

08/05/1983

VOC480805831

**Category:** 48 – General VOC Issues

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Research Triangle Park, North Carolina 27711

MEMORANDUM

**Subject:** VOC Data Sheets as a Compliance Monitoring Tool

**Date:** August 5, 1983

**From:** Susan R. Wyatt, Chief  
Chemicals and Petroleum Branch, ESED (MD-13)

**To:** John B. Rasnic, Chief  
Compliance Monitoring Branch, SSCD (EN-341)

This is in regard to your draft memo to the Regional Administrators concerning the adoption of a data sheet for monitoring the volatile organic compounds (VOC) of coatings. The idea of creating a VOC Data Sheet to be prepared by a coating manufacturer (rather than requiring that all users analyze their paints) is a good one. It would provide a convenient method for enforcement officials to monitor compliance, while minimizing the cost to the industry. Otherwise, coaters would be required to conduct multiple analyses of the same coating. For example, portions of one batch of paint might be sold to several coaters. If we preclude the use of data sheets, each coater would be required to conduct a separate analysis for VOC content with the attendant redundancy of costs.

We have been persuaded for some time that the coating manufacturers are the best source of information on VOC content since they know exactly what goes into a coating as it is supplied to the coater. (Of course, any dilution solvent added by the coater must also be accounted for in order to determine the VOC content of the coating as it is applied.)

The supplementary information to your memo recommended that the American Society for Testing and Materials (ASTM), Methods D1475, D2369, and D3792 or D4017 be used to generate the information on the Data Sheet. You probably recognize that EPA Reference Method 24 is a composite of these ASTM methods with directions as to how to arrive at the weight fractions of "nonaqueous volatiles" (or VOC) and solids in the coating. Directions for determining confidence limits used with waterborne coatings are also given.

Some coatings may require special consideration. In recent tests associated with an EPA review of Method 24, 8 of 26 samples exhibited an apparent VOC content that was 25 to 85 percent greater than the solvent content indicated by the coating formulation. This was a surprisingly low

proportion in that the industry was specifically requested to provide samples for the investigation that exemplified "situations where the method has given results differing from the VOC content known by the formulation."

The coating suppliers claim such discrepancies occur because the drying temperature of 110 degrees prescribed in ASTM D2369-81 is not hot enough to cause certain components of the coating such as so-called "reactive diluents" or, in other cases, monomers and oligomers to become part of the dry coating as they are designed to do. They evaporate instead.

Considering the results of the recent EPA tests and industry claims regarding reactive diluents, we recommend the following procedure to obtain the information necessary to fill out the Data Sheet. First, subject all coatings, except those cured by electron beam or ultraviolet radiation, to the Method 24 analysis. If the coating manufacturer or his customer has reason to believe that Method 24 does not truly reflect the VOC emission evolved during industrial curing conditions, an alternative method for estimating VOC may be submitted for consideration. As a minimum, the coater or supplier should submit a copy of the formulation for the coating and indicate which components act as true solvents and what portion of the other components will evaporate during an industrial cure.

The attachment is an interim procedure that we recommend for determining VOC content of coatings while the review of Reference Method 24 is being completed. Included is a form for the manufacturer and the coater to record VOC information (entitled "VOC Data Sheet") and instructions for preparing it. Since the National Paint and Coatings Association approached you on this idea, perhaps you would like to solicit their comments on the instructions, examples, and VOC Data Sheet. Ultimately, coating manufacturers and users, as well as local and State enforcement personnel, must become familiar with this scheme of monitoring compliance. Dennis Crumpler of this Branch studied this subject thoroughly in order to develop the Data Sheet. If questions arise regarding the proposed format or the auxiliary information, please contact Dennis at FTS 629-5605.

Attachment (Not included)

cc: Jack Farmer, ESED/OD (MD-13)