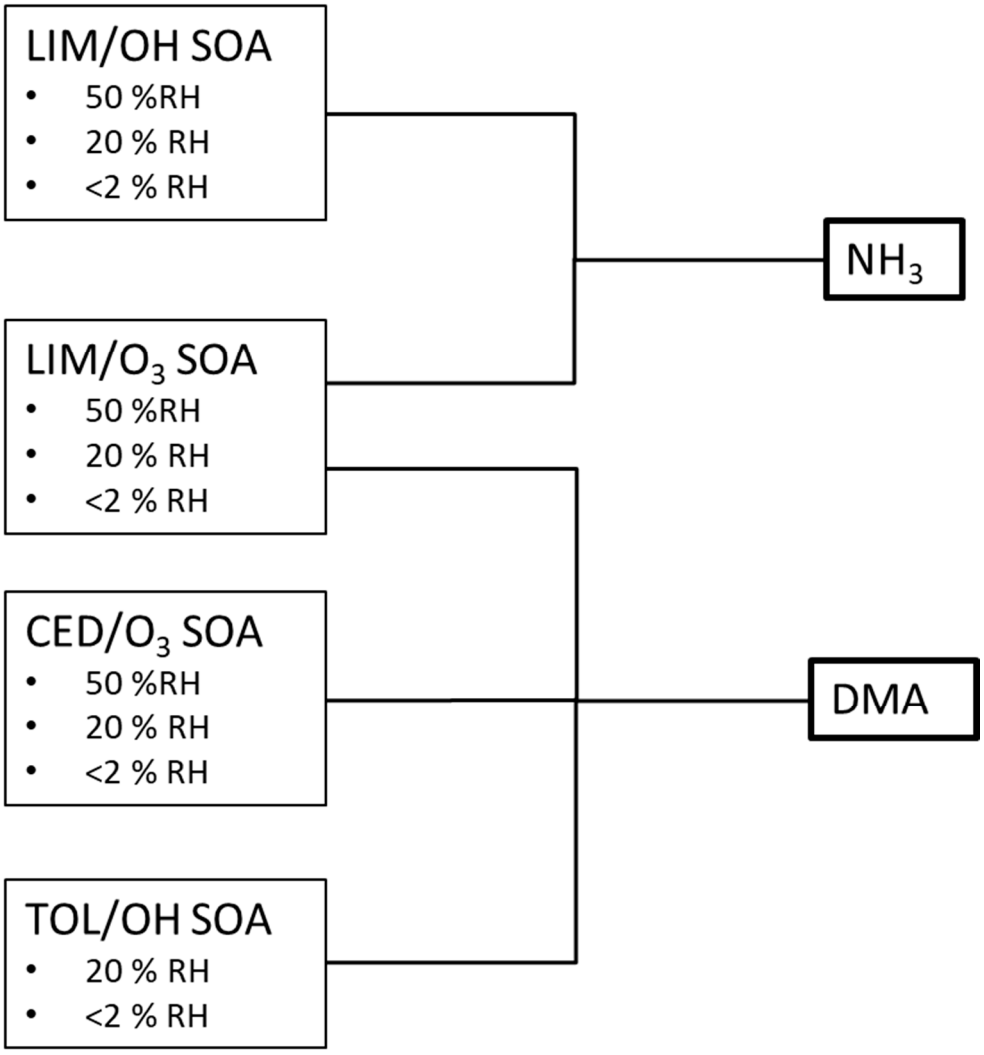

Figure S1. Flowchart of SOA systems reported in this study. All SOA systems were generated in the presence of nicotinic acid seeds.

