Supporting Information

The Atmospheric Photolysis of *o*-Tolualdehyde

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Figure S1. Photolytic loss of *o*-tolualdehyde during the experiment performed at EUPHORE on 3rd July 2003.

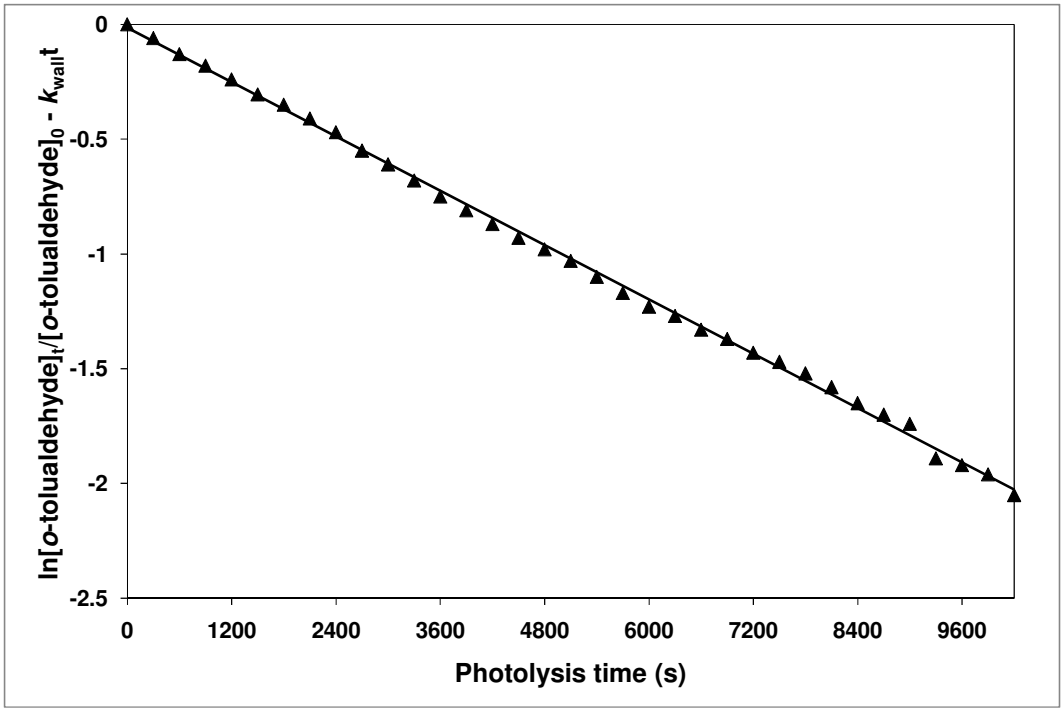


Figure S2: FTIR spectra obtained during the photolysis of *o*-tolualdehyde in the European Photoreactor. The spectra (a)-(e) are shown in order from top to bottom: (a) after 1 hr 52 min photolysis, (b) following subtraction of *o*-tolualdehyde, (c) reference spectrum of 1-indanol (d) reference spectrum of *o*-phthalaldehyde (phthalic dicarboxaldehyde) (e) reference spectrum of phthalide.

