SUPPLEMENTORY INFORMATION

# Low Temperature Thermal Treatment of Gas-Phase Fluorotelomer Alcohols by Calcium Oxide

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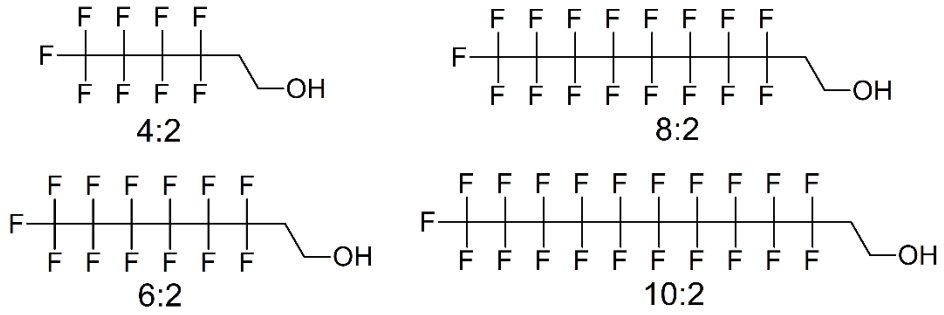


**Figure S1.** The fluorotelomer alcohols (FTOHs) examined in this study.

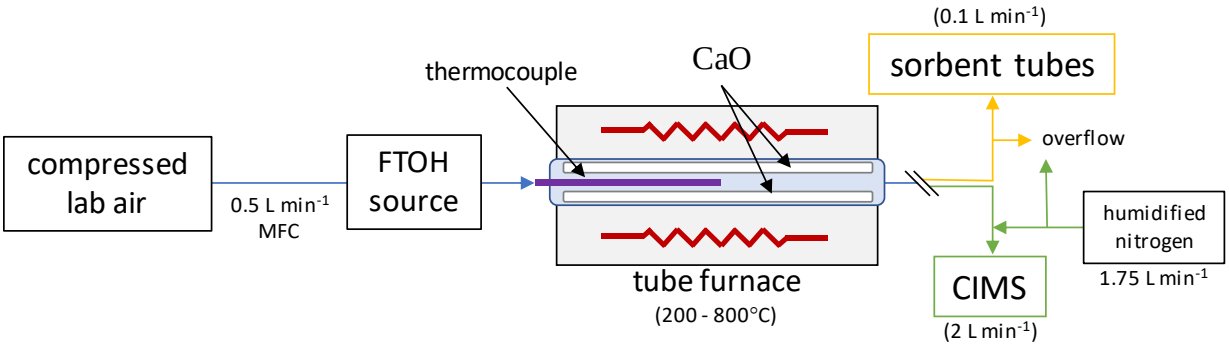


**Figure S2.** Experimental setup. Green conditions and flow paths are used during CIMS sampling. Yellow conditions and flow paths are used during sorbent tube sampling for TD-GC/MS. Flow rates within parentheses are pull rates, and those not in parentheses are push rates.

