Supporting Information for "Methyl-perfluoroheptene-ethers ($CH_3OC_7F_{13}$): Measured OH Radical Reaction Rate Coefficients for Several Isomers and Enantiomers and Their Atmospheric Lifetimes and Global Warming Potentials"

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Table S1. Summary of OH + Deuterated Methyl-perfluoroheptene-ether ($CD_3OC_7F_{13}$, d_3-MPHE) results obtained in this work at 296 K using a relative rate technique.[a]

		C_6F_{12}[c]		$C_4H_2F_6$[d]		$C_3H_2F_4$[e]	
d_3-MPHE	Exp.[b] #	$\frac{k}{k_{Ref}}$	k 10^{-13} cm^3 molecule^{-1} s^{-1}	$\frac{k}{k_{Ref}}$	k 10^{-13} cm^3 molecule^{-1} s^{-1}	$\frac{k}{k_{Ref}}$	k 10^{-13} cm^3 molecule^{-1} s^{-1}
(*E*)-4m-3-ene	1	45.2 ± 4.6	32.2 ± 3.3	5.25 ± 0.44	25.7 ± 2.2	2.21 ± 0.14	24.8 ± 1.5
	2	27.7 ± 2.8	19.7 ± 2.0	5.28 ± 0.53	25.9 ± 2.6	2.14 ± 0.15	24.0 ± 1.7
	3	33.4 ± 4.1	23.8 ± 2.9	6.32 ± 0.43	31.0 ± 2.1	2.26 ± 0.13	25.3 ± 1.5
	4	30.1 ± 3.5	21.4 ± 2.5	–	–	–	–
	Global Fit	29.1 ± 2.0	22.4 ± 1.2	5.67 ± 0.27	27.8 ± 1.3	2.21 ± 0.08	24.8 ± 0.9
(*E*)-3m-3-ene	1	32.2 ± 1.2	22.9 ± 0.8	4.61 ± 0.12	22.6 ± 0.6	1.79 ± 0.05	20.0 ± 0.5
	2	21.1 ± 0.7	15.0 ± 0.5	4.95 ± 0.15	24.2 ± 0.7	1.77 ± 0.05	19.8 ± 0.6
	3	22.2 ± 1.1	15.8 ± 0.8	4.81 ± 0.12	23.6 ± 0.6	2.00 ± 0.04	22.4 ± 0.5
	4	24.0 ± 1.0	17.1 ± 0.7	–	–	–	–
	Global Fit	23.3 ± 0.5	16.6 ± 0.3	4.77 ± 0.07	23.4 ± 0.4	1.87 ± 0.03	20.9 ± 0.3
(*E*)-5m-3-ene	1	4.17 ± 0.17	2.97 ± 0.12	0.53 ± 0.03	2.60 ± 0.14	–	–
	2	3.32 ± 0.16	2.36 ± 0.11	0.51 ± 0.04	2.50 ± 0.18		
	3	4.04 ± 0.13	2.87 ± 0.10	0.54 ± 0.02	2.64 ± 0.11		
	4	3.96 ± 0.12	2.82 ± 0.08	–	–		
	Global Fit	3.90 ± 0.07	2.78 ± 0.05	0.53 ± 0.1	2.61 ± 0.08		
(*E*)-4m-2-ene	1	4.98 ± 0.07	3.54 ± 0.05	0.70 ± 0.01	3.45 ± 0.06	–	–
	2	4.45 ± 0.06	3.16 ± 0.04	0.76 ± 0.02	3.73 ± 0.08		
	3	4.79 ± 0.07	3.41 ± 0.05	0.67 ± 0.01	3.28 ± 0.06		
	4	5.33 ± 0.06	3.79 ± 0.04	–	–		
	Global Fit	4.85 ± 0.03	3.45 ± 0.02	0.70 ± 0.01	3.44 ± 0.04		
(*Z*)-3m-3-ene	1	0.78 ± 0.10	0.56 ± 0.07	0.15 ± 0.02	0.72 ± 0.09	–	–
	2	0.89 ± 0.07	0.64 ± 0.05	0.11 ± 0.02	0.52 ± 0.11		
	3	0.84 ± 0.09	0.60 ± 0.07	0.14 ± 0.02	0.68 ± 0.08		

	4	0.99 ± 0.05	0.70 ± 0.03	–	–		
	Global Fit	0.96 ± 0.03	0.68 ± 0.02	0.14 ± 0.01	0.68 ± 0.05		
(*Z*)-4m-3-ene	1	2.99 ± 0.21	2.13 ± 0.15	0.48 ± 0.04	2.33 ± 0.21	–	–
	2	3.07 ± 0.16	2.18 ± 0.11	0.41 ± 0.06	1.99 ± 0.29		
	3	2.86 ± 0.19	2.04 ± 0.13	0.43 ± 0.04	2.11 ± 0.17		
	Global Fit	2.97 ± 0.10	2.11 ± 0.07	0.45 ± 0.02	2.19 ± 0.19		

[a] Quoted uncertainties are 2σ from the precision of the linear least-squares fit to the data.
[b] Global fits correspond to linear regression fits to the combined data from all experiments for each MPHE isomer.
[c] $k_{Ref} = 0.712 \times 10^{-13}$ cm^3 molecule^{-1} s^{-1}.[1]
[d] $k_{Ref} = 4.91 \times 10^{-13}$ cm^3 molecule^{-1} s^{-1}.[2]
[e] $k_{Ref} = 10.2 \times 10^{-13}$ cm^3 molecule^{-1} s^{-1}.[3]

Table S2. Theoretically calculated (see text) vibrational frequencies and band strengths for (*E*)- and (*Z*)-3-methoxy-perfluorohept-3-ene ($CH_3OC_7F_{13}$, (*E*)- and (*Z*)-3m-3-ene) isomers.