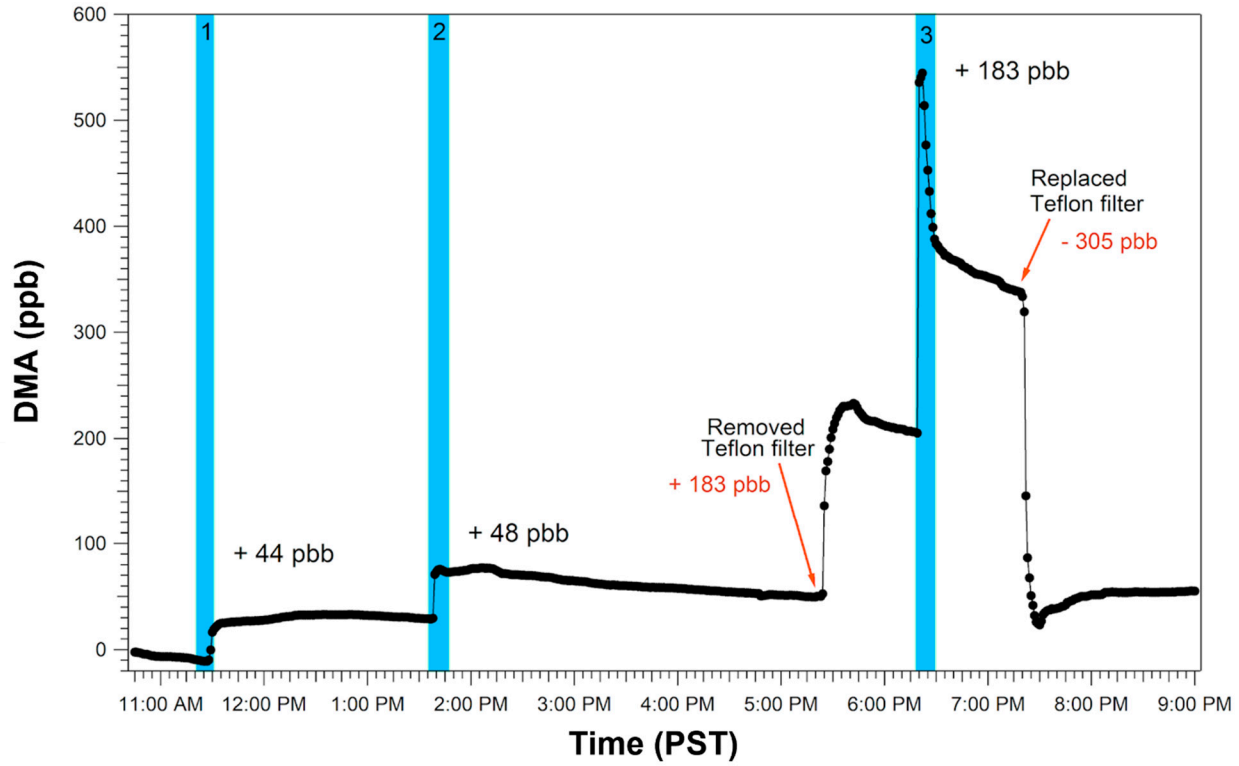

Figure S2. Ammonia monitor response to DMA injections at 50% RH. Each DMA injection was 13 µl (blue shaded area, expected to produce a step of 500 ppb). The Teflon filter was attached to the inlet of the monitor during experiments to reduce aerosol loading and preserve the life of the instrument. When the filter was removed the mixing ratio increased due to unrestricted air flow to the inlet.

Table S1. The 15 most prominent N-containing fragments and their families for LIM/O_3 SOA, CED/O_3 SOA, and TOL/OH SOA after exposure to DMA under low RH. Fragments are listed in descending order with respect to their signal.