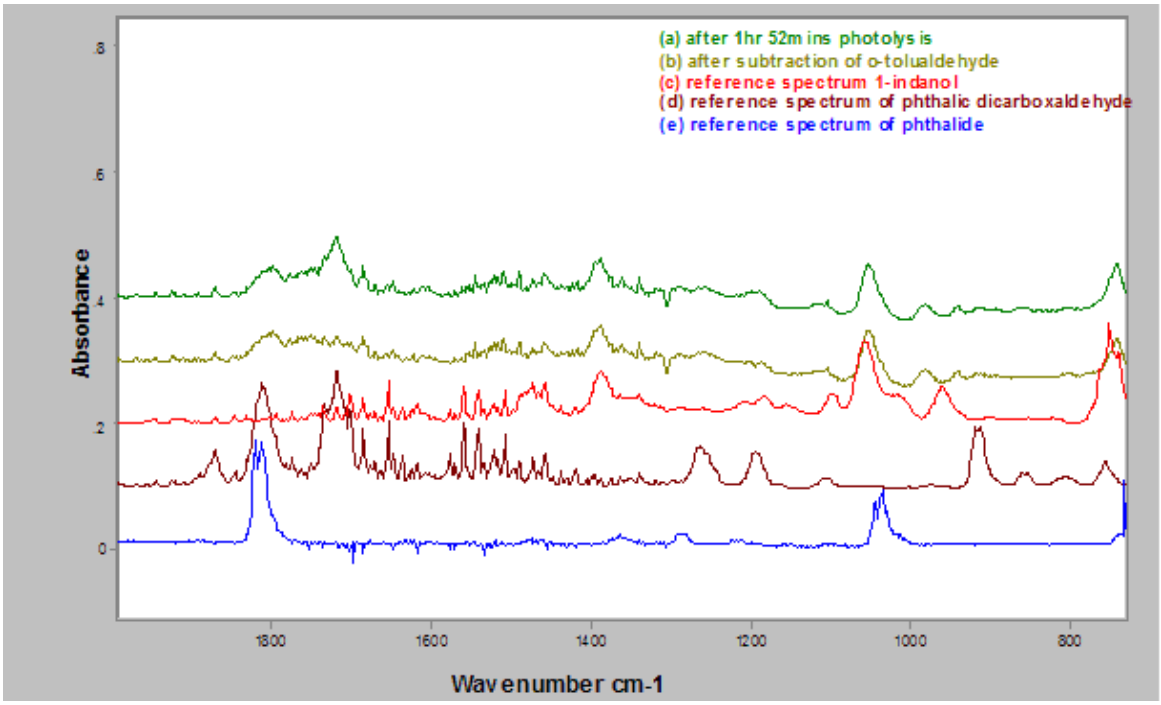


Figure S3: GC-MS data obtained during the photolysis of *o*-tolualdehyde in the indoor simulation chamber. The chromatogram obtained after 21 minutes is shown in red (*o*-tolualdehyde 1). The chromatogram obtained after 2 hours is shown in green (*o*-tolualdehyde 2). The identified reaction products are *o*-cresol, *o*-toluic acid, *o*-phthalaldehyde (1,2-benzenedicarboxaldehyde), phthalide and phthalic anhydride.

