

## 1. What pollutant(s) does this method seek to measure?

Method 18 is designed to measure volatile organic compounds (VOCs) which can be analyzed by gas chromatography.

## 2. What particular pollutant will this method NOT measure?

Testers have run into problems meeting the recovery study criteria for formaldehyde. In that case, an alternative method (such as Method 316 or 320, 40 CFR Part 63) has been approved for use on a case by case basis.

## 3. Was it developed for a specific source category?

Originally, this method was developed for Synthetic Organic Chemical Manufacturing Industry (SOCMI) sources, where a few, known compounds were being used and produced in the process.

## 4. Is it applicable to other sources?

Method 18 is applicable to other sources where VOCs are being emitted. However, the method should NOT be used at complex sources with a large number of VOCs. (Finding the appropriate columns and detectors for a large number of compounds is onerous and expensive).

## 5. How is sampling done?

Method 18 allows for four different sampling options: Direct interface, dilution interface, adsorption tube, and Tedlar bag sampling. The source (or tester) determines the appropriate sampling technique. Any of these four sampling techniques may be used as long as the recovery criteria in Section 8.4 are met.

## 6. Are Summa canisters allowed with Method 18?

NO. Canisters are not an allowed sampling option under Method 18. Summa canisters have been shown to be reactive to polar compounds, which would result in sample loss. The only exception to this rule is during the presurvey, where canisters are permitted [a presurvey (Section 16.1) is conducted if the source does not know what pollutants are being emitted; a presurvey is qualitative in nature and after the source determines what pollutants are being emitted, they must conduct the full Method 18 with the sampling and analytical techniques allowed by the method].

## 7. Is a filter used in the sampling train?

A filter may be needed if particulate is present in the stack. A glass wool plug or a filter may be used in these instances.

## 8. Are samples integrated or real time?

When direct interface or dilution interface is used for sampling, results are in real time (although not continuous). Bag sampling and adsorbent tube sampling provide integrated data.

## 9. Is there an allowed limit for storing samples before analysis?

Method 18 does not limit sample storage before analysis. As long as the recovery study criteria for Tedlar bags or adsorbent tubes are met, the source determines hold times.

## 10. What technique is used for sample analysis?

Sample analysis consists of gas chromatography with any type of detector the source determines is appropriate. Any commercially available detector is allowed, as long as the recovery study criteria are met.

## 11. Is the method analysis usually completed in the field or back at the laboratory?

For sources choosing direct interface and dilution interface sampling, analysis is conducted in the field. For sources choosing adsorbent tube or Tedlar bag sampling, analysis is usually conducted in the laboratory (some sources may choose to have a GC system available in the field - this is left to the discretion of the source).

## 12. Is an audit sample available for this method?

Audit samples are available for some compounds - check the EMC web site at [Technical Support - Audit Programs](#) for availability.

## 13. What other QA/QC procedures are required for this method?

A 3-point calibration curve is required for each target compound. A recovery study (Section 8.4) is required for each type of sampling technique. If the average recovery factor (R) does not meet the acceptability criteria (70 to 130 percent recovery), the data from that test (for each failed compound) are deemed invalid.

## 14. What types of problems have users run into with this method?

Some testers who used Tedlar bags and shipped them via air cargo have ended up with leaky bags. If bags are used for sampling and must be shipped, it is recommended that more than the required number of bags be collected (3 bags per test are required) and shipped in separate batches.

## 15. Can Method 3C be used as an alternative to Method 18 and ASTM D1946 in determining compliance with the open flare requirements of 40 CFR 60.18(c)(3) when combusting landfill gas subject to Subpart WWW of the NSPS? Subpart WWW requires open flares to comply with the general flare provisions under § 60.18.

This is a reasonable request since the major components of landfill gas are known to be methane and carbon dioxide, and the concentrations of organic compounds other than methane are minimal. Their contributions of organics other than methane to the heating value or molecular weight calculation are normally negligible. Therefore, Method 3C is more appropriate for this application than Method 18. The requirement in § 60.18(a)(3) to test for hydrogen with ASTM D1946 is waived in the case of landfills due to the low levels of hydrogen in landfill gas. Oxygen and nitrogen, on the other hand, can be present in substantial quantities, and the Method 3C analysis must include these for the molecular weight determination. Method 3C may also be used in place of Method 3A to determine the landfill gas molecular weight for calculating flare gas exit velocity under § 60.18(c)(4) and in place of Method 4 for determining moisture. Subpart WWW will be amended in the future to specify Method 3C for this purpose instead of Method 18. Until the rule is amended, permission to use Method 3C must be requested from EPA on a case-by-case basis.