Supplemental information:

TGA Ramp rate:

The impact of increasing the temperature ramp rate on a given sample in the thermo-gravimetric analyzer is shown in Figure A. Increasing the rate of heating caused a shift in the mass loss profile of approximately 50°C, an increase in the maximum rate of burn-off, from just under 2%/minute to approximately 9%/minute, and a positive shift of roughly 60°C in the corresponding temperature.



Figure A. Mass loss and rate of burn-off profiles for a given sample under varying temperature ramp rates

Biphenyl:

Biphenyl, as determined through XRD, was a common byproduct of the nanotube synthesis process, and typically deposited in crystalline form near the furnace exhaust. A sample was taken directly from the furnace and run through the same temperature program as the carbon samples, with results as shown in Figure B. This sample was taken from a different location of the same run as sample #1, shown in Figure 6. The majority of sample burn-off was completed at much lower temperatures than for other samples examined, with peak burn-off rates occurring at approximately 132°C, 222°C, 490°C, and 525°C.



Figure B. Mass-loss profile and rate of oxidation of the biphenyl sludge byproduct.