

Interactive comment on “Ternary homogeneous nucleation of H₂SO₄, NH₃, and H₂O under conditions relevant to the lower troposphere” by D. Benson et al.

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What was the cut-off size of the used CPC? Introducing large quantities of ammonia will cause the particles to grow and if the size range of the freshly nucleated particles is close to the cut-off size, adding ammonia causes the particles grow increasing the apparent nucleation rate due to the detection efficiency of the particle counter. Also finding that the unit nucleation rate was accomplished with the same concentration of H₂SO₄ implies that ammonia is taking part on the growth, not in the forming of critical cluster.

Other question is that was the sulfuric acid measured again from the side of the tube

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as previously? This might cause some error if the wall loss factor (WLF) is being minimized. This might explain the very low H₂SO₄ concentration for nucleation compared to other studies.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 22395, 2010.