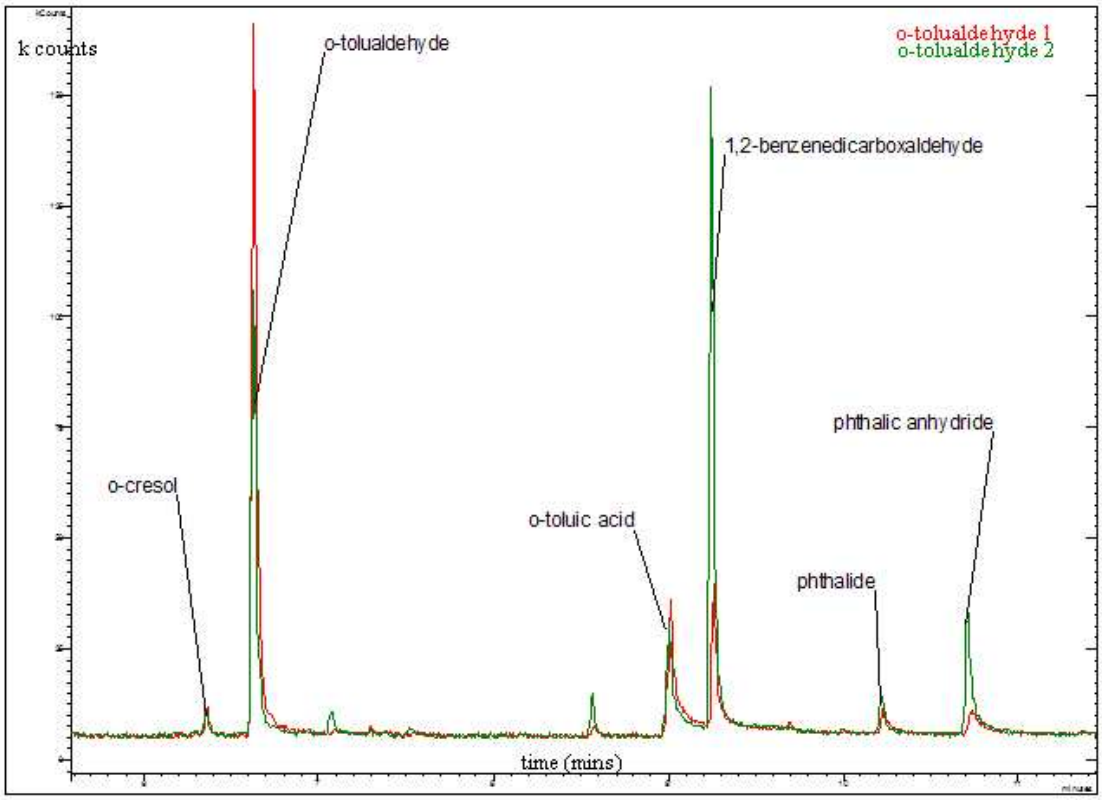


Table S1: Gas-phase products identified by GC-MS during the photolysis of *o*-tolualdehyde in the indoor simulation chamber.

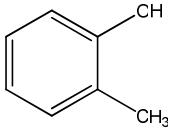
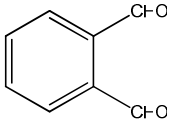
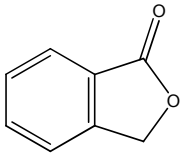
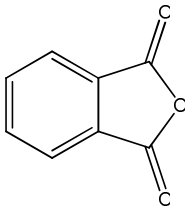
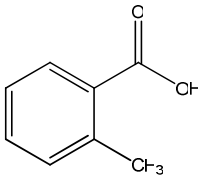
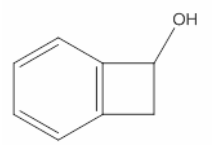
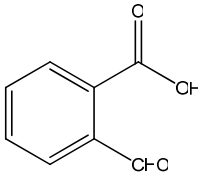
Compound	Retention time (min)	MW	m/z (EI)
 *o*-cresol	6.36	108	108(100) 79, 77, 90, 50, 64
 *o*-phthalaldehyde	9.25	134	105(100) 50, 77, 134
 phthalide	10.22	134	105 (100) 50, 77, 133
 phthalic anhydride	10.71	148	104(100) 50, 76
 *o*-toluic acid	9.02	136	118 (100) 90, 65

Table S2: Particle phase products identified by GC-MS during the photolysis of *o*-tolualdehyde in the EUPHORE simulation chamber.

Compound	Retention time (min)	MW	m/z (CI)
Without derivatization			
o-phthalaldehyde	9.60	134	135 (M+1), 163 (M+29), 175 (M+41), 77, 105,
phthalide	11.03	134	135 (M+1), 163 (M+29), 175 (M+41), 77
phthalic anhydride	12.5	148	149 (M+1), 177 (M+29), 189 (M+41), 77
PFBHA derivatization			
o-phthalaldehyde	13.34	134 (329)*	330 (M+1), 358 (M+29), 370 (M+41), 77
PFBHA+MSTFA derivatization			
o-toluic acid	7.38	136 (208)*	209 (M+1), 237 (M+29), 249 (M+41), 193 (M-15), 119 (M-89), 73
 benzocyclobutenol	8.54	120 (192)*	193 (M+1), 211 (M+29), 233 (M+41), 177 (M-15), 103 (M-89), 73
 phthalaldehydic acid	19.75	150	489, 402, 281, 220, 130, 73

*MW of derivative