

Response to Reviewer

Minor comment

Reviewer comment:

L. 44 'it can react with organic acids to form ammonium...' is a repetition of line 41 and can be combined

L. 143: should read: section S4 instead of text S4

L.205 should read: 'Hence, an over 30% decrease in NH₃...'

Response: We thank the reviewer for these careful and helpful comments. All of the suggested corrections have been incorporated into the revised manuscript.

Changes in the revised manuscript:

Line 40-45: “ It reacts with both inorganic acids (primarily sulfuric and nitric acids) and organic acids to form ammonium salts, contributing to fine particulate matter (Luo et al., 2007; Na et al., 2007; Makar et al., 2009). The acid-base reactions involving inorganic acids are well understood and have been incorporated into atmospheric models. In addition, gas-phase ammonia can react with certain carbonyl compounds in secondary organic aerosols (SOA), leading to the formation of nitrogen-containing organic compounds (NOCs).”

Line 143: “Detailed validation results are provided in **section S4**.”

Line 205: “ Hence, **an over 30% decrease in NH₃** concentrations only causes a 5.5% reduction in ammonium aerosols in the NCP, an NH₃-rich region.”