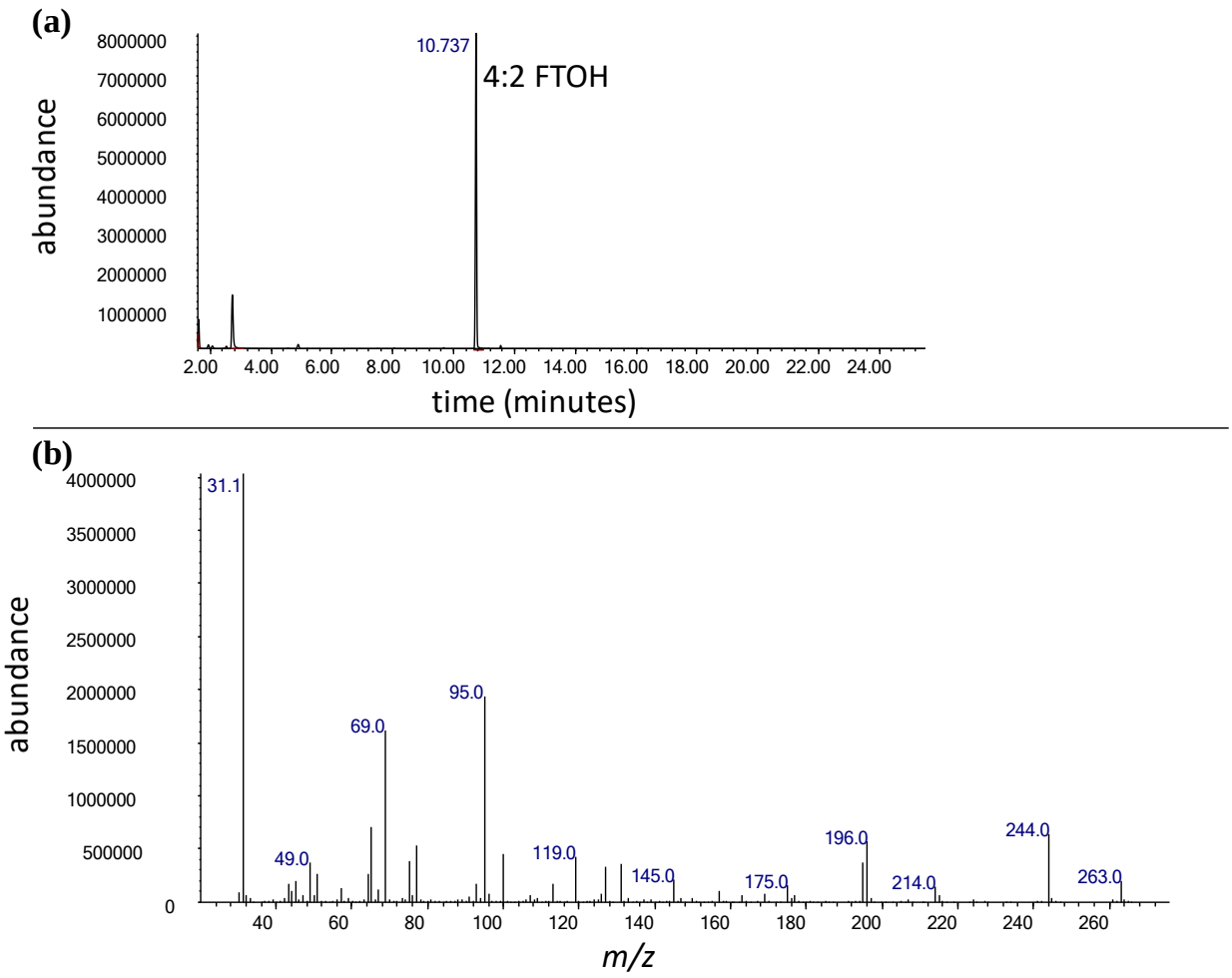


**Figure S3.** TD-GC/MS data for 4:2 FTOH. (a) SIM chromatogram for 4:2 FTOH sampling at 250 °C. (b) Mass spectrum for 4:2 FTOH sampling at 250 °C.