	LIM/O_3 SOA, low RH		CED/O_3 SOA, low RH		TOL/OH SOA, low RH	
	family	***m/z*, fragment**	**family**	***m/z*, fragment**	**family**	***m/z*, fragment**
1	CHN	42.034, C_2H_4N	CHN	44.050, C_2H_6N	CHN	44.050, C_2H_6N
2	CHN	27.011, CHN	CHN	42.034, C_2H_4N	NO	29.998, NO
3	NO	29.998, NO	CHN	79.042, C_5H_5N	NH	17.027, NH_3
4	CHN	44.050, C_2H_6N	NO	29.998, NO	NH	16.019, NH_2
5	CHN	30.034, CH_4N	CHN	55.042, C_3H_5N	CHN	45.058, C_2H_7N
6	CHN	41.027, C_2H_3N	CHN	53.027, C_3H_3N	CHN	42.034, C_2H_4N
7	NO	45.993, NO_2	CHN	51.011, C_3HN	CHN	27.011, CHN
8	CHN	43.042, C_2H_5N	CHN	27.011, CHN	CHN	28.019, CH_2N
9	CHN	28.019, CH_2N	NH	18.034, NH_4	NH	18.034, NH_4
10	CHN	29.027, CH_3N	CHO_1N	55.006, C_2HON	CHN	43.042, C_2H_5N
11	CHN	58.066, C_3H_8N	CHN	30.034, CH_4N	CHN	30.034, CH_4N
12	NH	17.027, NH_3	CHN	43.042, C_2H_5N	NO	45.993, NO_2
13	CHN	45.058, C_2H_7N	CHN	95.074, C_6H_9N	CHN	41.027, C_2H_3N
14	CHN	40.019, C_2H_2N	CHN	50.003, C_3N	CHN	40.019, C_2H_2N
15	$CHO_{>1}N$	123.032, $C_6H_5O_2N$ (nicotinic acid)	CHN	41.027, C_2H_3N	$CHO_{>1}N$	123.032, C_6H_5O2N (nicotinic acid)

