**Abstract Title:** Improving Emission Inventories of Volatile Chemical Products with Urban Field Measurements

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It has recently been suggested that emissions from volatile chemical products (VCPs), which include from use of personal care products, cleaning agents, coatings, adhesives, inks, and pesticides, are emerging as a major anthropogenic source of volatile organic compounds (VOCs) in cities. We first utilize bottom-up methods to construct urban inventories of VCPs and mobile source emissions in Los Angeles and New York City. Emissions of VCPs are estimated from first principles utilizing chemical production statistics and "down-the-drain" factors. Mobile source emissions are estimated utilizing fuel sales records and roadway measurements of tailpipe emissions. Compared to the Los Angeles basin, the population density of Manhattan is ~10 times larger. Therefore, we expect a larger flux of anthropogenic VOC emissions from use of VCPs in New York City, as well as from traffic. The bottom-up inventory of VCP emissions has been evaluated with VOC measurements in Los Angeles, and the analysis extended to New York City. NOAA performed field measurements of VOCs in Manhattan during the New York Investigation of Consumer Emissions (NY-ICE) Study in 2018. Measurement of VOCs were by proton transfer reaction time-of-flight mass spectrometry (PTR-ToF-MS) and whole air canister samples analyzed by gas chromatography-mass spectrometry (GC-MS). We evaluate the bottom-up inventory for key VOC markers originating from VCPs and mobile sources. We also assess diurnal patterns of consumer product emissions based on VOC measurements made in Boulder, CO.