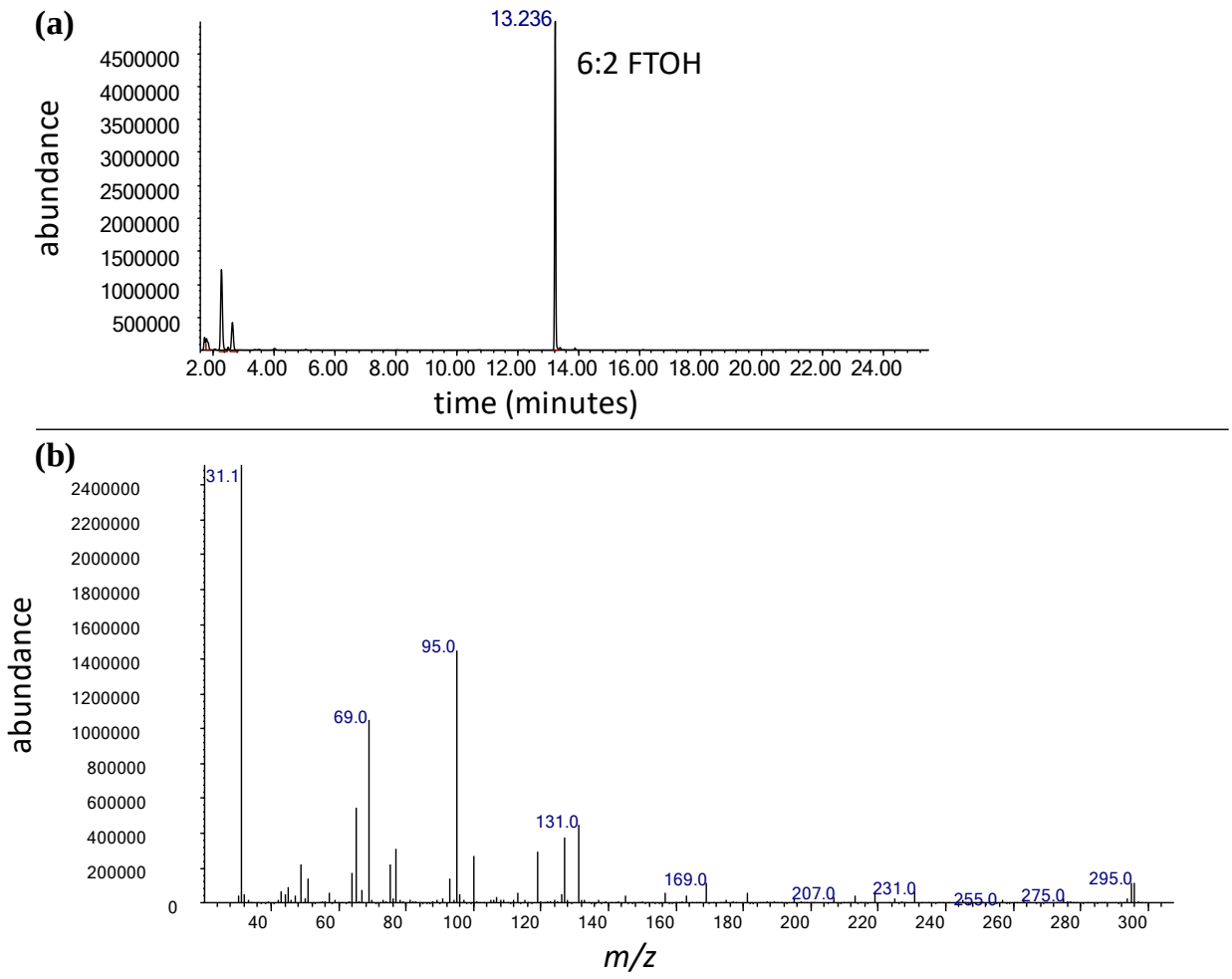


**Figure S4.** TD-GC/MS data for 6:2 FTOH. (a) SIM chromatogram for 6:2 FTOH sampling at 250 °C. (b) Mass spectrum for 6:2 FTOH sampling at 250 °C.