	(*E*)-3-methoxy-perfluorohept-3-ene		**(*Z*)-3-methoxy-perfluorohept-3-ene**	
ν	ω (cm^{-1})	S (km mol^{-1})	ω (cm^{-1})	S (km mol^{-1})
1	18.9856	0.0316	3.3386	0.0542
2	29.1401	0.0223	33.7371	0.1414
3	33.0815	0.1994	43.0589	1.972
4	44.3791	0.4778	58.4675	0.2064
5	51.6575	0.014	65.2977	2.0512
6	64.3816	0.0115	71.2111	0.7623
7	100.035	0.2176	97.1246	0.3283
8	109.253	1.2727	102.934	0.5565
9	125.766	1.98	131.792	0.1968
10	149.735	0.8136	149.224	0.0613
11	158.812	0.7846	168.502	0.6705
12	173.303	3.2984	184.412	0.8085
13	210.734	2.5098	208.273	5.1832
14	215.761	2.2722	225.562	3.5229
15	227.95	0.6469	234.609	1.077
16	233.824	1.6931	241.48	0.942
17	252.143	2.947	247.37	1.352
18	284.692	8.6115	275.642	6.0134
19	288.157	1.6398	289.371	2.85
20	296.336	0.7107	296.254	1.7097
21	311.241	1.8295	317.465	1.6174
22	323.928	0.4562	340.703	0.7838
23	341.752	0.2343	352.137	1.3951
24	355.853	0.0926	359.511	2.4671
25	370.486	0.3093	367.267	1.0076
26	375.192	0.6267	376.596	0.5328
27	419.459	0.9228	408.75	4.9331
28	457.98	10.384	438.013	0.6995
29	489.544	6.8722	452.57	0.8182
30	513.069	11.0485	487.11	2.2515
31	531.968	9.3863	532.511	1.16
32	538.842	0.9085	534.501	9.2439
33	572.253	17.7322	559.062	0.5007
34	577.642	1.3165	585.856	1.6177
35	595.643	12.364	596.61	8.7843
36	603.644	4.5781	613.388	4.6338
37	639.209	17.4555	642.207	9.1939
38	676.028	67.8215	685.934	9.5723
39	687.521	3.1609	700.51	12.2509

40	744.151	33.5386	733.856	149.697
41	753.58	14.9523	743.499	13.8676
42	797.171	33.4156	827.709	227.516
43	923.883	88.1343	919.064	67.3809
44	975.059	59.4537	973.024	43.8103
45	1033.34	153.368	1057.85	155.799
46	1118.1	125.817	1110.73	123.719
47	1134.18	166.306	1115.5	56.1098
48	1150.18	9.0856	1135.18	160.721
49	1158.37	117.049	1153.76	16.8629
50	1167.16	2.3863	1165.6	6.9083
51	1174.13	31.7952	1174.93	159.981
52	1185.51	128.775	1182.22	232.298
53	1196.78	125.415	1200.6	219.804
54	1209.82	113.993	1203.68	205.293
55	1211.71	194.366	1215.7	28.0777
56	1227.56	192.473	1223.62	223.978
57	1228.3	118.647	1229.98	503.098
58	1252.56	794.345	1259.4	88.4407
59	1264.85	106.022	1280.71	47.5534
60	1312.36	115.284	1313.93	133.66
61	1321.16	158.868	1323.89	155.012
62	1372.05	19.6644	1350.57	79.4435
63	1477.45	3.3568	1483.74	5.4316
64	1491.1	6.7962	1489.12	5.4697
65	1501.82	9.8985	1503.23	19.0294
66	1731.81	0.3239	1719.5	127.374
67	3050.77	36.0246	3049.02	28.0688
68	3133.15	16.9874	3135.36	17.4535
69	3159.85	9.5147	3158.42	8.5131

Table S3. Theoretically calculated (see text) vibrational frequencies and band strengths for (*E*)- and (*Z*)-4(*RS*)-methoxy-perfluorohept-2-ene ($CH_3OC_7F_{13}$, (*E*)- and (*Z*)-4m-2-ene) isomers.

	(*E*)-4(*RS*)-methoxy-perfluorohept-2-ene		**(*Z*)-4(*RS*)-methoxy-perfluorohept-2-ene**	
ν	ω (cm^{-1})	S (km mol^{-1})	ω (cm^{-1})	S (km mol^{-1})
1	19.4029	0.055	28.7111	0.0464
2	28.9444	0.1532	33.6479	0.02
3	36.9332	0.0428	41.1939	0.032
4	40.6977	0.3092	57.786	0.1121
5	49.8728	0.2159	69.2764	0.1296
6	62.8674	0.2541	75.1804	0.2892
7	78.4371	1.226	112.307	0.7682
8	103.402	0.2295	129.368	1.2344
9	127.329	1.3468	132.04	1.8832
10	145.816	0.7959	145.877	1.251
11	159.059	0.6816	163.827	0.1074
12	172.386	1.7393	178.867	0.3173
13	182.637	0.1876	190.364	0.5365
14	222.998	5.044	220.961	9.4038
15	240.292	0.7683	227.141	1.3619
16	245.283	0.1333	245.376	2.0024
17	254.013	2.0555	246.312	0.1642
18	273.798	3.3495	287.394	5.075
19	287.637	1.7835	292.072	3.4764
20	289.219	3.1416	303.813	0.0974
21	301.16	1.1693	328.43	1.4297
22	330.184	2.2342	329.478	2.0927
23	345.329	0.2613	344.784	0.0557
24	358.389	2.6002	355.714	0.6948
25	367.906	1.7198	361.536	2.8413
26	377.03	0.7536	378.605	1.0491
27	417.376	1.2505	419.831	4.1158
28	468.497	5.0811	429.281	4.307
29	474.63	8.7807	459.309	5.6075
30	518.691	19.2381	496.17	2.0583
31	534.884	2.8766	529.066	11.2289
32	539.035	0.4872	541.967	1.114
33	546.038	11.0015	559.536	1.6609
34	586.778	4.6448	588.294	4.3881
35	601.616	3.2527	592.667	2.9455
36	623.985	36.306	606.104	2.8075
37	644.924	22.1039	646.769	48.0251
38	677.316	13.149	668.39	10.284
39	686.952	12.238	700.967	13.7108

40	727.807	23.6265	736.204	76.2235
41	739.141	50.8855	742.822	22.1812
42	808.938	79.7548	814.493	140.912
43	884.053	48.4727	940.962	59.8983
44	987.201	47.6452	977.009	31.8363
45	1060.33	52.9605	1050.63	69.6529
46	1079.71	52.9267	1076.04	111.747
47	1133.51	98.497	1131.1	34.0068
48	1153.39	37.7088	1138.61	153.178
49	1156.5	32.0481	1151.03	159.553
50	1158.87	302.437	1161.46	120.771
51	1172.05	6.3784	1172.24	29.0627
52	1188.19	28.927	1180.11	57.2578
53	1190.52	97.6042	1190.07	181.754
54	1205.39	131.295	1205.34	221.102
55	1210.85	203.005	1212.79	306.918
56	1225.98	40.7682	1227.15	259.13
57	1232.97	423.577	1234.8	440.594
58	1239.53	872.38	1250.66	78.4473
59	1255.93	166.602	1265.8	57.4698
60	1282.38	7.9271	1297.86	49.5034
61	1334.72	134.027	1329.78	265.559
62	1397.01	60.8641	1347.62	21.6347
63	1479.45	6.0976	1482.5	6.0854
64	1490.57	7.6867	1490.61	7.8482
65	1503.5	11.0992	1505.42	9.5975
66	1768.96	1.2272	1750.02	58.6355
67	3046.24	28.4427	3051.95	24.412
68	3122.59	20.1959	3130.89	19.8534
69	3165.27	6.8139	3169.84	6.3278

Table S4. Theoretically calculated (see text) vibrational frequencies and band strengths for (*E*)- and (*Z*)-4-methoxy-perfluorohept-3-ene ($CH_3OC_7F_{13}$, (*E*)- and (*Z*)-4m-3-ene) isomers.

