Reply on RC1

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Author comment on "Fill dynamics and sample mixing in the AirCore" by Pieter Tans, Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-254-AC1, 2021

Comment 1: At this time the dryer is modeled only as a short piece of tubing with a porosity of 0.3, meaning that 30% of the volume is air, 70% is large pieces of magnesium perchlorate. Permeability is a different property that we don't know at this time. The flow resistance of the dryer is implicitly added to the flow resistance of the valve because the valve parameters have been optimized to match the calculated history of the pressure drop across the entire tube to the measured history. I added a new section 9 with recommendations for further improvements. One recommendation is laboratory testing of valves and dryers.

Comment 2: I don't expect the dryer to have much influence on the mixing because the length is short. The turbulence generated by the dryer will die out very quickly as estimated in section 3, the paragraph about inertial effects.

Technical suggestion 1: I added dashed vertical lines to figure 3 to make it easier to read.

Technical suggestion 2: I added a comparison table of the two AirCores, but I prefer to keep each figure close to the place where it is discussed.