

Interactive comment on “Influence of particle charging on TEOM measurements in the presence of an electrostatic precipitator” by N. K. Meyer et al.

Anonymous Referee #1

Received and published: 2 February 2009

The paper reports on the influence of particle charging on the particle mass determination using a Tapered Element Oscillating Microbalance (TEOM). The authors investigated the efficiency of an electrostatic precipitator (ESP) for reducing the particle emissions from wood combustion. They observed an overestimation of particle mass concentration when the ESP was switched on, this effect disappeared when an aerosol neutralizer was placed inline before the TEOM. The presented paper is clear and brief, the results are sound and important to know for users of TEOM instruments.

Special comment:

It is unclear how relevant this effect is for ambient measurements for which most TEOM

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instruments are used. A short statement from the authors should be included (the authors only state that the found "effect demands further investigation" - conclusions section, last sentence).

Minor comments:

Page 437, line 1: "In contrast with collecting filter samples, ..." should be changed to "In contrast to the gravimetric determination of particle mass collected on filters, ...".

Page 437, lines 5/6: The sentence "...and is known to be influenced by the presence of a volatile fraction ..." is unclear. The signal of a PM instrument should of course be influenced by (semi-)volatile fractions as long as they are in the particle phase at ambient conditions. Are you here referring to the known volatilization losses in beta attenuation monitors due to heated sampling lines?

Page 437, lines 12/13: "(e.g. Dust Trak)". Please give the complete information about product and manufacturer.

Page 437, line 26: The mentioned factor of 1.03 seems too small (only three percent correction for volatilization losses?). Please check.

Page 438. lines 2/3: "...are known to vary with location as source weightings vary ..." should be changed to something like "...are known to vary with season and locations as source contributions vary ...".

Page 438, line 22: "...with organic carbon (OC) between 1 and 5%, ..." should be changed to "...with organic carbon (OC) contributing between 1 and 5% to total mass, ...".

Page 441, line 18: Should note "...could contribute to ...".

Interactive comment on Atmos. Meas. Tech. Discuss., 1, 435, 2008.

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