	(*E*)-4-methoxy-perfluorohept-3-ene		**(*Z*)-4-methoxy-perfluorohept-3-ene**	
ν	ω (cm^{-1})	S (km mol^{-1})	ω (cm^{-1})	S (km mol^{-1})
1	13.2356	0.0139	14.5665	0.0495
2	16.3861	0.0626	23.1815	0.0947
3	35.796	0.598	50.3325	0.0121
4	39.6449	0.014	53.1192	0.7565
5	63.4731	0.0552	64.4011	2.0969
6	78.8193	0.2455	69.9516	0.2104
7	92.9562	0.4081	96.5614	0.1223
8	99.7183	1.4993	102.238	0.9196
9	124.051	0.5811	110.313	0.5552
10	142.126	1.878	137.497	0.8621
11	153.844	2.0617	147.452	0.2456
12	191.691	1.9716	180.131	1.8897
13	216.806	2.4803	208.1	5.9543
14	219.208	3.2483	221.646	3.7677
15	225.025	0.807	229.462	0.1406
16	228.902	0.6567	234.232	3.0939
17	238.038	3.1191	251.606	0.688
18	282.872	3.0224	266.31	2.8125
19	286.401	5.0975	288.029	2.2251
20	293.397	2.4539	302.327	2.9265
21	299.426	4.097	306.344	2.4686
22	323.578	1.0155	332.308	0.36
23	334.373	0.1032	340.257	0.422
24	356.571	1.8659	351.896	0.5588
25	370.917	0.0838	371.865	0.3112
26	381.644	0.1389	379.874	0.0722
27	414.796	0.9172	409.671	1.3768
28	430.048	2.5664	433.177	2.4981
29	508.364	16.2848	456.714	0.706
30	521.548	4.7608	516.632	4.5348
31	533.567	11.1727	532.67	7.1944
32	538.707	6.5155	535.22	6.1146
33	561.112	21.817	554.999	0.2384
34	587.649	24.9052	587.353	5.7835
35	596.951	1.7239	597.035	4.681
36	612.503	11.16	608.279	3.96
37	660.837	24.4064	654.158	20.2627
38	668.852	5.3557	670.179	8.7142
39	682.304	75.571	719.038	94.593

40	731.825	12.54	738.305	40.3876
41	749.926	23.1501	748.967	24.3405
42	785.303	13.16	826.776	152.216
43	915.867	82.9852	912.575	57.2291
44	976.009	65.5069	987.573	179.571
45	1055.86	209.079	1048.14	80.2364
46	1116.16	87.511	1110.81	83.5194
47	1128.63	25.6281	1120.25	197.101
48	1129.09	210.28	1135.38	179.523
49	1148.47	91.135	1162.02	38.0983
50	1166.16	11.6649	1164.85	44.1916
51	1170.5	33.6876	1166.05	25.8158
52	1180.09	70.9358	1179.84	96.9783
53	1193.48	80.8482	1200.64	109.559
54	1205.04	230.998	1202.6	339.232
55	1217.89	53.9089	1220.47	208.03
56	1220.4	401.581	1223.68	129.372
57	1228.17	234.178	1230.05	461.867
58	1256.57	664.349	1260.28	34.8754
59	1259.99	86.4995	1279.9	144.068
60	1322.14	128.913	1300.33	92.6714
61	1327.45	84.7483	1321.71	163.729
62	1372.13	9.2269	1342.89	75.0543
63	1478.14	2.5173	1479.19	1.6114
64	1491.51	6.4681	1491.36	8.5556
65	1502.65	10.4104	1500.3	9.8316
66	1731.83	0.6417	1719.41	68.0329
67	3053.82	34.8799	3042.9	36.9833
68	3137.43	16.3364	3119.85	17.8643
69	3160.39	9.4687	3156.17	11.8345

Table S5. Theoretically calculated (see text) vibrational frequencies and band strengths for (*E*)- and (*Z*)-5(*RS*)-methoxy-perfluorohept-3-ene ($CH_3OC_7F_{13}$, (*E*)- and (*Z*)-5m-3-ene) isomers.

	(*E*)-5(*RS*)-methoxy-perfluorohept-3-ene		**(*Z*)-5(*RS*)-methoxy-perfluorohept-3-ene**	
ν	ω (cm^{-1})	S (km mol^{-1})	ω (cm^{-1})	S (km mol^{-1})
1	8.1592	0.1689	23.783	0.0504
2	23.2002	0.0709	28.9502	0.1372
3	33.5506	0.3184	48.4228	0.1207
4	39.2229	0.2331	59.0962	0.1958
5	60.7464	0.1517	67.9317	0.3836
6	86.0116	0.1487	95.7162	0.2017
7	93.2662	0.1938	97.5379	0.5731
8	98.9782	1.3262	107.175	1.3395
9	122.004	0.2639	130.963	0.4254
10	147.493	0.6776	140.411	0.5073
11	157.87	2.569	163.116	2.7388
12	166.739	1.1904	165.789	1.067
13	199.884	1.8939	205.403	1.1827
14	216.472	2.8898	220.938	5.5072
15	226.556	2.2654	225.331	6.0308
16	228.504	0.4744	237.788	1.5212
17	254.612	2.9182	250.689	0.6236
18	260.325	2.6189	272.522	2.9902
19	288.977	3.4082	297.806	0.7377
20	295.801	5.4781	300.929	2.3676
21	315.447	0.0076	325.288	1.3975
22	336.696	0.9524	340.404	0.9609
23	350.179	2.2583	341.942	0.654
24	356.694	1.4038	356.637	2.5996
25	370.479	2.0973	371.654	2.1576
26	380.18	0.4397	374.93	0.7959
27	407.1	1.4359	398.961	1.5636
28	430.375	5.9547	430.529	2.5578
29	489.582	14.7999	460.66	1.3365
30	503.676	3.5595	502.18	3.618
31	532.713	8.7116	531.464	4.6933
32	535.634	4.3793	534.787	6.2045
33	569.71	38.3667	544.148	0.7384
34	578.571	2.0022	585.09	2.5645
35	592.672	0.2596	594.962	2.761
36	619.518	3.6901	610.902	20.5675
37	661.863	0.5117	652.926	17.495
38	672.134	22.992	669.112	1.7604
39	679.536	28.7075	694.356	32.7344

