

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

Method 24 is used to measure the volatile organic compound (VOC) content of coatings and inks.

2. Was it developed for a specific source category?

Method 24 was developed for a variety of coating and printing source categories.

3. Is it applicable to other sources?

Method 24 should only be applied to coating and printing type sources.

4. How are the coating and ink samples collected?

Method 24 does not provide step-by-step procedures for collection of the coating and ink samples; however, EPA does have a document entitled "Standard Procedure for Collection of Coating and Ink Samples for Analysis By Reference Method 24 and 24A" dated September 1991. The document provides a standard operating procedure for collecting coating and ink samples.

5. What technique is used for sample analysis?

Method 24 references several American Society of Testing and Materials (ASTM) methods. The basic premise of Method 24 is an indirect measurement of the VOC content of Coatings. First you determine the non-volatile content of the coating by drying a known weight of coating and determining the amount of dry film left (this is the non-volatile portion). The volatile fraction of sample (including water) is determined by subtracting the non-volatile portion from the initial weight of sample. Other ASTM methods are used to measure the amount of water and exempt solvents in the coating, and these values are subtracted from the volatile matter, leaving what is considered to be the amount of VOC's.

6. Is the method usually completed in the field or back at the laboratory?

Method 24 is conducted in the laboratory.

7. Is an audit sample available for this method?

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

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

Method 24 requires that the analyst run duplicate samples and compare the results to the intra-laboratory precision statements for each parameter listed in the method. Because of the inherent increased imprecision in the determination of the VOC content of waterborne

coatings as the weight percent of water increases, measured parameters for waterborne coatings are replaced with appropriate confidence limits. These confidence limits are based on measured parameters and inter-laboratory precision statements.

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

The main problem people have with Method 24 is the water analysis for water-based coatings and inks. The higher the water content, the more problems people seem to have with getting good precision with the water analysis, which leads to imprecision in the VOC result.

10. What type of variations have been allowed for this method in the past?

Over the years, Method 24 has undergone several revisions to incorporate procedures for multi-component coatings, Ultraviolet radiation cured coatings, and exempt solvents to address the use of new types of coatings. However, there are still coatings in use which are not applicable to Method 24 as it is currently written. Most of these are reactive coatings that need a higher temperature, longer drying time or larger samples to react properly, and EPA has approved several method modifications on a case-by-case basis.

11. Do negative results from Method 24 mean that the coating contains no VOC?

Negative results do not necessarily mean 0% VOC. You will need to check with your regulatory agency to see how you should deal with them if this is a regulatory issue. When you have high water content in the coating relative to the VOC content then you can get negative numbers from a Method 24 analysis, but that does not mean there are no VOCs present. It is possible that the error associated with the method may make it difficult to determine the true VOC content (assuming the test was run accurately).

12. Method 24 specifically states that it is to be used to measure VOCs in coatings and ink, and should only be applied to coating and printing-type sources. How then, do you determine the VOC content in industrial lubricants?

Section 1.2 of Method 24 states that it is applicable for "paint, varnish, lacquers, or other related surface coatings". Lubricants may or may not be subject to Method 24 depending on the regulation you are trying to comply with. Some states may not consider it a surface coating, while others will (this may depend on how the lubricant is used in the process). Some regulations allow formulation data while others require a test method. There is no other EPA-approved test method other than Method 24 for these types of substances.