

Kreisberg et al. examine the performance of a newly designed valveless injection system (VLI) for use in the semi-continuous thermal desorption aerosol gas chromatograph (TAG). A prototype (Instrument 1) and an integrated manifold (Instrument 2) version of the VLI were tested in the study. Compared with the old 6-port valve system, the VLI prototype convincingly improved the long term performance of the TAG when measuring the C₈ - C₄₀ *n*-alkanes. Field deployments are used to test both instruments 1 and 2. However, the field locations for each instrument are on different continents (California/Brazil) and the instrument configurations also differ. Instrument 1 is outfitted with a vapor phase denuder, and instrument 2 used metal collection cells set up in parallel. Instrument 2 is capable of (i) collecting vapor phase organic aerosol components and (ii) performing on-line derivatization experiments. Moreover, the sampling times used for the instruments differed by as much as 70 min. While not amongst the most systematic of instrumental validations (a few side-by-side checks with both instruments using identical air masses or use of the same instrument with swapped out valve systems, for example, may have been interesting and worthwhile. And the carry-over experiment for one instrument may be a bonus but it's difficult to understand how it really fits in); generally, use of the VLI system improved overall TAG performance. The study is expertly described and the authors certainly have command of the science and the experiments conducted. Ultimately, the objectives of the study are clear and sufficient evidence is provided in support of these objectives. Thus, I recommend that the study is published after (very) minor revisions:

- (i) P. 7532, line 13: describe the term “minimal trending”. Is it possible to be more quantitative about this?
- (ii) P. 7532, line 15: before using the “VLI” acronym, please spell it out.
- (iii) P. 7536, lines 20-30: This is confusing. It just isn't clear which VLI system(s) is being discussed anymore.
- (iv) P. 7551, line 20-23: The argument underlying the effect of the vapor phase/gas-phase contribution is not well supported. Where are the data that show use of the carbon denuder?