

VOC Standards Make vs. Buy

Occasionally we receive questions about the advisability and practicality of an air toxics laboratory producing their own VOC standards. In order to provide accurate guidance we queried many laboratories. Both governmental and private laboratory personnel were asked for their opinions on the pros and cons of manufacturing and then utilizing VOC standards for air toxics analysis.

All of the respondents voiced concern over a laboratory being able to produce accurate, uniform, and stable standards. Including:

- **Training of Personnel** – Where and how were the personnel trained?
- **Experience of Personnel** – How many years of experience do the personnel have in VOC standards preparation and analysis? One commentator indicated that the minimum experience level should be five years.
- **Quality Concerns** – Is the facility audited to ISO 9000 standards? Is the laboratory's production of VOC standards incorporated in their QA procedures?
- **Proper Reagents** – Highest available purity VOCs and VOC free N₂ exclusively utilized. The availability of two discrete batches of reagent was indicated to be desirable.
- **Proper Equipment** – These include such items as compressors, heated vessels and transfer equipment, N₂ clean-up equipment, gauges, balances, etc. All measurement devices should be NIST traceable and be within current validation period.
- **Availability of Standards** – Both liquid and gaseous.
- **Stability Testing** – What studies has the laboratory conducted to indicate that the prepared standard is stable for an hour, day, week, month, or year? Several comments were received stating that in their opinion the use of a liquid injection into a Summa canister followed by N₂ pressurization was not an acceptable method of standard preparation.

A number of governmental agency laboratories indicated that they would have potential problems in accepting data obtained utilizing self-made standards unless the standards were analyzed, and the accuracy was certified by an independent laboratory. Alternately the use of commercially produced standards to verify the self-made standards was also indicated to be viable.

100% of the respondents indicated that at first thought the primary reason for producing VOC standards internally was as a cost saving measure. However, they all concluded that in actuality this is not the case. In the words of one laboratory manager:

“As a production laboratory, we make money by running samples, lots of them, and time spent on standards prep is time taken away from something else.... running the instrument, crunching data, spitting out reports. It (producing our own standards) would cost us more in the long run!”

There was uniform consensus that once all factors are considered there is no compelling reason for a laboratory to manufacture VOC standards in lieu of purchasing them from a qualified vendor.