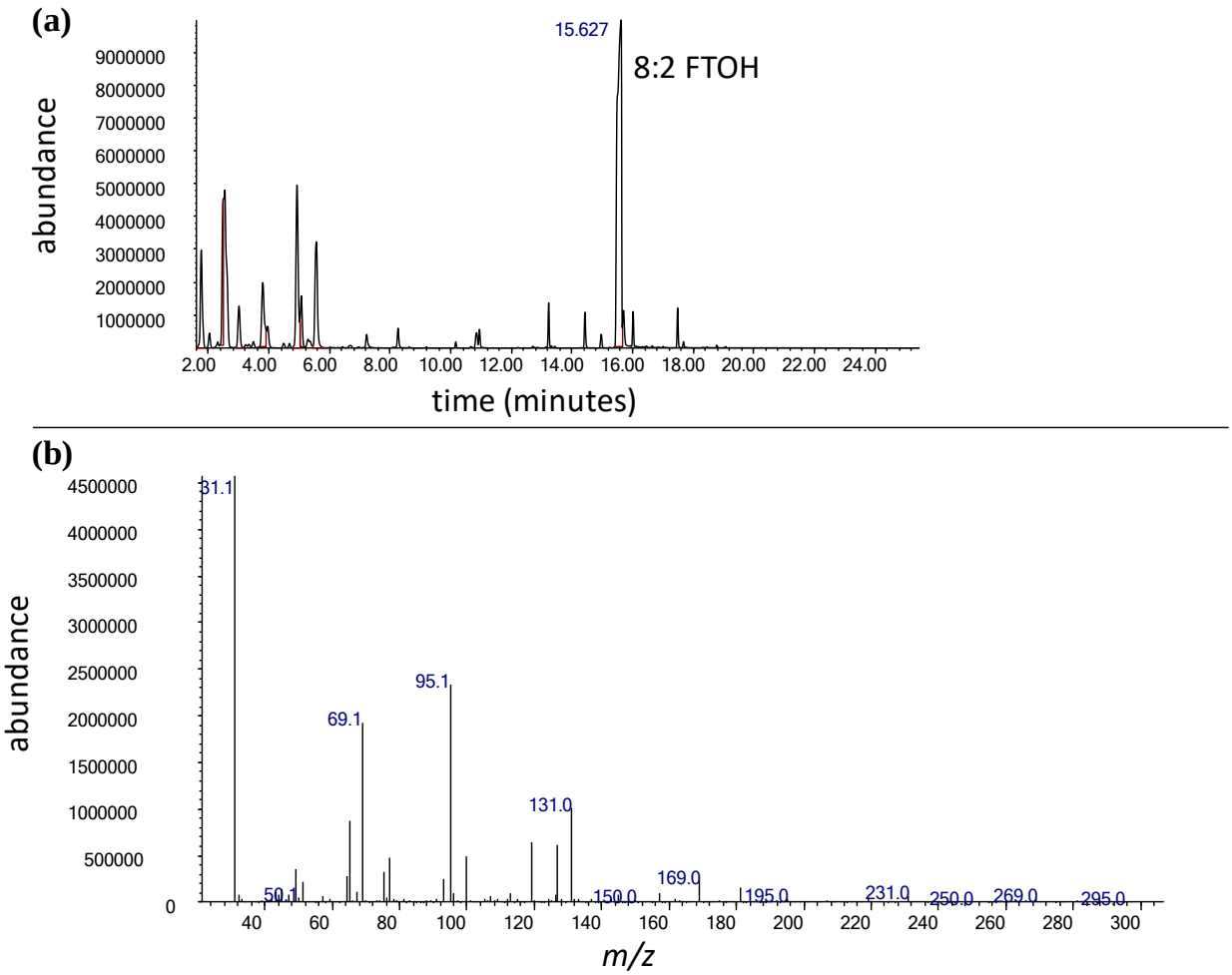


**Figure S5.** TD-GC/MS data for 8:2 FTOH. (a) SIM chromatogram for 8:2 FTOH sampling at 250 °C. (b) Mass spectrum for 8:2 FTOH sampling at 250 °C.

