

## ***Interactive comment on “Non-volatile residuals of newly formed atmospheric particles in the boreal forest” by M. Ehn et al.***

### **Anonymous Referee #2**

Received and published: 10 December 2006

General comments Suitable for ACP. The paper presents interesting findings concerning the volatility of particles formed in the boreal forest. The findings provide an interesting comparison to similar work for particles formed in for example the marine boundary layer and the free troposphere.

### Specific comments

10413-20 The observed variation in the ratio of the non-volatile residue to original size with temperature might be simply a result of changing relative humidity and consequent influence of hygroscopic growth on the unheated particles? Was relative humidity measured in the aerosol and sheath air entering the system when measuring the ambient particle size distribution? This question should be discussed in the paper.

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10407-15 Given that the extent of evaporation or decomposition for a given material will be dependant on the residence time in the thermodenuder, an indication of the residence time in the heating section should be given. Since the intention is to remove ammonium sulphate from the aerosol it would be helpful if the system was tested on laboratory generated ammonium sulphate aerosol at similar particle sizes using the same thermodenuder flowrate in order to verify that complete volatilisation occurs.

10407-20 The observation that the size distributions for urban background aerosol downstream of the comparison thermodenuder agreed to within 10% would be more meaningful if some assessment of the degree of volatilisation was provided. Presumably some fraction of the particle was removed but how much?

Technical corrections typing errors, etc.. The graphs I figures 2, 3, 4, 5 have dates and date ranges above them. These numerical ranges should be labelled as dates or explained in the caption.

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Interactive comment on Atmos. Chem. Phys. Discuss., 6, 10403, 2006.

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