

## ***Interactive comment on “The role of surfactants in Köhler theory reconsidered” by R. Sorjamaa et al.***

**R. Sorjamaa et al.**

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We would like to thank the Referee 1 for the comments.

General comments:

*"Does the solute refer collectively to the species that are fully soluble (e.g. NaCl) and the surfactant species (What solubility is assumed for this species?)?"*

"Solute" denotes all species dissolved in water, collectively. We assume SDS to be completely dissolved when relative humidity exceeds 100

*"a highly relevant question is whether the addition of a surfactant species to a pre-existing salt particle will give rise to increased level of activation, i.e. lower critical supersaturation. Reading this paper and its conclusions, a casual reader might be confused and think that the addition of the surfactant would actually give rise to decreased activation."*

If anything is added to a pre-existing salt particle, the critical supersaturation will cer-

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tainly decrease. We will write the conclusions more carefully.

Specific comments:

*P. 2784: l. 25 "References to the work of Cruz and Pandis have been neglected"*

We will include the reference in the revised paper.

*Table 2. "What is the other component of the aerosol, besides SDS?"*

The other component of the aerosol is sodium chloride (NaCl).

*Figure 7: "It is not clear what each of the pink lines refer to."*

The lowest pink line refers to the red line (SDS mass fraction 0.2), the middle one to the blue line (SDS mass fraction 0.5), and the uppermost pink line to the black line (SDS mass fraction 0.8). We will clarify the figure in the revised paper.

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Interactive comment on Atmos. Chem. Phys. Discuss., 4, 2781, 2004.

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