

## ***Interactive comment on “Caution with Spectroscopic NO<sub>2</sub> Reference Cells (Cuvettes)” by Ulrich Platt and Jonas Kuhn***

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Interesting paper on the reactions occurring in NO<sub>2</sub> reference cells used in e.g. DOAS spectrometers. A few remarks:

- 1) Any comparison with experimental observations (either from the authors own experiments or from literature) is missing. It is suggested to add such a comparison (if these data are available).
- 2) NO<sub>2</sub> cannot be obtained at high purity from commercial gas suppliers. Some comment could be added about this (i.e., starting mixture will already be more complex).
- 3) Page 11 "One can actually assume that all H<sub>2</sub>O is ultimately converted to HNO<sub>3</sub>, sequestering equivalent amounts of NO<sub>2</sub> and water. "

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This might be expected but apparently this does not happen. At VSL we did some experiments adding water to NO<sub>2</sub> mixtures and only a relatively small part of the water is eventually converted to HNO<sub>3</sub>. (see <https://www.hindawi.com/journals/jspec/2018/9845608/>).

- 4) Topping with dry synthetic air is probably preferred over filling with laboratory air (p11).
- 5) In equation R20 on page 11 the value of the rate constant is missing.
- 6) The section on the path length of the optical cells (section 2) is not relevant for the rest of the paper and should be omitted here.

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