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Interactive comment on "Homogeneous vs. heterogeneous nucleation in water-dicarboxylic acid systems" *by* A. I. Hienola et al.

Anonymous Referee #4

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The authors investigate the binary heterogeneous nucleation of water-dicarboxylic acids (n=1 to 4) on nanometer-sized initial seed particles using classical heterogeneous nucleation theory. Results are applied to atmospheric conditions and it is shown that the system water - adipic acid might nucleate in the upper boundary layer only. This paper fits well to the scope of ACP.

Theoretical assumptions are made lucid. Results are original and significant. However, parts of theory (homogeneous nucleation, section 2.1) are presented quite similar as in Gaman et al. 2004 (see citation in paper), which should therefore be cited in this place.

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In section 1 line 13ff page 18298: The statement starting with "New experimental..." should be made more clear.

In section 3.1 line 12 on page 18303 citation Hyvärinen et al. (2006) points to a citation that really needs explanation, why and what for it has been of use here. It rather seems to me that Hyvärinen et al. in J. Chem. Eng. Data 51, 255-260 (2006) should be the better suiting citation here. The authors should either swap the citation or clearly state what has been used.

The same applies to line 10 on page 18304.

The citation of Riipinien (2007a) is now worse than before correction. The paper is published in J. Phys. Chem. A., Vol. 111.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 18295, 2008.

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