

Interactive comment on “Solubility and reactivity of HNCO in water: insights into HNCO’s fate in the atmosphere” by N. Borduas et al.

Anonymous Referee #1

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Summary and General Comments: Borduas and coworkers report on a series of laboratory experiments designed to constrain the effective Henry’s law coefficient for HNCO at a range of atmospherically relevant pH. Further, the authors determine the hydrolysis lifetime of HNCO as a function of pH and temperature for three known hydrolysis mechanisms. The paper is well written, systematic, and will have impact on the community. This paper should be published following the authors attention to a few comments.

Specific Comments:

Page 24218 Line 24: The study of isocyanates from an environmental perspective predates the work of Roberts. Some specific examples include the Bhopal Disaster in India. Perhaps a line on this in the introduction is worthwhile?

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Page 24221 Line 6: Where are Reactions 1-3? They were listed in the abstract, but should be included in the main text.

Page 24221: It would be interesting to note what additional condensed phase reactions involving HNCO are potentially important. Is there any indication that NCO⁻ reactions with condensed phase organics are important to atmospheric chemistry?

Page 24222 Line 12: It is noted that 10 ions were tracked, although the manuscript discusses only NCO⁻ (and indirectly acetate ion). What other ions were measured, and why? Were any other acids expected (or measured) in the system.

Page 24222: Is there an absolute humidity dependence on the sensitivity to NCO⁻ that needs to be accounted for when changing the flow rate over the water solutions? Or is the NCO⁻ sensitivity not dependent on absolute water concentration (or the analysis independent of this effect if it existed).

Page 24223 Line 12: Perhaps provide reference to one of the earlier Roberts papers (or perhaps even earlier in the literature) that first sublimed cyanuric acid as a HNCO calibration source.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 24217, 2015.

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