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Response to Comments on Proposed Amendments to:

**310 CMR 7.18(30)
Adhesives and Sealants**

**310 CMR 7.18
Volatile and Halogenated Organic Compounds**

**310 CMR 7.19
Reasonably Available Control Technology for Sources of Oxides of Nitrogen**

**310 CMR 7.00: Appendix B
Emission Banking, Trading, and Averaging**

Regulatory Authority:
M.G.L. c. 111, Sections 142A through 142E

August 30, 2013

In October 2011, the Massachusetts Department of Environmental Protection (MassDEP) proposed amendments to 310 CMR 7.00 to:

- (1) add a new section governing adhesives and sealants for Volatile and Halogenated Organic Compounds, 310 CMR 7.18(30), to further reduce emissions of volatile organic compounds (VOCs);
- (2) amend the existing Reasonably Available Control Technology (RACT) for Volatile and Halogenated Organic Compounds, at 310 CMR 7.18(1)(f), and RACT for Sources of Oxides of Nitrogen (NOx), at 310 CMR 7.19(1)(c)9., to clarify the relationship between RACT and Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) determinations in plan approvals;
- (3) amend the existing RACT for Volatile and Halogenated Organic Compounds, at 310 CMR 7.18(20), to clarify Emission Control Plan submittal requirements; and
- (4) amend Emission Banking, Trading, and Averaging, 310 CMR 7.00: Appendix B, to clarify the original intent of MassDEP to exclude certain emissions averaging ("bubbles") from the requirements of 310 CMR 7.00: Appendix B(4).

MassDEP held a public hearing and solicited oral and written testimony on the proposed regulations in accordance with Massachusetts General Law Chapter 30A. On October 17 and October 19, 2011, MassDEP published notice of the public hearing and public comment period on the proposed regulatory revisions in the Boston Globe and the Springfield Republican, respectively, and notified interested parties via electronic mail. A public hearing was held on November 17, 2011 in Boston, Massachusetts and the comment period closed on November 28, 2011.

This document summarizes and responds to comments that were received during the public comment period. Those who provided comments are listed below:

1. Ann Arnold, Manager, Air Quality Planning Unit, U.S. Environmental Protection Agency, Region I (EPA)
2. Joseph A. Fulliero II, M.S., EHS Manager, ITW Plexus (Plexus)
3. Heidi K. McAuliffe, Esq., Senior Counsel, Government Affairs, American Coatings Association, Inc. (ACA)
4. Gene Pettingill, State of Delaware, Department of Natural Resources and Environmental Control (DE)
5. David J. Wawer, CEO, Massachusetts Chemistry & Technology Alliance (MCTA)

A. PUBLIC COMMENTS

1. Comment: MassDEP should change the effective date of the proposed regulations to 18 months from the date of promulgation to allow adequate time for compliance. [ACA]

Response: MassDEP has changed the compliance date in its final regulations for manufacturers of adhesives, sealants, adhesives primers, and sealants primers from May 1, 2012 to January 1, 2015 in order to allow sufficient lead time for manufacturers' compliance. MassDEP believes

that this lead time is sufficient because the adhesives and sealants industry has known about the Ozone Transport Commission (OTC) adhesives and sealants model rule and MassDEP's intent to adopt the OTC model rule for several years. In addition, similar regulations with the same VOC content limits already are in effect in California and many other OTC states, including Maine, New Hampshire, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, District of Columbia, Maryland, Delaware, and Virginia, so many manufacturers already produce compliant products. Therefore, manufacturers of these products have been in a position to prepare for production of compliant products well in advance of the compliance deadline.

2. Comment: MassDEP should establish a sell-through period for the sale of products manufactured prior to the date by which manufacturers must meet the VOC limit standards. The sell-through period should be greater than nine months to allow sale of these products; otherwise sellers would have to discard the unsold products, which would result in materials waste and pollution of the environment. [ACA]

Response: MassDEP has incorporated an implicit sell-through period in its final regulations by changing the compliance date for the sellers and users of adhesives, sealants, adhesives primers, and sealants primers, respectively, to September 1, 2015 and May 1, 2016. This will allow time for the sale and use of noncompliant products manufactured prior to January 1, 2015.

3. Comment: The proposed regulations at 310 CMR 7.18(30)(e) state that the VOC requirements shall not apply to manufacturers or distributors of products with a net volume of 16 fluid ounces or less. Then, why should records be kept for products with a net volume of sixteen ounces or less? Such a requirement imposes an undue burden on the regulated community. [Plexus]

Response: MassDEP has eliminated the recordkeeping requirements in its final regulations for manufacturers and sellers who manufacture or sell products in packaging with a net volume of sixteen fluid ounces or less or a net weight of one pound or less.

