

## ***Interactive comment on “Particle acidity and sulfate production during severe haze events in China cannot be reliably inferred by assuming a mixture of inorganic salts” by Gehui Wang et al.***

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One point that needs to be emphasized is that “bulk” (or beaker-scale) arguments, essentially do not consider the critical issue of equilibrium with the gas phase and the implications thereof, as pointed out by S. Song in his comment. The number of moles in the gas phase can be comparable or far exceed those in the aerosol phase; therefore volatilization of compounds (such as ammonium, oxalate, nitrate and chloride) to establish equilibrium can completely change the composition of the aerosol vs. the expectations obtained from beaker-scale thermodynamics. Understanding this unique but often neglected aspect of the aerosol system is critically important. Thermody-

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amic models based on the equilibrium assumption consider this, bulk beaker-scale conceptual models do not.

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