40	728.417	42.9966	739.358	79.6289
41	745.093	26.0825	745.224	18.3152
42	789.245	19.3053	845.963	171.939
43	917.875	62.5158	927.03	81.7927
44	995.109	49.4828	992.188	52.0807
45	1061.1	182.43	1050.57	185.475
46	1078.18	122.445	1084.46	47.5899
47	1117.71	124.125	1117.69	102.673
48	1133.91	148.948	1138.22	91.7518
49	1157.65	78.5329	1149.83	243.987
50	1167.82	123.57	1169.27	40.4512
51	1173.86	12.4153	1174.92	38.2309
52	1181.94	106.531	1182.08	130.594
53	1199.39	129.356	1201.46	216.138
54	1203.27	177.46	1207.95	192.512
55	1220.28	281.168	1221.09	36.9984
56	1225.08	382.955	1222.08	333.798
57	1227.3	77.3718	1229.22	422.804
58	1251.55	576.821	1272.95	8.6541
59	1274.94	56.5525	1279.11	157.56
60	1325.94	77.1866	1306.22	80.8391
61	1330.07	127.547	1323.05	166.867
62	1374.43	2.8379	1340.55	84.5594
63	1478.48	6.2993	1480.33	5.662
64	1496.54	8.423	1497.85	10.0855
65	1502.1	12.9307	1501.73	15.5299
66	1760.85	1.3709	1748.87	53.241
67	3048.29	25.02	3046.05	24.3707
68	3126.12	15.8223	3124.18	14.5171
69	3163.68	8.9946	3163.17	9.3763

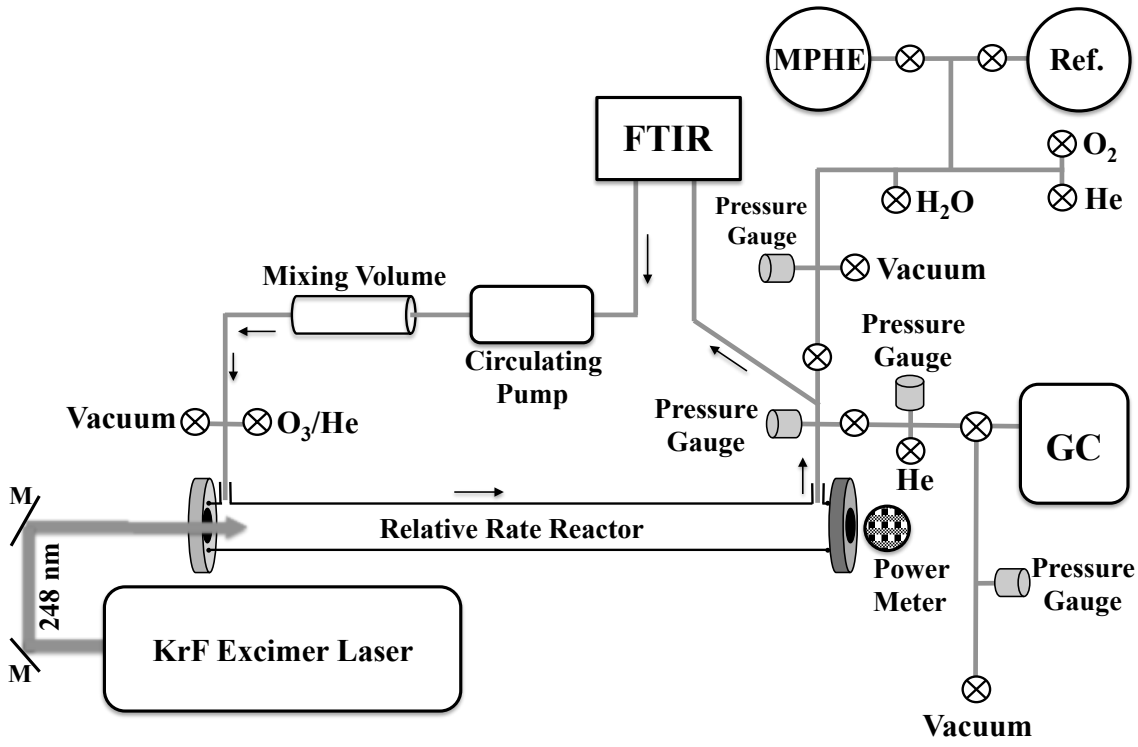

Figure S1. Schematic of the experimental apparatus. Small arrows indicate direction of gas flow through apparatus. MPHE: methyl-perfluoroheptene-ether ($CH_3OC_7F_{13}$), Ref.: reference compound, FTIR: Fourier transform infrared spectrometer, GC: gas chromatograph.