4. Comment: The proposed amendments are inherently overreaching in nature because the regulations do not specify how far down the distribution network the primary seller or manufacturer is required to generate and retain such records. [Plexus]

Response: MassDEP believes the regulations, as specified under 310 CMR 7.18(30)(a)3., and 310 CMR 7.18(30)(e), clearly state that each regulated party (manufacturer, seller, or user) of adhesives and sealants is responsible only to maintain records of its own actions, and is not responsible to maintain records of other parties down the distribution network.

5. Comment: MassDEP should not adopt "cart blanche" OTC model rules that are based on California regulations because regulatory models from California do not accurately portray the adverse economic fallout that has occurred as a result of overzealous regulatory practices by the State of California. [MCTA]

Response: MassDEP evaluated the OTC model rule in the context of Massachusetts air pollution control needs prior to proposing its Adhesives and Sealants regulations. As a member

of the OTC, Massachusetts participates in the development of OTC model rules based on a thorough analysis of the available control options and the feasibility of their implementation with respect to the regulated industry and the adopted control techniques. The OTC actively involves and considers comments from industries that would be affected by the model rules. MassDEP believes that some rules are most effectively and efficiently implemented on a regional basis and joins other OTC states in pursuing their enactment. In many cases, the affected industries support the adoption of rules on a regional basis because such an approach provides consistent rules across states. After development of regional model rules, MassDEP considers the necessity, feasibility, and cost effectiveness of the rules specific to Massachusetts prior to proposing any regulations. In adopting the adhesives and sealants regulations, MassDEP included specific provisions to address regulatory needs in Massachusetts and to provide flexibility to the regulated community. For example, MassDEP incorporated EPA's Adhesives and Sealants Control Techniques Guidelines requirements in its regulations and provided a "sell-through" provision to facilitate compliance for sellers and users of these regulated products.

6. Comment: The process by which the OTC develops a VOC model rule is flawed because it does not provide defined certainty of positive environmental benefits for New England states as a result of adoption of its proposals, and the OTC proposals do not reflect the existing environmental achievements of the past ten years that have occurred due to air quality regulations promulgated by the Federal government. [MCTA]

Response: The OTC states considered the environmental benefits of the adhesives and sealants rule and performed an emissions reduction analysis through an environmental consulting company.¹ Existing EPA regulations and their implementation status in each OTC state also were evaluated in the OTC's technical analysis.² The VOC emissions reductions attributable to the implementation of the OTC model rules are reductions that can be achieved beyond the reductions achievable from the implementation of EPA regulations.

The OTC strives to develop its model rules through a transparent process. In this process the OTC solicits input and data from all stakeholders including industry and OTC states through public meetings and an opportunity to provide written comments, and incorporates this input in its model rule.

MassDEP participated in the OTC's Adhesives and Sealants model rule development process, and based its analysis of the emissions reductions benefit that would be achieved in Massachusetts on the OTC's analysis. This analysis, which was provided in the Technical Support Document accompanying the proposed regulations, indicates significant VOC reductions of 2,300 tpy or 6.3 tons per summer day in 2013 in Massachusetts.³

¹ Edward Sabo and Douglas A. Toothman, Identification and Evaluation of Candidate Control Measures, Final Technical Support Document, February 28, 2007, MACTEC Federal Programs, Inc., Prepared for the Ozone Transport Commission.

² Ibid Footnote 1.

³ In the Technical Support Document accompanying the proposed regulations, the emission reductions were calculated for the first year in which the regulations were to be fully effective. MassDEP has changed the effective compliance dates in the regulations and, consequently, May 1, 2016 is the first date on which all provisions of the regulations will be in effect. The emission reductions in 2017, the first full year in which all provisions of the regulations will be effective, will be greater than the projected reductions in 2013.

7. Comment: MassDEP's premise that changes have already occurred in the adhesives and sealants market due to similar regulations in surrounding states is incorrect. Massachusetts adhesives and sealants companies compete in a global marketplace against thousands of companies located in business-friendly states outside of the OTC region. Proposed VOC regulations for adhesives and sealants do not exist, for example, in the South or Midwest, the home to many competitors. [MCTA]

Response: While there are jurisdictions that do not restrict VOC content in adhesives and sealants, California and most states in the OTC region, including the Northeast states, have adopted adhesives and sealants VOC regulations. Manufacturers of adhesives and sealants that are located in regions that do not regulate adhesives and sealants do not have any competitive advantage over Massachusetts manufacturers when they sell their products in the many states where adhesives and sealants are regulated because every company must comply with the same regulations. In addition, MassDEP's adhesives and sealants regulations regulate adhesives and sealants manufactured for use in Massachusetts; therefore, Massachusetts companies can continue to manufacture higher-VOC products for sale in states that do not have similar regulations, enabling these companies to compete on a level playing field. Manufacturers that apply adhesives and sealants in Massachusetts would have to use compliant adhesives and sealants. However, competitively-priced compliant products already exist in the market and can be used to comply with the regulations. In addition, such manufacturers can choose to use higher-VOC non-compliant products if they employ appropriate pollution controls. Therefore, MassDEP believes there is sufficient flexibility in the regulations to enable Massachusetts companies to be competitive with out-of-state companies.

