

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2021-332

Anonymous Referee #1

Referee comment on "A source for the continuous generation of pure and quantifiable HONO mixtures" by Guillermo Villena and Jörg Kleffmann, Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-332-RC2>, 2021

The manuscript "A Source for the Continuous Generation of Pure and Quantifiable HONO Mixtures" by Villena et al. reports the setup and the characterizations of a continuous source generating pure HONO mixtures. The manuscript is well organized and provides valuable information which is quite helpful for performing accurate HONO measurement. I recommend the publication. And only some minor comments follows.

- Line 81, Page 3: Would the 99.999% pure liquid nitrogen contain some NO_x and contribute to the NO_x formation of the HONO source?
- Line 87, Page 3: The generated gaseous HONO is guided to measurement instrument through PFA line. What about the wall loss of HONO on the line? It would be helpful if the authors provide a recommendation on the maximum length of the guiding line.
- Line 179 - 181, Page 6: Please add in the figure caption what the error bars represent for. The same for other figure captions in the manuscript.
- Line 184 - 188, Page 6: Please note that the time response indicated by Figure 3 should also contain that of the chemiluminescence instrument.
- Figure 3, Page 7: Concerning the stronger fluctuation of NO_y signal observed at lower nitrite concentrations, dose it caused by the measurement sensitivity not good enough or by the HONO source not stable under such condition?
- Section 3.6, Page 9: The stability of the HONO source is given by a 2σ relative error. Dose it mean that the stability depends on the generated HONO concentration? However, when look at Figure 3, the fluctuation seems much smaller for higher HONO concentrations. Moreover, since ambient HONO concentration are mostly less than 10ppb, information on the stability under such conditions would be even more valuable.
- I fully agree with the authors' statement on the advantage of the reported HONO source over the traditional calibration method for instrument based on wet chemical techniques. Since the authors have LOPAP instrument in their lab, it would be helpful if the authors can provide comparison of ambient measurement results calibrated by gaseous HONO and liquid NO₂⁻ standards.