

APPENDIX B

UNDERSTANDING VOC REGULATIONS

(Regulations Covering Volatile Organic Content (VOC) of Organic Coatings)

Concerns over personnel health problems and atmospheric pollution from application of organic coatings has resulted in laws and regulations aimed at limiting the volatile organic content (VOC) of most coatings applied in the U.S. Manufacturers must formulate paints and coatings to meet these legal requirements in order to sell the products in the various states.

In addition to state laws, the US Environmental Protection Agency (EPA) has issued guidelines for individual regions, limiting the amount of solvent in industrial coatings on an industry-by-industry basis. In 1999, the EPA issued a nationwide Architectural and Industrial Maintenance (AIM) Coatings Rule to regulate the VOC of AIM coatings nationwide.

States and some local jurisdictions in states have adopted AIM rules of one form or another. In general, state-adopted AIM rules previously only applied to ozone non-attainment areas within the states. However, the 1998 rule applies to all air quality attainment and non-attainment areas. EPA's AIM rule and most state AIM rules are more complex than the earlier Miscellaneous Metal Parts VOC Rules (for shop-applied coatings) adopted by many states in 1983.

Maximum allowable VOC in field-applied AIM coatings can vary greatly, depending on the coating's intended use. For example, AIM rules lists 55 coating use categories and sub-categories. The default categories are *Flat Coatings* and *Non-Flat Coatings*. In other words if the intended use of a coating does not fit one of the prescribed categories, it is placed in the more restrictive, Flat or Non-Flat Category, depending on gloss.

State VOC regulations can be stricter than the National AIM Rules but cannot be less strict. Most states without their own rules tend adopt the federal AIM Rules. On the other hand, California's South Coast Air Quality Management District (SCAQMD-Los Angeles area) has recently revised their **Rule 1113** to set much tighter VOC restrictions for AIM Coatings. These extra-strict rules are often adopted out of convenience by other local air quality jurisdictions. Another way to comply is to use coatings without organic solvents, such as water-based coatings.

State and federal VOC regulations are not just guidelines, they are the law. Heavy fines can be levied on the specifier, applicator and end-user for coating applications that do not comply with these regulations. This makes it essential for the designer both to determine the regulatory requirements for where coating work is done, and to verify that the products used do comply.

With few exceptions, most industries and shop applicators are required to limit VOC content to 340 gm/l, (2.8 lbs/g) of paint as applied, i.e. including thinner. This corresponds to around 55 to 60 percent solids by volume. Prior to 1998, the VOC limit for field applied architectural coatings was 420 gm/l, (3.5 lbs/g). Eventually, most districts probably will adopt the 250 gm/l 2.08 lbs/g VOC limit set for AIM coatings by the California Air Resources Board (CARB).

Field applied coatings

The U.S. EPA National AIM VOC Rule implemented in 1999 also applies to field-applied coatings and the strictest VOC rules in the country, California's SCAQMD-Los Angeles area Rule 1113, also applies to field-applied AIM coatings in that locale. The California Air Resources Board (CARB) has adopted Rule 1113 as their "model rule" for the rest of California, so most of the Air Quality Management Districts in California likely will adopt rules patterned after Rule 1113 in the near future. In addition, a coalition of Northeastern states (Virginia, Maryland, Delaware, New Jersey, Pennsylvania, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, Maine, and the District of Columbia) known as the Ozone Transfer Commission (OTC) issued its own VOC limits in January of 2005.

The OTC VOC limits only apply to the following counties and cities in the State of Virginia:

Counties	Cities
Arlington	Arlington
Fairfax	Fairfax
Loudoun	Falls Church
Prince William	Manassas
Stafford	Manassas Park

The OTC VOC limits are currently set at the following:

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 - Industrial Maintenance – 340 g/l (2.84 lbs./gal)
 - Metallic Pigmented – 500 g/l (4.17 lbs./gal)
- * Model Rule for OTC (actually calls for 250 g/l limit, however states are adopting 340 g/l or 2.84 lbs./gal for the Industrial Maintenance Category.)

The remainder of Virginia including the areas served by HRSD have adopted the National AIM Rule that for Industrial Maintenance Coatings sets a VOC limit of 450 g/l or 3.8 lbs. per gallon.

Like the National AIM VOC Rule, VOC restrictions under Rule 1113 can vary greatly depending on the coating's intended use. Rule 1113 lists 40 coatings categories and sub-categories. The default categories here also are Flat coatings and Non-Flat Coatings.

If the "common usage", VOC content, and/or other information on a product data sheet or product label does not meet the Rule 1113 definition and VOC restrictions for a specific coatings category then that product should not be specified for applications that fall within the scope of that category.

As of July 2002, SCAQMD Rule 1113 will only apply to projects in the Los Angeles area, in part because the National Paint and Coatings Association (NPCA) sued to prevent wider implementation of Rule 1113. This matter is still in the courts, so Rule 1113 probably will be amended to some extent.

HRSD personnel should check local air quality regulatory agencies for updates. The Air and Waste Management Association's Government Agencies Directory is a useful source of information about applicable agencies. The directory is prepared by the association to provide current information about rules and activities of agencies responsible for air pollution control and waste management at federal, state, provincial and local level in the United States and Canada.

Contact the Journal of the Air and Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230 for a copy.