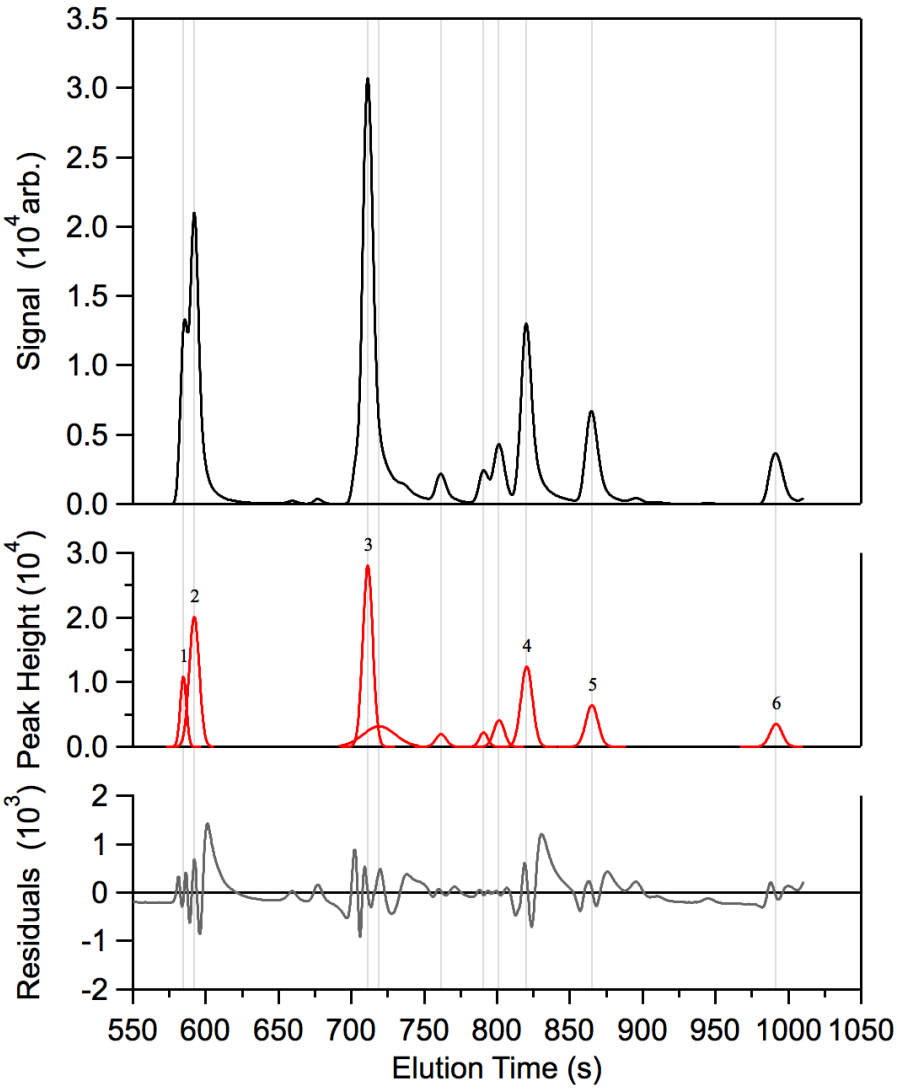

Figure S2. A representative chromatogram of a methyl-perfluoroheptene-ether ($CH_3OC_7F_{13}$) sample and its analysis. Top Panel: Measured chromatogram. Middle Panel: Least-squares fit of Gaussian profiles to the chromatogram in the top panel (see text for details) where the MPHE isomers included in the kinetic study are numbered in order of elution; unlabeled peaks correspond to minor MPHE isomers or sample impurities. Bottom Panel: Fit residual. Vertical lines correspond to MPHE peak centers.

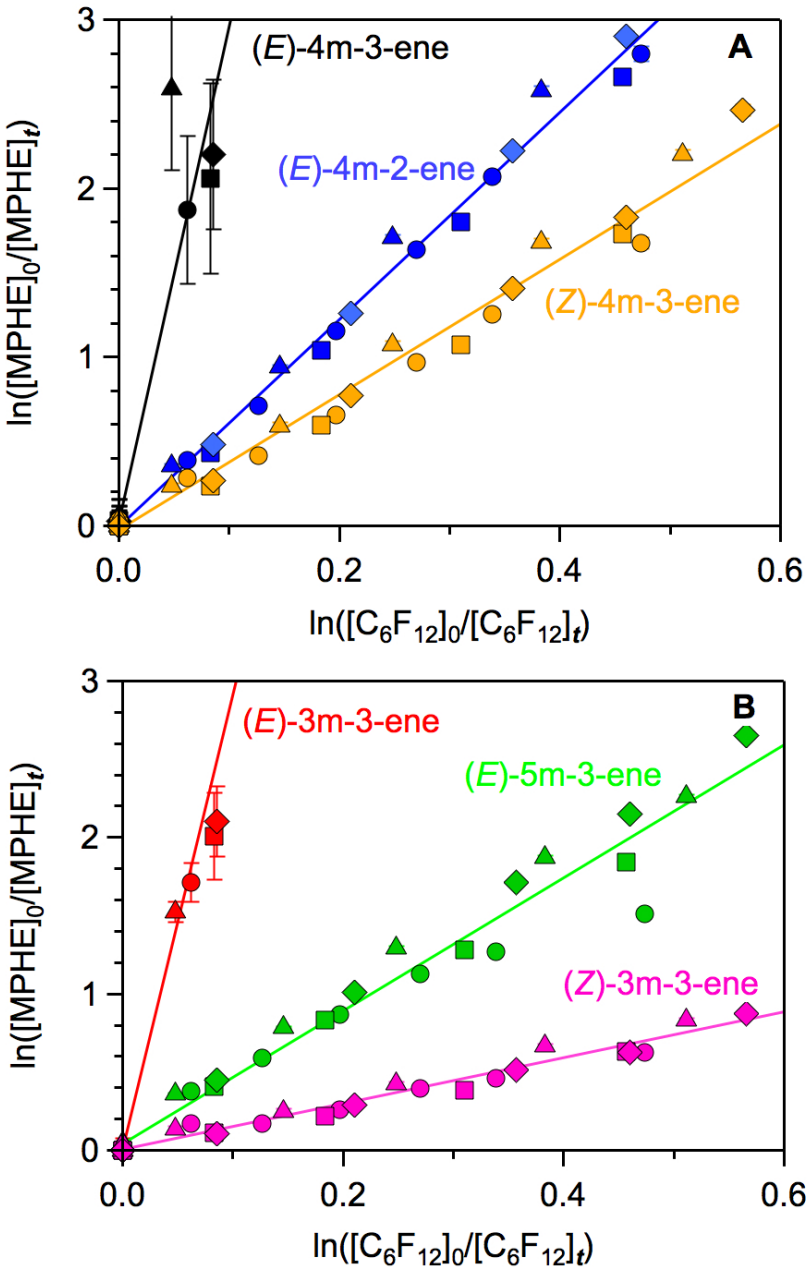

Figure S3. Relative rate data measured in this work for the OH + MPHE (methyl-perfluoroheptene-ether, $CH_3OC_7F_{13}$) isomer reactions at 296 K with perfluoro-2-methyl-pent-2-ene (C_6F_{12}) as the reference compound. Relative rate data are displayed in two panels for improved clarity. The different markers correspond to results from independent experiments. Error bars correspond to the 2σ measurement precision. The lines are weighted linear least-squares fits to the combined data (global fits); the results are given in Table 2.

