

General Comments:

The manuscript by Day et al. compiled an extensive survey of NO_x^+ ratios measured for various pRONO₂ compounds and mixtures from multiple AMS instruments, groups, and laboratory and field measurements. They find that the pRONO₂ NO_x^+ ratio can be estimated using a ratio referenced to the calibrated NH_4NO_3 ratio (“RoR method”), and explore the basis for quantifying pRONO₂ (and NH_4NO_3) with the RoR method using ground and aircraft field measurements conducted over a large range of conditions. This work will help provide a more consistent and accurate approach to quantification and exploration of bulk particle-phase nitrates in the atmosphere with AMS.

This manuscript is generally well written. Before its publication, the following comments need to be addressed.

Specific Comments:

1, The oxidation flow reactor (OFR) measurements are shown in Fig. S9c. What are the oxidants concentrations? It seems that compared with R_{ambient} under the conditions of OH radicals as the oxidant, R_{ambient} is less converged at the calibration $R_{\text{NH}_4\text{NO}_3}$ under the conditions of NO_3 radicals. Please elaborate. In addition, Line 340 “Fig. S8c” should be “Fig. S9c”

2, I appreciate the summary of results for studies using PMF for pRONO₂ separation with AMS in Table S4. I suggest adding the contributions of OA factors to pRONO₂ in another table/figure which is sorted by OA factors, so that readers can see the OA factors’ contributions clearly.

3, How is R_{ambient} detection limit calculated? Please elaborate.

4, More cites need to be listed to support the conclusions in line 535-545.

5, Fig. 5: It would be better to add error bars to show the uncertainty or scatter of the data. Otherwise, we don't know how significant the fraction variations are.

6, Fig. S17 and S25: Consider using logarithmic coordinates.