Particles of various organic compositions have been observed through infrared (IR) spectral features in interstellar clouds and circumstellar shells. Organic molecules are present in these entities in gas concentrations of usually no more than parts per million by volume (ppmv). A laboratory technique can generate small carbonaceous particles from gas mixtures containing small organic molecules in the ppmv range with photodissociative initiation. The photolysis source is an excimer laser at 193 nm. Since the flow area of the gas mixture is greater than that of the laser beam, reactions among radical fragments and unirradiated reactant molecules are producing the particles. A red diode laser is used to monitor the particles by scattering. Particle samples are collected on IR transmitting substrates, and their IR spectra from 2.5 - 14 or 20 microns are measured with an FTIR spectrometer. Past experiments have consisted of photolyzing a gas mixture of several ppmv of small aromatic molecules (benzene, toluene, ethylbenzene, xylenes) in each of the carrier gases (nitrogen, argon, helium) with water vapor at saturation. The water vapor adds oxidative capacity. In this poster the results will be presented of experiments with reduced water concentration from near saturation, 75% relative humidity, 50%, 25% and no water vapor. The Laboratory Astrophysics Program of NASA Headquarters is supporting this research.