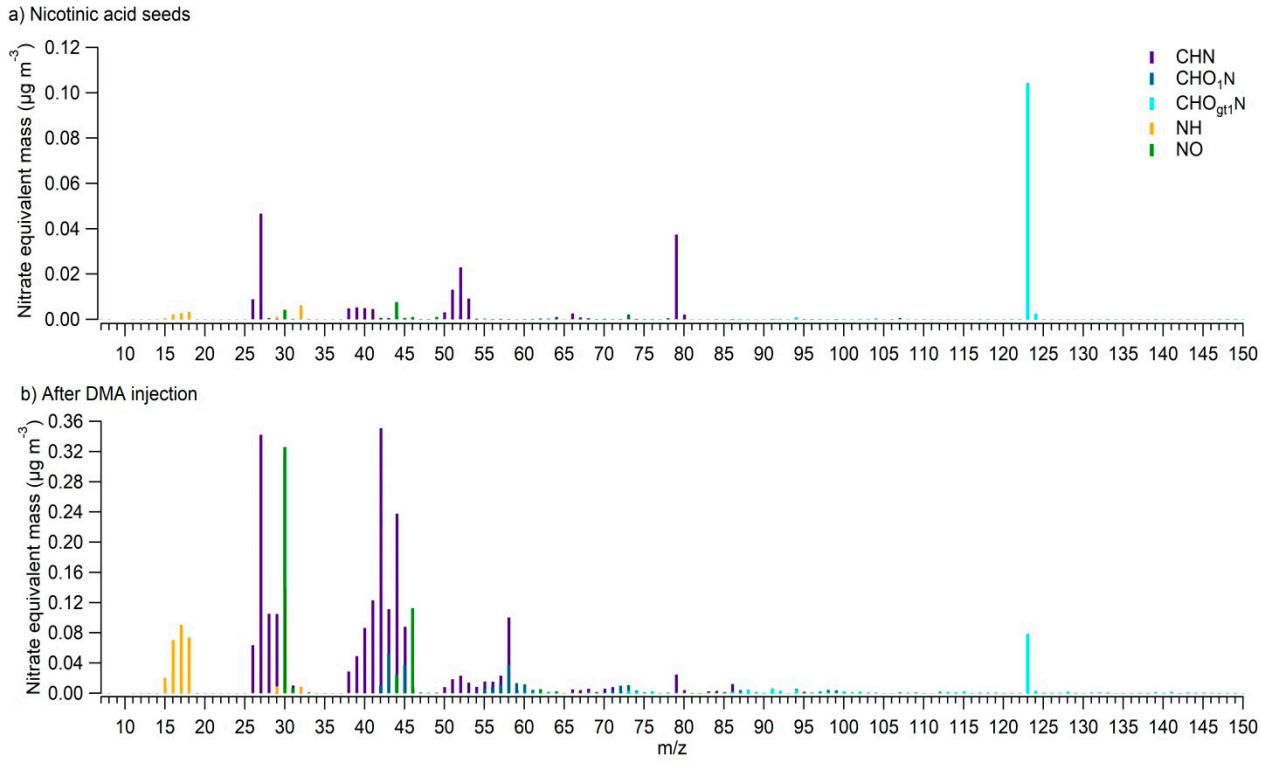

Figure S3. Nitrogen-containing fragments and families extracted from AMS data corresponding to a) nicotinic acid seed and b) average mass spectrum for LIM/O_3 SOA after DMA exposure at low RH.

Table S2. The top 6 most prominent N-containing fragments and their families for nicotinic acid. Fragments are listed in descending order with respect to their signal.

	Nicotinic acid	
	family	***m/z*, fragment**
1	$CHO_{>1}N$	123.032, $C_6H_5O_2N$ (nicotinic acid)
2	CHN	27.011, CHN
3	CHN	79.042, C_5H_5N
4	CHN	52.019, C_3H_2N
5	CHN	51.011, C_3HN
6	CHN	53.027, C_3H_3N