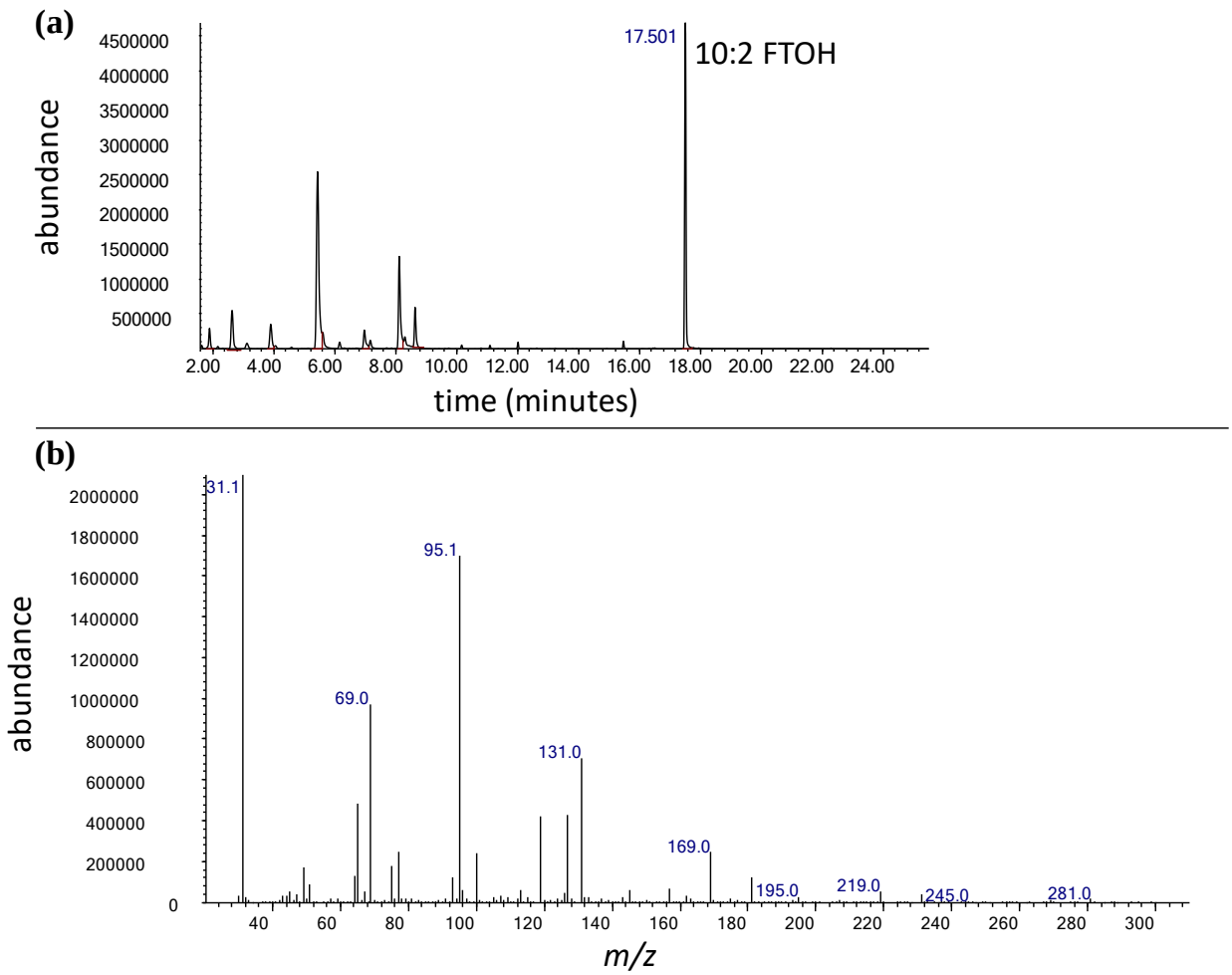


**Figure S6.** TD-GC/MS data for 10:2 FTOH. (a) SIM chromatogram for 10:2 FTOH sampling at 250 °C. (b) Mass spectrum for 10:2 FTOH sampling at 250 °C.

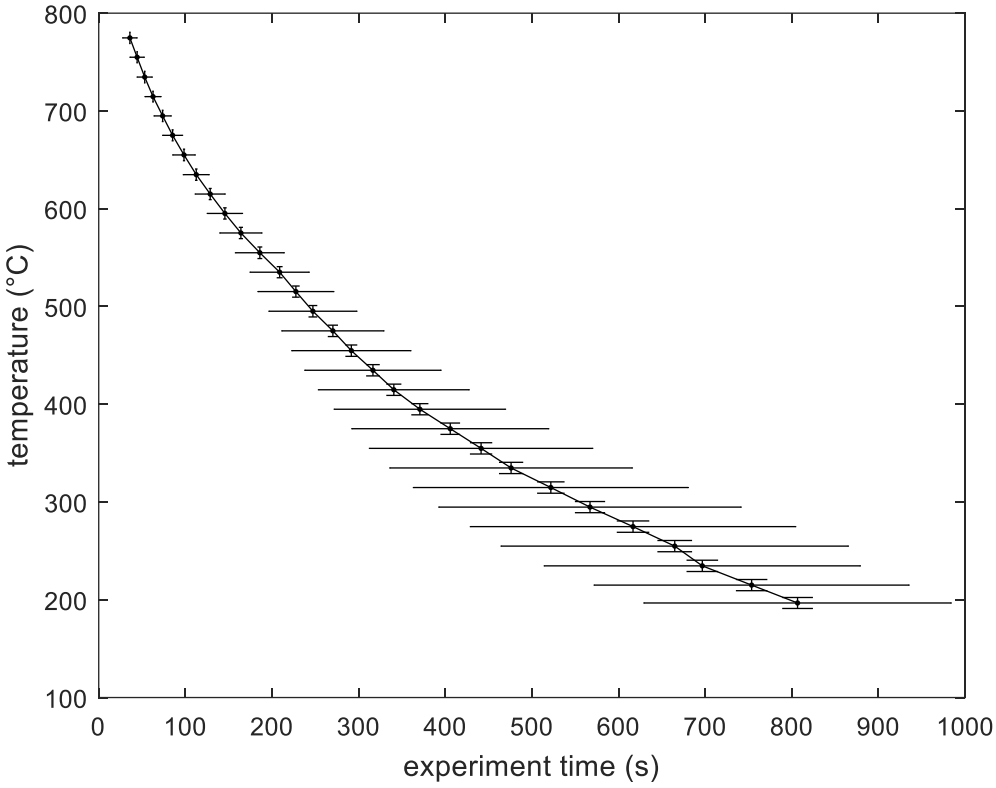


**Figure S7.** Temperature profile used for CIMS analysis averaged across all performed experiments. Vertical error bars are the standard deviations in the temperature bin averages. Horizontal error bars are the standard deviations in the time required to reach each temperature bin, the variability of which was subject to factors such as ambient temperature that affected the cooling rate of the furnace.

