
Volatile Organic Compounds (VOC) Measurement Issues

Reporting VOC Mass
Emissions



VOC Mass Emissions

- It is important to approximate the mass of VOC emissions for certain programs, such as New Source Review (NSR)
- EPA has stated in writing that VOC mass emissions should be based on the best approximation of actual VOC emitted and not based on a surrogate such as carbon

VOC Mass Emissions (cont.)

- Methods 25 and 25A, the EPA methods for measuring VOC, allow VOC emissions to be reported on a mass basis
- This requires a mass standard of a mixture of all of the emitted compounds

Midwest Scaling Protocol (MSP)

What is it?

- Designed for application to the corn wet milling industry – may not be suitable for other industries
- Allows reporting of results from Methods 25 and 25A as the mass of emitted VOC without all of the necessary calibration standards
- Not the *only* way of measuring VOC mass emissions

MSP (cont.)

How does it work?

- Uses Method 18 to identify the kinds and relative amounts of VOC in the sample
- Based on this information, it calculates a weighted average molecular weight-per-carbon atom for the VOC

MSP (cont.)

How does it work . . . ?

- Uses Method 25 or Method 25A to measure the carbon content of the sample
- Then multiplies the carbon content by the weighted average molecular weight-per-carbon atom to get the VOC mass

Industry Methods for VOC Mass Emissions

- Several industry trade associations have indicated that they would like to develop methods especially for their sources
- EPA believes this is beneficial and is willing to work with any group to develop better VOC measurement methods

Industry Methods (cont.)

- Any method that measures VOC emissions on a mass basis would be acceptable, but EPA prefers those that measure individual VOC
- Because of the complexity of most VOC emission streams, "VOC Mass" does not imply measuring 100% of the organic compounds

Industry Methods (cont.)

- Will give EPA better data on which to base control decisions
 - More accurate emission factors
 - More accurate emission modeling
- Will allow EPA to consider photochemical reactivity in making control decisions

Industry Methods (cont.)

- Any new industry methods will be published in the Federal Register for public notice and comment
- After resolving any comments, the final methods will be incorporated in the Code of Federal Regulations

Case Study:

The Corn Refiners Association

The issue:

- The Corn Refiners Association (CRA) wanted an alternative to the MSP

First step:

- A test plan was developed to evaluate their proposed method
- Met with EPA to get concurrence

Case Study: CRA (cont.)

Method Proposal:

- The CRA proposed to use Method 18 to measure all VOC
- The individual VOC masses would then be summed to produce a cumulative mass

Case Study: CRA (cont.)

CRA's Pre-Survey Procedure:

- A new pre-survey procedure was developed to use prior to each test
- Results from the pre-survey are used to design appropriate sampling and analytical conditions for Method 18
- The pre-survey procedure is the key to demonstrating that most of the VOC have been collected and measured

Case Study: CRA (cont.)

- After EPA concurred with the proposal, the CRA conducted two field tests of the method
- The CRA has submitted the test results to EPA for review

Case Study: CRA (cont)

Current Status:

- EPA has reviewed the report and is meeting with CRA to resolve the comments

Next Steps:

- Address the affect of the new data on existing air programs

Case Study: CRA (cont.)

Finalizing the method:

- After EPA's comments are resolved, the method will be published in the Federal Register for public comment
- The final method will then be incorporated in the Code of Federal Regulations to be used by the industry without any additional approvals