**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Modeling the surface tension of complex, reactive organic-inorganic mixtures" *by* A. N. Schwier et al.

Anonymous Referee #3

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The work provides new data sets to understand the influence of organic-inorganic solute mixtures for droplet surface-tension and ultimately CCN activation. The authors test surface tension models to describe complex aerosol solution mimics. Their modified use of the Henning Model is recommended as a simple and more physical approach to assess water-solute interactions.

The document is well written and contributes to the scientific progress within the scope of atmospheric chemistry and physics. The scientific approach is sound and the presented methods are valid. The authors cite the majority of relevant literature in the field. This reviewer has only a few comments to add as stated below.

MAJOR CONCERNS

The use of X (chi) to represent good fit and mass fraction in the text is somewhat ambiguous. Perhaps the author could use different variables.

Each droplet is allowed to equilibrate over 2-5 minutes. On average, how long did it take to perform a set of experiments on a given sample? Both Formaldehyde and acetlyaldehyde have low vapor pressures at room temperature. Would the evaporation of these compounds during measurement effect surface tension measurements? Has this been considered in the measuring protocol? It is mentioned in Table 1 that for formaldehyde mixtures the organic concentration was variable but little to no discussion is given in the text.

MINOR CONCERNS.

Figures. This reviewer suggests restating the relevance of the black and gray lines in at least one of the figure captions.

P555 L1. What is the conductivity of the Millipore water used?

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 549, 2013.