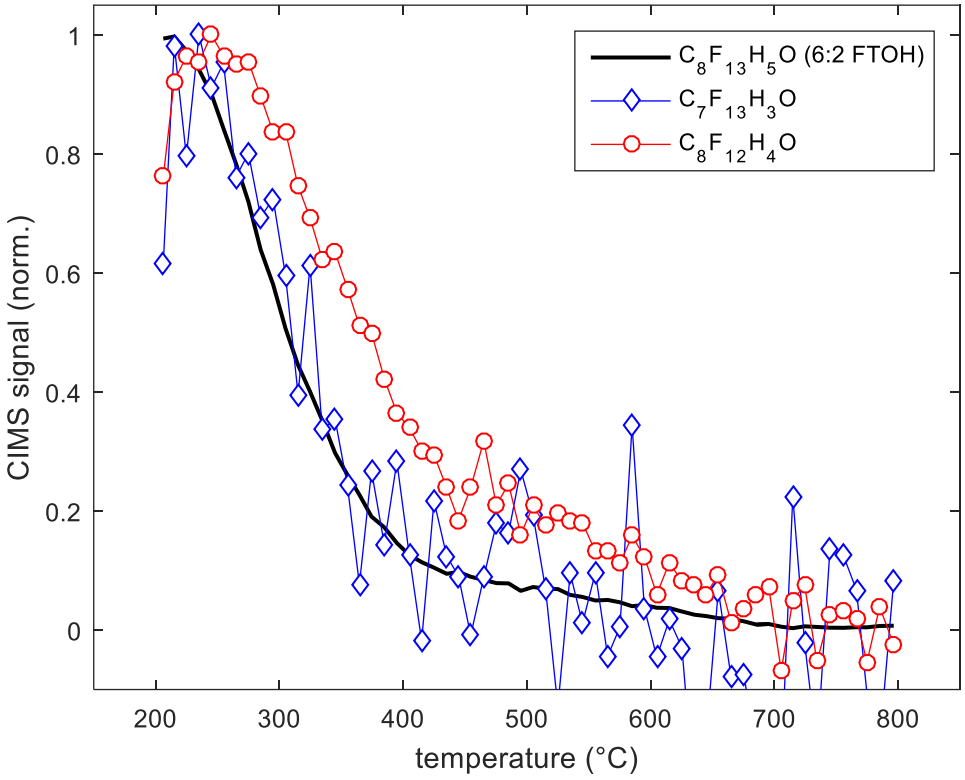


**Figure S8.** Temperature-dependent formation of products of incomplete destruction resulting from CaO thermal treatment of 6:2 FTOH.

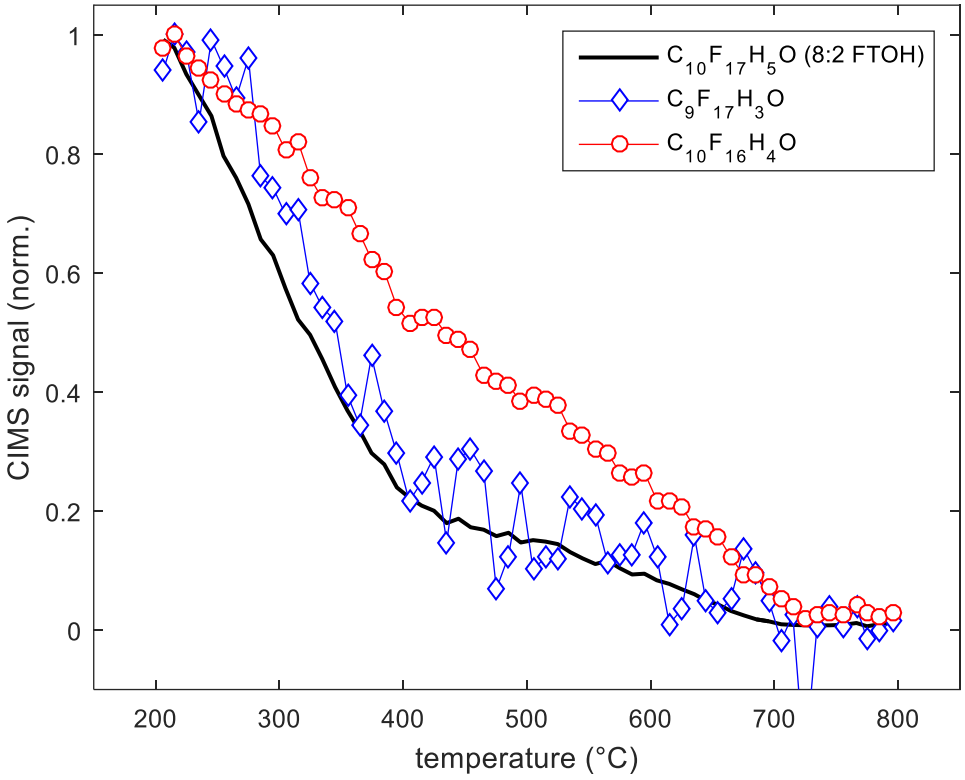


**Figure S9.** Temperature-dependent formation of products of incomplete destruction resulting from CaO thermal treatment of 8:2 FTOH.

