

Interactive comment on “Continuous-flow IRMS technique for determining the ^{17}O excess of CO_2 using complete oxygen isotope exchange with cerium oxide” by D. J. Mrozek et al.

Anonymous Referee #1

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This is a fine work and deserves publication in AMTD with only some minor corrections. I congratulate the authors for their analytical achievement of getting d17O and d18O of very small CO₂ samples using their automatised device.

My main point is that it has not been shown in the manuscript that their d17O is actually on VSMOW scale. A large portion of past work on d17O of terrestrial materials (CO₂, rocks and minerals) has not been reported on VSMOW scale for d17O (see Pack & Herwartz, EPSL, 2014). This makes usage of D17O for complex applications (involving water, air components, etc.; e.g. Pack et al., GCA, 2013) impossible (when using data from different labs). An exception are high-precision studies on water samples that

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report d17O on VSMOW scale. If the authors cannot give their d17O on VSMOW scale, it should be noted. For the purpose they developed their technique small systematic offsets in d17O are not relevant.

Also, the definition and meaning of D17O is not clear in the manuscript and deserves clarification (see my comments on PDF). The D17O is simply a better illustration for small deviations in d17O from a linear/curved relation in d17O vs. d18O diagrams. It is not a measured value; the D17O should not be reported relative to VSMOW. VSMOW is a point and D17O is a deviation from a line; hence there is no D17O(VSMOW).

Please also note the supplement to this comment:

<http://www.atmos-meas-tech-discuss.net/7/C2051/2014/amtd-7-C2051-2014-supplement.pdf>

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 6823, 2014.

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