



SPECIAL REPORT

New Model Rule for Adhesives and Sealants Affects the Single-ply Roofing Industry

January 2012

As of Jan. 1, new volatile organic compound (VOC) emissions regulations took effect in the Northeast and Mid-Atlantic States. The regulations adopted in Connecticut, Delaware, Maine, Maryland, New Jersey, New York, Pennsylvania, Rhode Island, northern Virginia and the District of Columbia restrict the manufacture, distribution, sale and use of single-ply adhesives, primers and sealants to materials that comply with the Ozone Transport Commission's (OTC's) Model Rule for Adhesives and Sealants. The OTC is a regional advisory body to the Environmental Protection Agency that develops and implements regional strategies to reduce ground-level ozone to national ambient air quality standards.

A similar draft regulation proposed in Massachusetts provides a schedule for seasonal implementation between May 1 and Sept. 30 and permanent implementation on and after May 1, 2013. At this time, the Massachusetts regulation has not been adopted.

The OTC's Model Rule for Adhesives and Sealants is under consideration in New Hampshire and Vermont, but those states have not announced their regulations or adoption schedules.

The restrictions effectively eliminate the use of toluene- and xylene-based single-ply roof membrane adhesives and primers in the affected jurisdictions.

Single-ply roof membrane manufacturers, suppliers and distributors have complied with the rule by replacing xylene- and toluene-based materials with reformulated water-based adhesives and primers and VOC-exempt solvent-based adhesives and primers. However, manufacturers' guidelines for these OTC-compliant materials impose storage, handling and application conditions that may be difficult to meet or impractical during fall, winter and spring in the Northeast and Mid-Atlantic states.

The EPDM Roofing Association has questioned the applicability of the VOC limits, informed individual state regulators of its concerns and asked for modifications in the OTC model rule's implementation.

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Limitations

Water-based single-ply adhesives typically are acrylic latex emulsions. Manufacturers' recommendations for storage and handling of water-based adhesives and VOC-exempt solvent-based adhesives are similar except for when there is a possibility of cold weather. Water-based adhesives do not tolerate freezing temperatures. If allowed to freeze, they no longer are suitable for use. They will not cure if exposed to freezing temperatures once applied. Manufacturers' instructions warn against using water-based adhesives when there is a possibility of freezing temperatures within 48 hours after application.

Depending on the product and application type, membranes are rolled onto wet, tacky or dry adhesive. Flash-off times are significantly longer and less predictable with water-based adhesives and VOC-exempt solvent-based adhesives as compared with VOC solvent-based adhesives. Warnings and cautionary language abound in manufacturers' application instructions, which state: Low substrate and ambient temperatures, high humidity, overcast sky and shade significantly can extend flash-off and cure times; adhesives must be dry to avoid permanent blisters from trapped moisture; and substrates such as concrete, cellular concrete, concrete stone, block and brick must be completely dry before the application of water-based bonding adhesives.

Compliance

User compliance is compelled by the manufacturing, distribution and sale restrictions that effectively prevent single-ply roof membrane installers from obtaining noncompliant materials through manufacturer- and supplier-controlled distribution channels in the affected markets. Separately and independently of those restrictions, single-ply roof membrane installers are prohibited from using any noncompliant materials. Most single-ply roof membrane sealants on the market already comply with the OTC's model rule.

Designers and specifiers should note written and oral contracts that would require the use of any adhesive, primer and/or sealant are prohibited if such use results in a violation of the local implementation of the model rule.

Applicators of adhered single-ply roof membranes in the affected regions are compelled to find ways to successfully install roof systems working within the manufacturers' parameters for water- and VOC-exempt solvent-based adhesives, primers and sealants.

Applicators are advised to pay close attention to manufacturers' recommendations and work closely with manufacturers' technical and field staff, starting with the planning stages of projects involving OTC-compliant single-ply roof membrane adhesives, primers and sealants.

To read more about the OTC, VOC emissions and OTC's rule, log on to the Members Only section of NRCA's website, www.nrca.net, and click Special Reports. If you have questions, contact NRCA's Technical Services Department at (800) 323-9545.