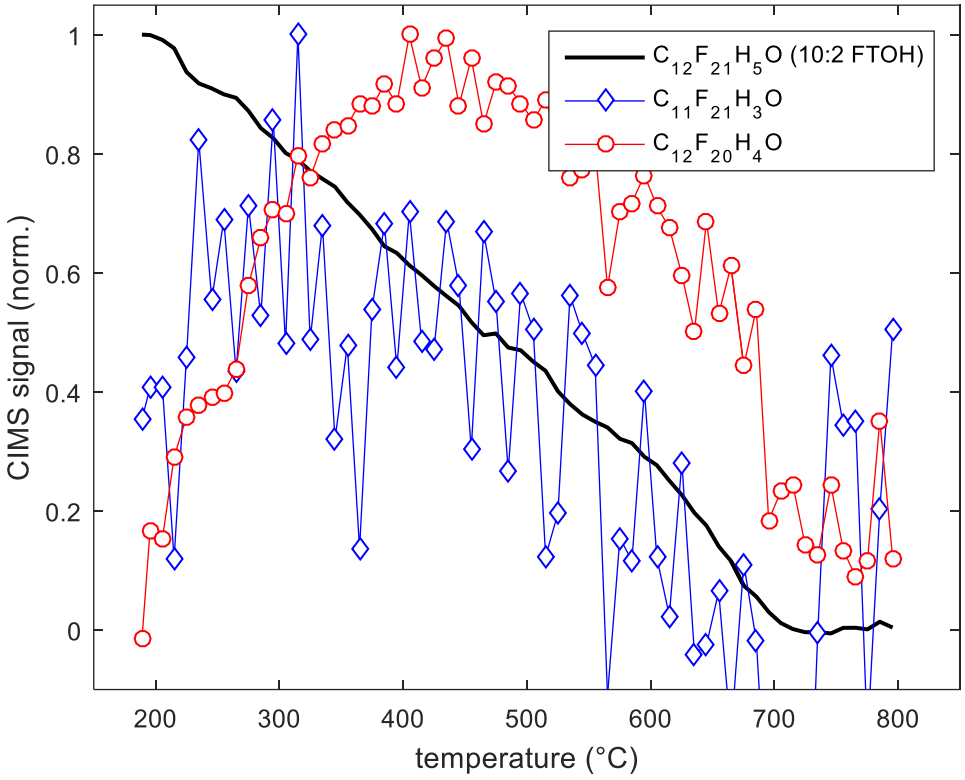


**Figure S10.** Temperature-dependent formation of products of incomplete destruction resulting from CaO thermal treatment of 10:2 FTOH.

**Table S1.** Select TD-GC/MS extracted ion chromatogram areas from suspected PFAS products of incomplete destruction at various treatment temperatures.