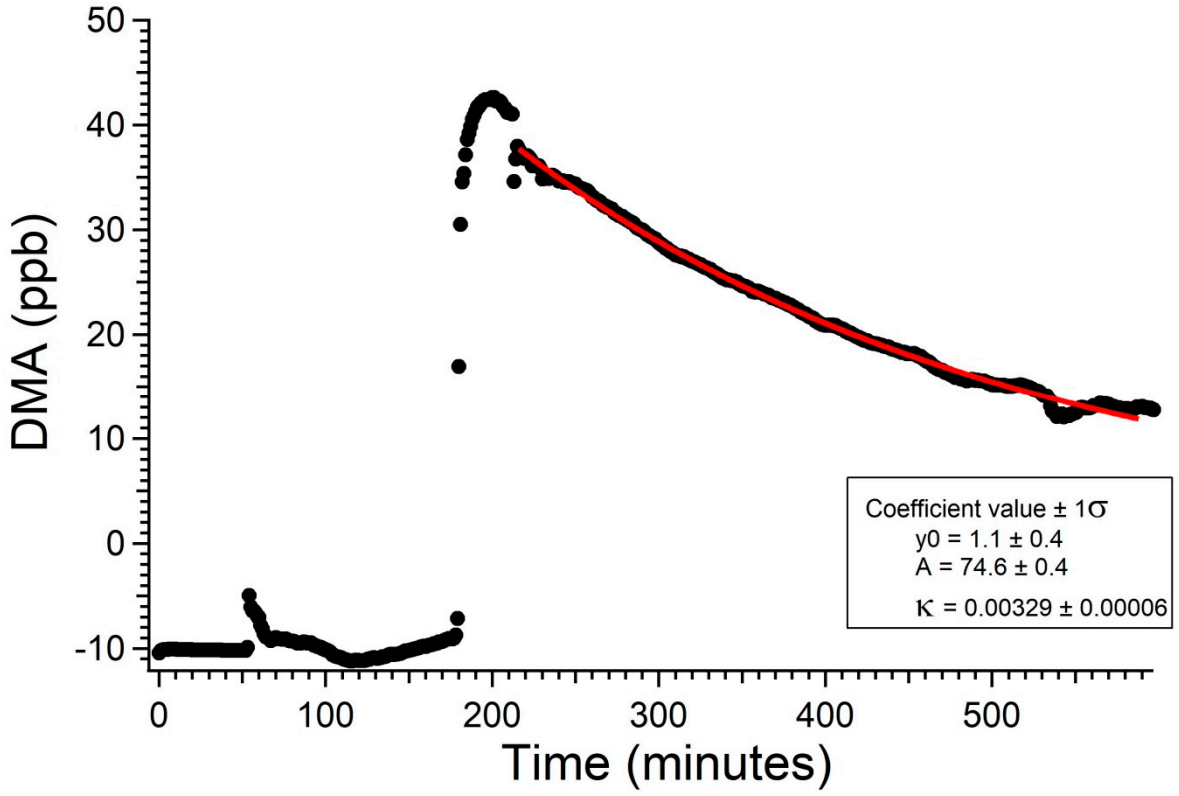

Figure S4. Uptake of DMA onto LIM/O_3 SOA at 20% RH with nicotinic acid seeds fitted to a first-order exponential decay (red).

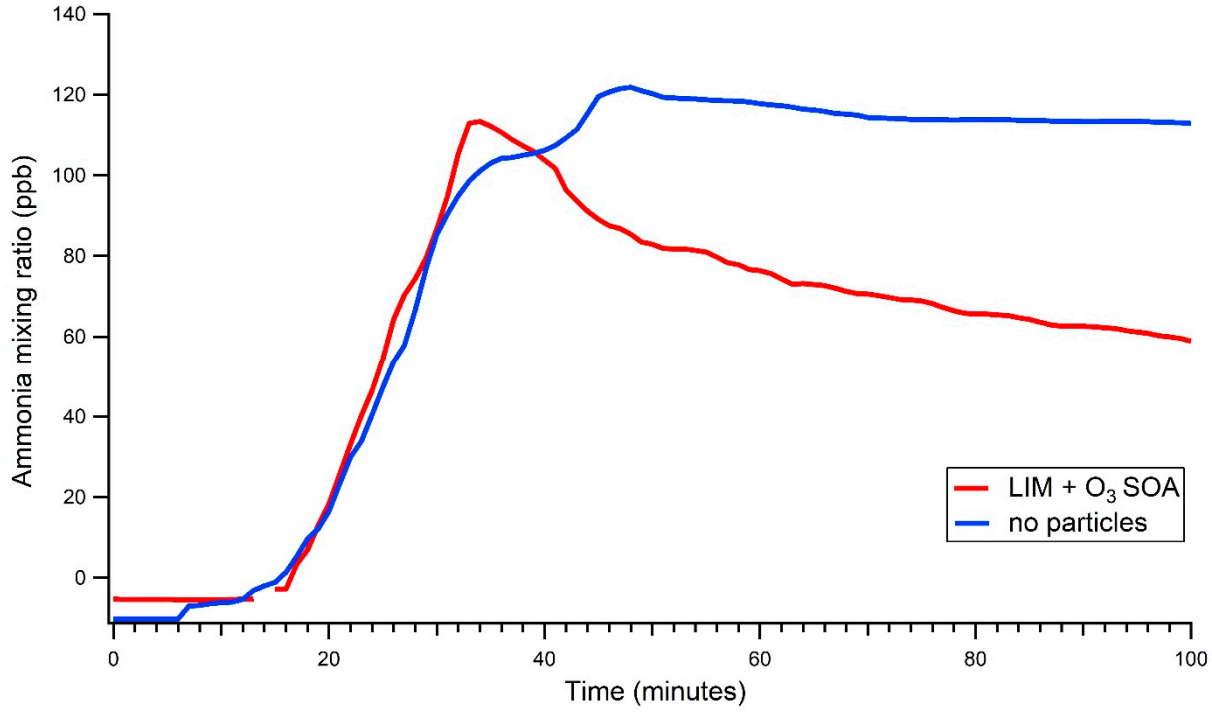

Figure S5. Uptake of ammonia onto LIM/O_3 SOA at 50% RH with nicotinic acid seeds (red) and gas-phase ammonia wall loss in an empty chamber without particles present (blue).