

Supplemental Material

Improved quantification of livestock associated odorous volatile organic compounds in a standard flow-through system using solid-phase microextraction and gas chromatography - mass spectrometry

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Table S1. Comparison of extraction efficiency of target VOCs for the CAR/PDMS 85 µm, PDMS/DVB 65 µm, PDMS 100 µm and Polyacrylate 85 µm SPME fibers. MS detector response was normalized by gas concentrations. SPME conditions: T = 25 °C, sampling time = 5 min, flow rate = 300 mL/min, dry air.

Compound	MS detector response was normalized by gas concentrations (MS detector response (peak area count) / C _{gas} (ppbv))			
	85 µm CAR/PDMS	65 µm PDMS-DVB	100 µm PDMS	85 µm Polyacrylate
Hydrogen sulfide	(4.0±0.3)E+04	(8.4±0.9)E+03	(1.0±0.2)E+04	(1.4±0.4)E+04
Methyl mercaptan	(3.9±0.6)E+04	(1.3±0.2)E+03	(3.1±0.6)E+02	(1.8±0.8)E+04
Ethyl mercaptan	(2.0±0.3)E+05	(6.7±2.4)E+03	(7.8±0.5)E+02	(1.8±1.0)E+05
Dimethyl sulfide	(4.4±0.1)E+05	(1.4±0.2)E+03	(1.4±0.2)E+03	(4.6±1.4)E+05
Butyl mercaptan	(2.5±0.2)E+05	(8.9±2.5)E+04	(2.8±0.2)E+03	(2.2±0.7)E+05
Acetic acid	(1.0±0.1)E+06	(2.9±0.5)E+05	(4.9±0.5)E+04	(9.1±1.7)E+05
Propionic acid	(4.3±0.2)E+05	(2.3±0.5)E+05	(2.1±0.2)E+04	(4.1±0.9)E+05
Butyric acid	(8.5±0.3)E+05	(6.4±1.2)E+05	(8.2±0.6)E+04	(8.5±1.0)E+05
Isovaleric acid	(1.7±0.0)E+06	(1.5±0.2)E+06	(2.8±0.2)E+05	(1.6±0.2)E+06
p-Cresol	(2.0±0.0)E+06	(2.3±0.2)E+06	(8.3±0.8)E+05	(1.7±0.1)E+06
Ethyl phenol	3.1±0.2)E+05	(3.9±0.4)E+05	(2.9±0.2)E+05	(2.4±0.3)E+05
Indole	(1.7±0.2)E+05	(2.8±0.1)E+05	(2.1±0.1)E+05	(1.2±0.0)E+05
Skatole	(9.5±0.7)E+05	(2.0±0.1)E+06	(1.9±0.1)E+06	(4.7±0.5)E+05

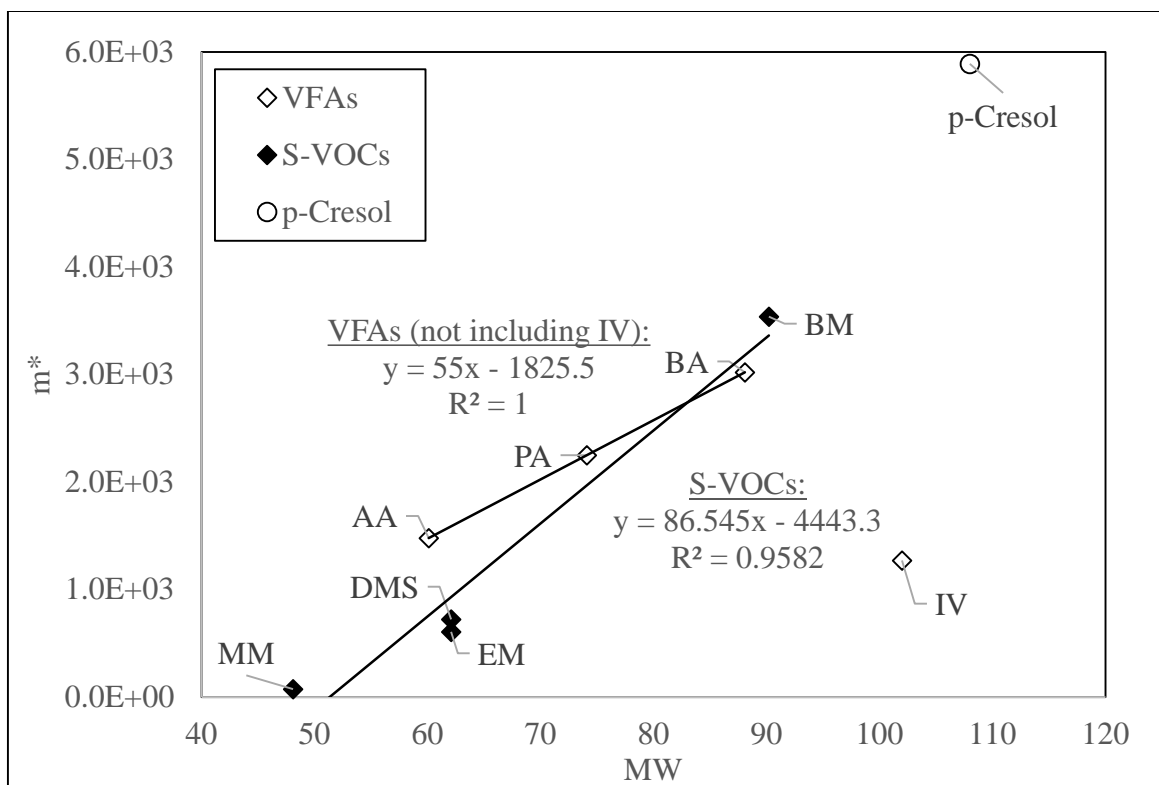


Fig.S1. Slope (m^*) of calibration curves for target VOCs normalized by C_{gas} (Table 4) vs. molecular weight (MW). MM = methyl mercaptan, EM = ethyl mercaptan, DMS = dimethyl sulfide, BM = butyl mercaptan; AA = acetic acid, PA = propanoic acid, BA = butyric acid, IV = isovaleric acid.