

Interactive comment on “Complex chemical composition of colored surface films formed from reactions of propanal in sulfuric acid at upper troposphere/lower stratosphere aerosol acidities” by A. L. Van Wyngarden et al.

S. A. Nizkorodov (Referee)

nizkorod@uci.edu

Received and published: 6 December 2014

This is an interesting and well written manuscript describing an experimental study of reactions of aldehydes in sulfuric and hydrochloric acid solutions leading to an appearance of surface active and light absorbing products. While the H₂SO₄ reactions have been studied before (in papers cited in this manuscript) the novel aspects of this work are: (i) analysis of the surface films of the products accumulating on top of the solutions; (ii) use of more chemically specific methods of analysis permitting to identify

C9839

some of the products. I only have minor comments.

P28576, L13: parentheses can be removed around this sentence.

P28577, L6: I do not see a reason to single out the visual observations of the solutions as "a preliminary study". I would just describe what happens when the solutions are sitting for a while.

P28579, L19: Can you provide examples of this variability?

P28585, L13: I think the fact they are ionizable may be more important than polarity

P28589, around L20: one possible aspect of aldehydes in the LS to consider is their relatively short lifetime with respect to gas-phase photolysis – they may not have enough time to get to the particles. Perhaps this is worth mentioning.

Reference to Vinnik et al.: Should the "+" sign be part of the reference?

Figure 2: I like the scaling to indicate the maximum contribution of different components but it makes it hard to look at the lower-intensity traces. Perhaps this figure should be split into two panels containing these data, one with absorbance scale up to 0.8, and another up to 0.1?

Figure S1: even though you state the focus is on the ripples it is hard to understand what is going on in this photo. Is there a better quality photo available by any chance?

Figure S2: I would recommend splitting this into 4 panels, one for each type of sample. Right now the figure is too busy to look at.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 28571, 2014.

C9840