

Development of an Improved VOC Analysis Method for Architectural Coatings

In 2005, the ARB contracted with the California Polytechnic State University at San Luis Obispo, California (Cal Poly) to develop an improved volatile organic compound (VOC) test method for architectural coatings. Currently, the U.S. Environmental Protection Agency's (US EPA) Method 24 is used to test the VOC content of coatings. It is widely accepted that Method 24 is not reliable for the analysis of low VOC water-borne coatings, nor is it suitable for determining the VOC content of solvent-borne coatings with high levels of exempt compounds. In both cases, the reason for the unreliability of Method 24 is due to its being an indirect method of measuring VOCs in these coatings.

There are also concerns with Method 24 when it comes to testing the VOC content of multi-component coatings, reactive diluent-containing coatings, high solids coatings, and low solids coatings. The intent of the project is to develop a test method, or suite of test methods, that can be used for all the major types of architectural coatings, whether they be low VOC water-borne, high VOC water-borne, low VOC solvent-borne, high VOC solvent-borne, low exempt containing solvent-borne, high exempt containing solvent-borne, high build, low build, single component, multi-component, low solids, high solids, film-forming, or penetrating, and in as many of the 50 or so regulatory architectural coating categories as possible.

For several of the solvent-borne types of coatings, Method 24 works well. However, for the remaining types, Cal Poly will be developing a direct VOC test method, or methods, most likely based on ASTM D6886, a test method that Cal Poly developed.

We anticipate the project to be completed in 2008. Cal Poly is currently collecting samples from manufacturers representing many of the various types and categories of coatings described above. Cal Poly will be developing and refining the test method(s) in 2006 and 2007. Several air quality districts, other agencies, and industry laboratories have volunteered to participate in "shadowing" Cal Poly's testing, in order to help validate the method(s). We expect that to occur in 2007, with a final report to us in 2008.

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