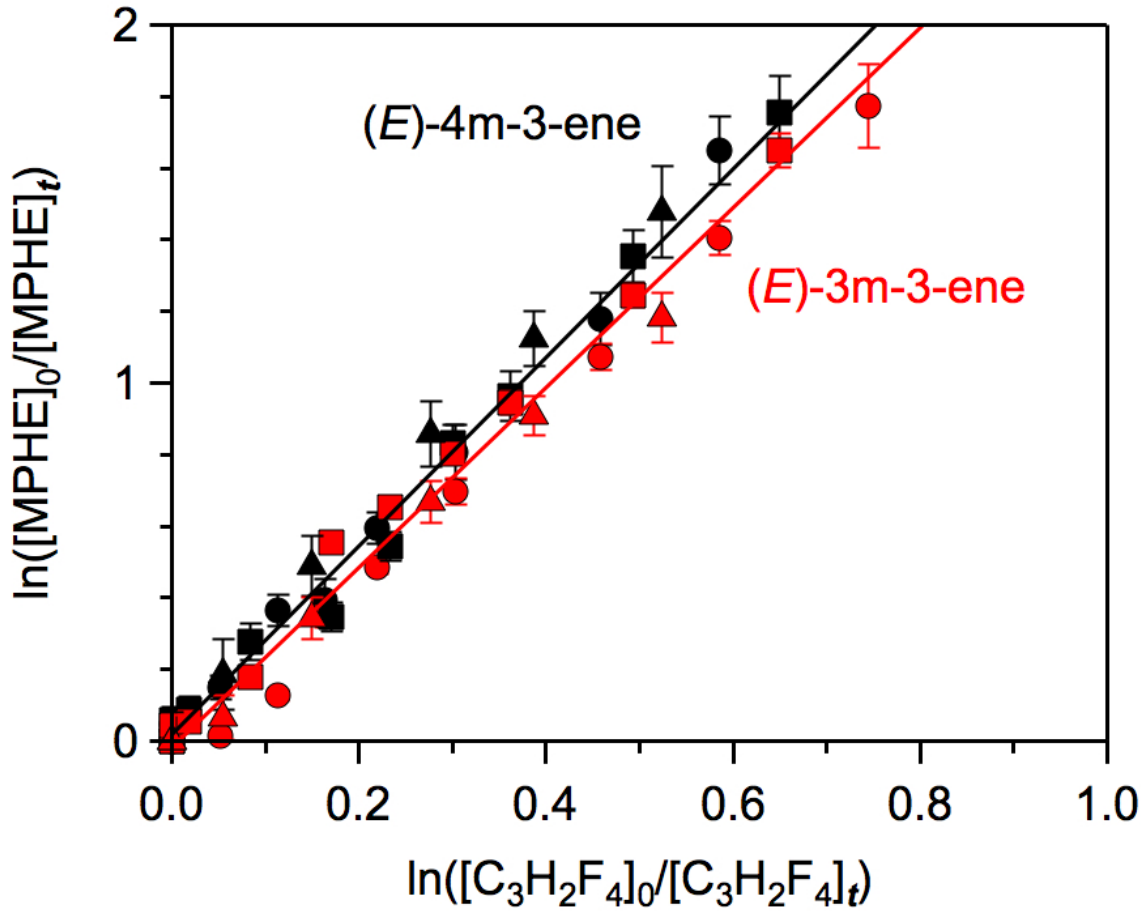

Figure S4. Relative rate data measured in this work for the OH + (*E*)-4m-3-ene and (*E*)-3m-3-ene (methyl-perfluoroheptene-ether, $CH_3OC_7F_{13}$) reactions with 2,3,3,3-tetrafluoropropene ($C_3H_2F_4$) as the reference compound. Different markers correspond to results from independent experiments. Error bars correspond to the 2σ measurement precision. The lines are weighted linear least-squares fits to the combined data (global fits); the results are given in Table 2.

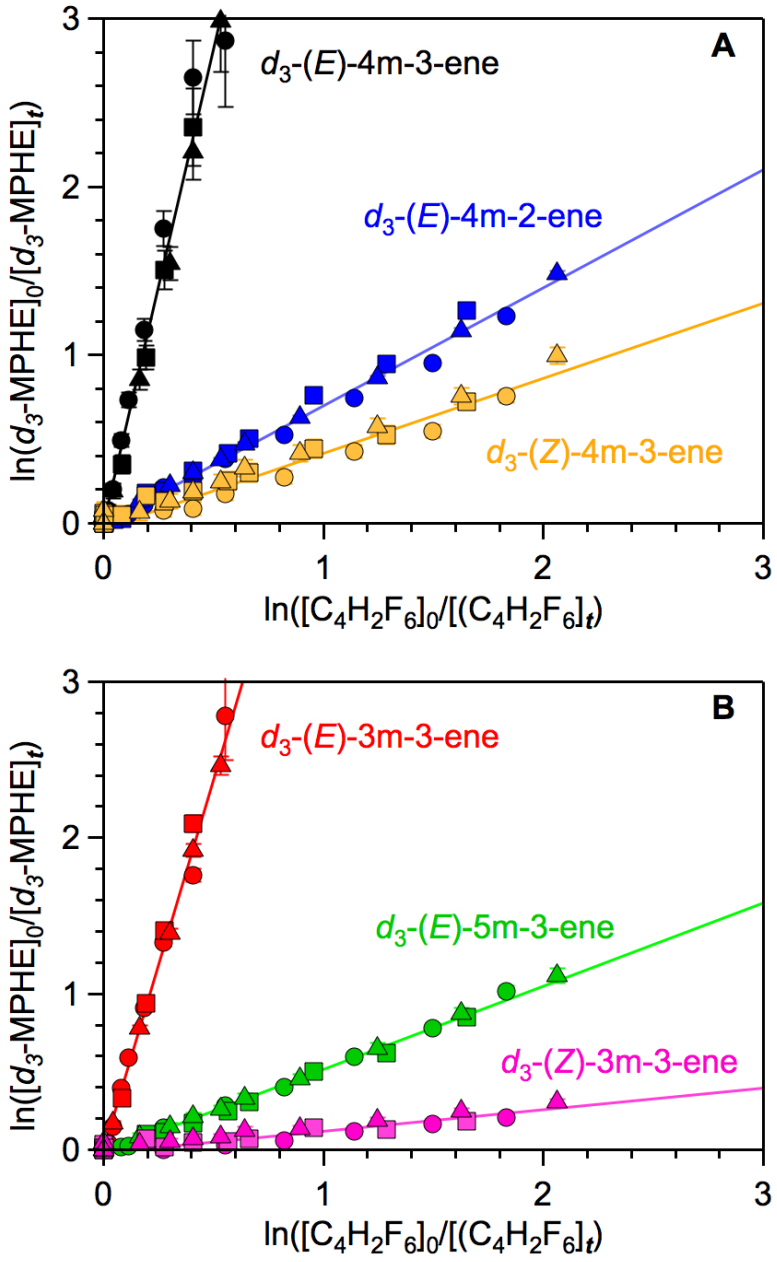

Figure S5. Relative rate data measured in this work for the OH + d_3-MPHE (methyl-perfluoroheptene-ether, $CD_3OC_7F_{13}$) isomer reactions with (*Z*)-1,1,1,4,4,4-$C_4H_2F_6$ as the reference compound. Relative rate data are displayed in two panels for improved clarity. Different markers correspond to results from independent experiments. Error bars correspond to the 2σ measurement precision. The lines are weighted linear least-squares fits to the combined data (global fits); the results are given in Table S1.