| FTOH | retention time (min) | *m/z* | EIC area | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 250 °C | 300 °C | 350 °C | 400 °C | 500 °C | 600 °C | 700 °C | 800 °C |
| 4:2 | 1.63 | 69 | 9.086E+05 | 1.066E+06 | 7.252E+05 | - | - | 9.595E+03 | - | - |
| | 1.63 | 75 | 4.283E+06 | 5.049E+06 | 3.295E+06 | - | - | 3.592E+04 | 5.147E+03 | - |
| | 2.06 | 69 | 1.675E+05 | 2.204E+05 | 3.144E+05 | - | 3.192E+04 | 1.189E+04 | 1.323E+04 | 1.596E+03 |
| 6:2 | 1.89 | 75 | 8.554E+05 | 1.064E+06 | 7.599E+05 | 4.507E+05 | 4.200E+04 | 1.378E+04 | 2.308E+03 | - |
| | 2.33 | 95 | 3.385E+06 | 8.967E+06 | 1.407E+07 | 5.534E+06 | 9.732E+05 | 3.269E+05 | 1.794E+05 | 7.180E+02 |
| | 2.68 | 75 | 6.082E+06 | 4.048E+06 | 2.446E+06 | 1.538E+06 | 2.407E+05 | 1.153E+05 | 8.289E+03 | - |
| | 4.05 | 77 | 7.051E+05 | 6.589E+05 | 6.984E+05 | 5.572E+05 | 1.002E+05 | 1.130E+05 | 1.753E+05 | - |
| 8:2 | 1.84 | 69 | 1.225E+07 | 2.263E+07 | 2.434E+07 | 1.908E+07 | 1.129E+06 | 2.371E+05 | - | - |
| | 2.13 | 69 | 1.580E+06 | 3.683E+06 | 5.079E+06 | 6.723E+06 | 9.646E+05 | 2.702E+05 | 2.017E+04 | 9.620E+02 |
| | 2.13 | 113 | 2.742E+06 | 6.405E+06 | 1.054E+07 | 1.607E+07 | 2.415E+06 | 5.875E+05 | 3.097E+04 | - |
| | 2.62 | 69 | - | - | 5.250E+07 | 4.370E+07 | 3.968E+06 | 8.911E+05 | 1.253E+05 | 2.111E+03 |
| | 3.10 | 113 | 1.680E+07 | 2.564E+07 | 2.540E+07 | 1.485E+07 | 1.038E+06 | 2.026E+05 | 1.197E+04 | - |
| | 3.87 | 69 | 1.175E+07 | 1.453E+07 | 1.429E+07 | 9.520E+06 | 4.512E+05 | 1.080E+05 | 1.374E+04 | - |
| | 4.03 | 75 | 1.007E+07 | 2.459E+07 | 2.189E+07 | 1.124E+07 | 1.006E+06 | 3.232E+05 | 6.748E+03 | - |
| | 4.55 | 113 | 2.171E+06 | 5.527E+06 | 9.749E+06 | 8.140E+06 | 7.230E+05 | 1.026E+05 | 4.075E+03 | - |
| | 5.62 | 75 | 4.962E+07 | 6.026E+07 | 5.149E+07 | 3.540E+07 | 6.810E+06 | 2.512E+06 | 5.657E+04 | 3.868E+04 |
| | 7.25 | 77 | 1.147E+07 | 1.266E+07 | 1.542E+07 | 1.718E+07 | 3.279E+06 | 2.714E+06 | 5.836E+05 | - |
| 10:2 | 1.76 | 131 | 3.286E+05 | 1.337E+06 | 9.308E+05 | 5.198E+05 | - | - | - | - |
| | 1.88 | 69 | 9.351E+05 | 2.478E+06 | 2.530E+06 | 1.586E+06 | 1.147E+05 | 2.363E+04 | - | - |
| | 2.15 | 113 | 1.676E+05 | 7.898E+05 | 1.510E+06 | 1.417E+06 | 1.988E+05 | 3.941E+04 | - | - |
| | 2.60 | 69 | 2.475E+06 | 4.104E+06 | 3.958E+06 | 2.039E+06 | 1.726E+05 | 4.029E+04 | - | 1.161E+04 |
| | 3.08 | 131 | 1.640E+06 | 5.319E+06 | 5.677E+06 | 3.200E+06 | 2.876E+06 | 1.518E+06 | 4.876E+04 | - |
| | 3.89 | 69 | 1.696E+06 | 3.942E+06 | 4.604E+06 | 2.429E+06 | 2.025E+05 | 4.936E+04 | - | - |
| | 4.56 | 113 | 3.192E+05 | 8.999E+05 | 1.766E+06 | 2.039E+06 | 4.451E+05 | 1.502E+05 | 7.080E+03 | - |
| | 5.42 | 69 | 1.398E+07 | 1.900E+07 | 1.939E+07 | 1.064E+07 | 8.347E+05 | 2.016E+05 | 2.125E+04 | - |
| | 6.15 | 113 | 1.420E+06 | 2.232E+06 | 2.437E+06 | 1.236E+06 | 1.592E+05 | 3.823E+04 | 1.514E+03 | - |
| | 6.96 | 69 | 1.316E+06 | 1.580E+06 | 1.257E+06 | 6.146E+05 | - | - | 4.529E+03 | - |
| | 7.09 | 113 | 3.130E+05 | 6.624E+05 | 8.894E+05 | 5.032E+05 | 6.419E+04 | 1.490E+04 | - | - |
| | 7.16 | 75 | 1.553E+06 | 2.959E+06 | 1.713E+06 | 8.442E+05 | 1.322E+05 | 6.145E+04 | 1.105E+03 | - |
| | 7.70 | 113 | 1.880E+05 | 5.218E+05 | 8.718E+05 | 6.321E+05 | 1.072E+05 | 1.501E+04 | - | - |
| | 8.11 | 95 | 4.639E+06 | 1.509E+07 | 3.031E+07 | 2.106E+07 | 5.170E+06 | 2.051E+06 | 2.153E+05 | - |
| | 8.63 | 75 | 7.623E+06 | 9.283E+06 | 6.157E+06 | 3.527E+06 | 9.126E+05 | 6.576E+05 | 8.464E+03 | - |

*Temperatures are approximate. Retention times are averaged across all temperatures sampled.