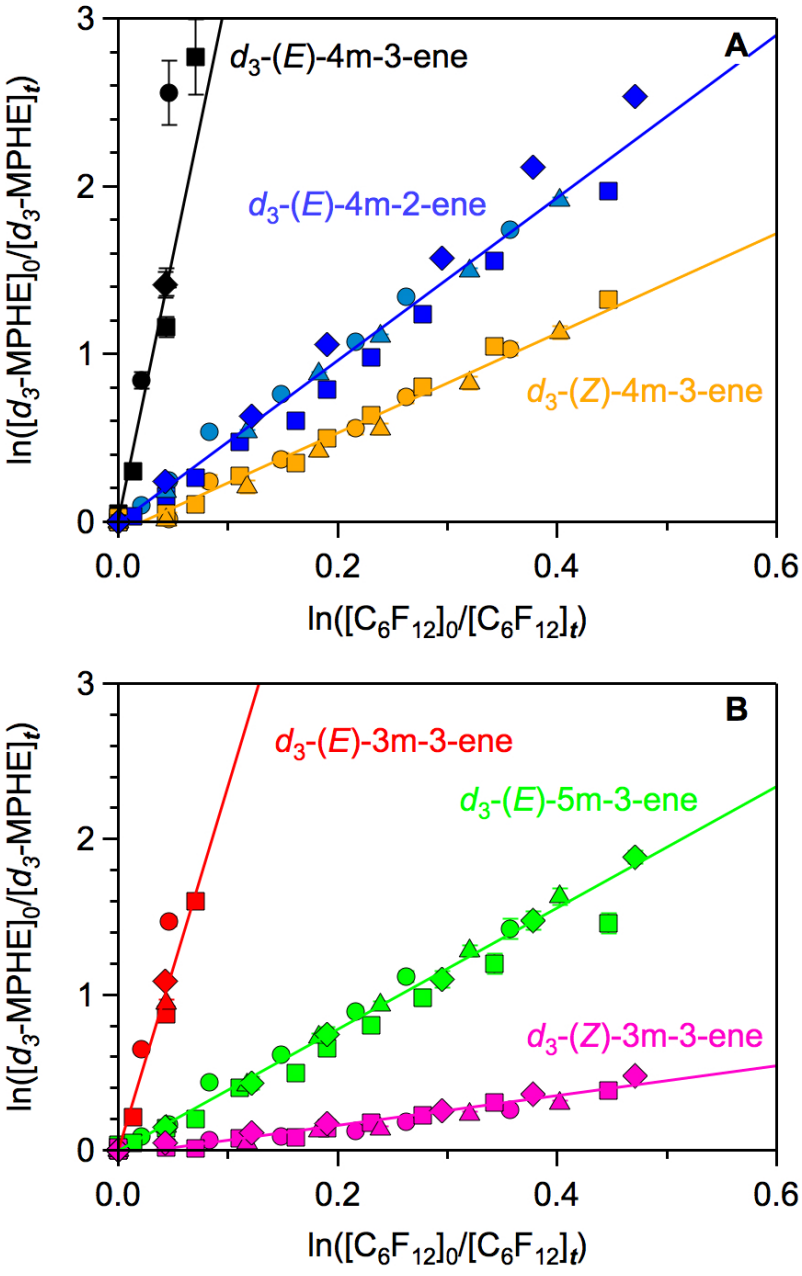

Figure S6. Relative rate data measured in this work for the OH + d_3-MPHE (methyl-perfluoroheptene-ether, $CD_3OC_7F_{13}$) isomer reactions with perfluoro-2-methyl-pent-2-ene (C_6F_{12}) as the reference compound. Relative rate data are displayed in two panels for improved clarity. Different markers correspond to different experiments. Error bars correspond to the 2σ measurement precision. The lines are weighted linear least-squares fits to the combined data (global fits); the results are given in Table S1.

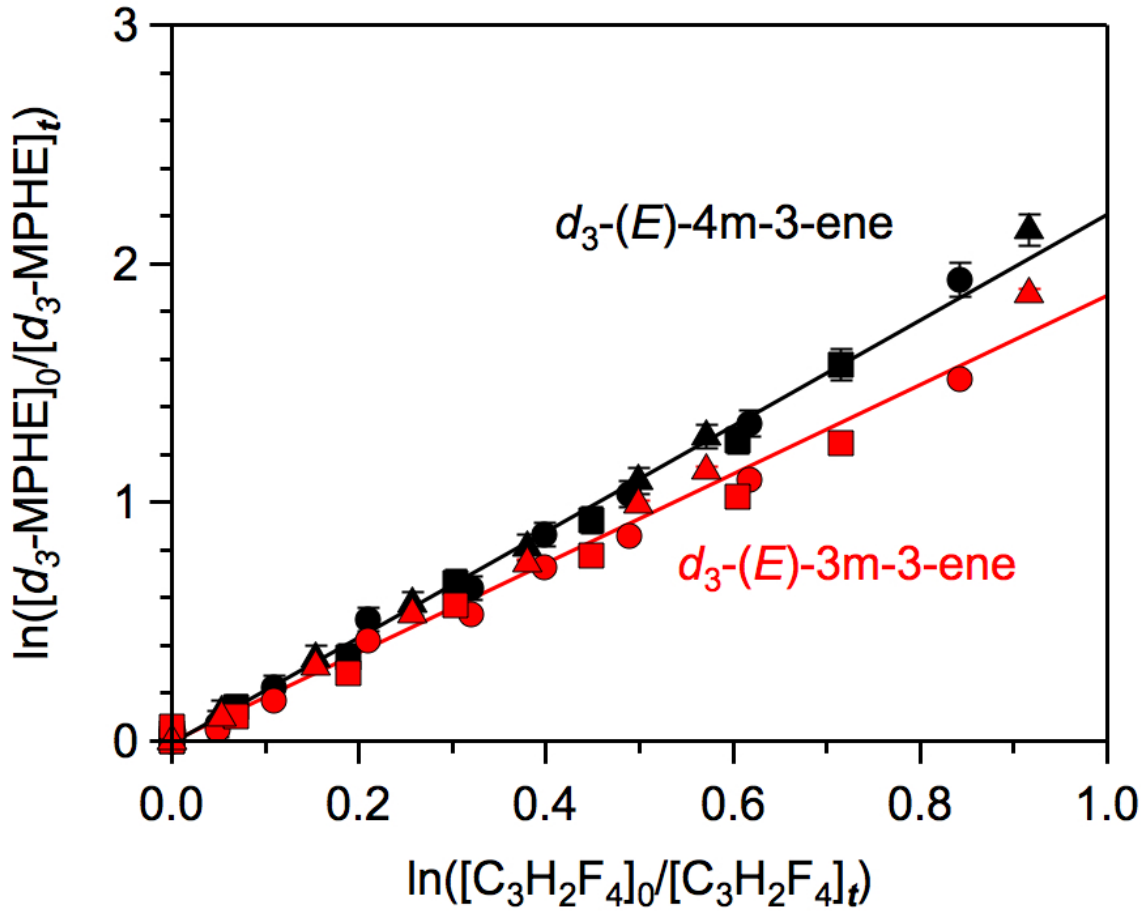

Figure S7. Relative rate data for the OH + d_3-(*E*)-4m-3-ene and d_3-(*E*)-3m-3-ene (d_3-MPHE) (methyl-perfluoroheptene-ether, $CD_3OC_7F_{13}$) isomer reactions with 2,3,3,3-tetrafluoropropene ($C_3H_2F_4$) as the reference compound. Different markers for each MPHE isomer correspond to different experiments. Error bars correspond to the 2σ measurement precision. Lines are weighted linear least-squares fits to the combined data (global fits); results are given in Table S1.

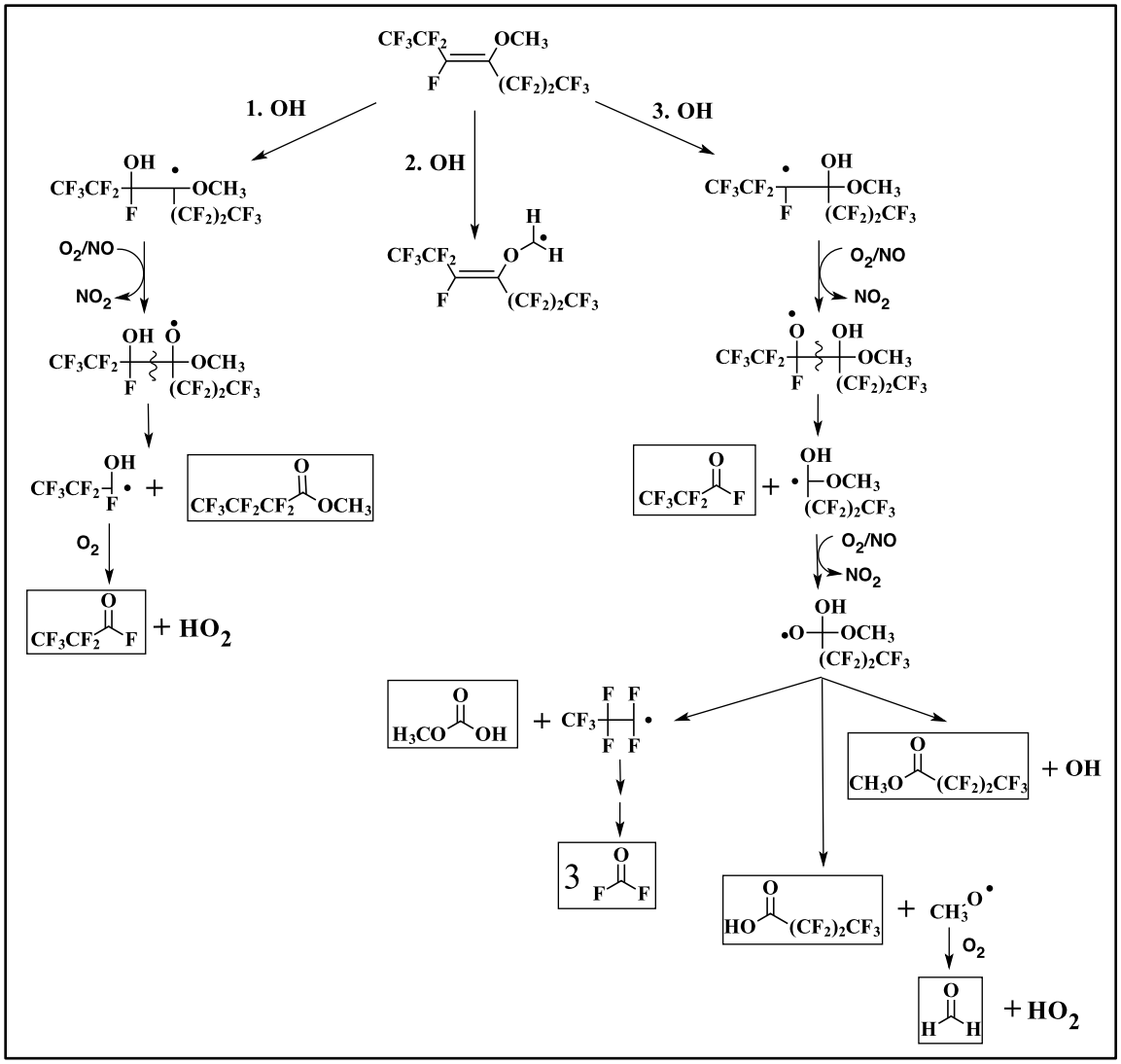

Figure S8. Simplified atmospheric degradation scheme for a MPHE (methyl-perfluoroheptene-ether, $CH_3OC_7F_{13}$) isomer initiated by reaction with the OH radical under high NO_x conditions. Channels 1 and 3 represent OH radical addition to either carbon atom of the double bond, while channel 2 represents H-atom abstraction from the -OCH_3 group. Compounds enclosed in boxes are expected stable end-products.

References

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2. Baasandorj, M.; Ravishankara, A. R.; Burkholder, J. B., Atmospheric Chemistry of (Z)-$CF_3CH{=}CHCF_3$: OH Radical Reaction Rate Coefficient and Global Warming Potential. *J. Phys. Chem. A* **2011,** *115*, 10539-10549.
3. Papadimitriou, V. C.; Lazarou, Y. G.; Talukdar, R. K.; Burkholder, J. B., Atmospheric Chemistry of $CF_3CF{=}CH_2$ and (*Z*)-$CF_3CF{=}CHF$: Cl and NO_3 Rate Coefficients, Cl Reaction Product Yields, and Thermochemical Calculations. *J. Phys. Chem. A* **2011,** *115*, 167-181.