8. Comment: The proposed regulations will have an immediate effect of increasing the cost of doing business in Massachusetts and there will be a significant impact on small manufacturing businesses that produce adhesives and sealants. MassDEP has not considered the cost impacts of the proposed regulations in general and has not identified the immediate cost impacts of the proposed regulations in its Small Business Impact Statement specifically. [MCTA]

Response: MassDEP considered the costs of the proposed regulations, which are described in the Technical Support Document that accompanied the proposed regulations. No alternative or differing cost estimates were provided by any commenter on the proposed regulations. Based on MassDEP's cost estimates and the fact that similar regulations are in effect in surrounding states, MassDEP believes that there will not be a significant impact on businesses in Massachusetts.

9. Comment: Answers provided by MassDEP to the Small Business Impact Statement requirements tend to be incorrect because the agency has not conducted mandatory outreach to impacted Massachusetts manufacturing companies. For example, the "NO" answer to the question "Is the regulation likely to deter the formation of small businesses in Massachusetts?" is incorrect because MCTA's correspondence with at least four companies that are directly impacted by the proposed regulations indicates that these companies will relocate their manufacturing operations to another state (outside the OTC) should the OTC model regulations be adopted. [MCTA]

Response: Many states already have adopted VOC content limits for adhesives and sealants and compliant products are readily available to Massachusetts small businesses. Therefore, MassDEP believes that adopting similar regulations will not deter the formation of small businesses in Massachusetts. MassDEP did not receive any data or information from the commenter in support of the assertion that companies will relocate outside of Massachusetts due to the regulations. MassDEP is always willing to consider specific information if submitted by affected companies or stakeholders, and is willing to work with companies affected by the regulations.

10. Comment: MassDEP should conduct an extensive survey of state economic development agencies throughout the OTC region to determine if adoption of the OTC model rule for Adhesives and Sealants has resulted in the closure or relocation of such manufacturing operations. MassDEP can partner with the Executive Office of Housing and Economic Development to conduct such an economic impact analysis. [MCTA]

Response: MassDEP is in regular communication with other OTC states and is not aware of significant adverse effects on businesses in the OTC states that already have adopted the Adhesives and Sealants regulations.

MassDEP researched and contacted adhesives and sealants manufacturers in Massachusetts and was able to identify only a few manufacturers that would be affected by the proposed regulations. In addition, MassDEP did not receive any comments from Massachusetts businesses to indicate that the regulations would pose an unreasonable cost.

11. Comment: Why does MassDEP propose to exempt adhesives and sealants from the “Once in always in” policy requirement of its Reasonably Available Control Technology (RACT) for Volatile and Halogenated Organic Compounds? [EPA]

Response: MassDEP exempted users of adhesives and sealants from this policy because many users are small and/or one-time users of adhesives and sealants. However, MassDEP made a change in its final regulations so that “CTG-affected facilities,” as defined in 310 CMR 7.18(30)(b), that become subject to the Adhesives and Sealants regulations also become subject to the “once in always in” requirement of 310 CMR 7.18(1)(d) as follows:

(d) Any person who owns, leases, operates, or controls a facility which is or becomes subject to 310 CMR 7.18, except for those persons solely subject to 310 CMR 7.18(30) **unless the facility is a CTG-affected facility as defined under 310 CMR 7.18(30)(b), Definitions,** shall continue to comply with all requirements of 310 CMR 7.18, even if emissions from the subject facility no longer exceed applicability requirements of 310 CMR 7.18.

12. Comment: The following definitions in MassDEP’s proposed regulations and EPA’s Control Technique Guidelines (CTG) are not the same: Chlorinated Polyvinyl Chloride Plastic; Flexible Vinyl; Porous Materials; and Single-ply Roof Membrane. Additionally, the following terms, which are defined in the EPA’s CTG, are not defined in the proposed regulations: EPDM Roof Membrane; Motor Vehicle Adhesives; Motor Vehicle Weather-strip Adhesives. MassDEP should either revise these definitions to be consistent with EPA’s CTG or provide documentation

supporting the alternative definitions, including a discussion of the alternatives' impact on emissions. [EPA]

Response: MassDEP acknowledges that there are differences in some of the definitions proposed in these regulations as compared to the definitions in EPA's CTG. In response to this comment, MassDEP has changed the definition of "Porous Materials" to make it consistent with EPA's CTG definition. Other definitions were not changed in these final regulations either because of technical reasons, or for the purpose of maintaining consistency with the regulations in other OTC states and California. Each of the comments on definitions and terms is addressed below:

Chlorinated Polyvinyl Chloride Plastic. MassDEP has revised its definition of "Chlorinated Polyvinyl Chloride Plastic" in its final regulations as follows:

CHLORINATED POLYVINYL CHLORIDE PLASTIC or CPVC PLASTIC means a polymer of the vinyl chloride monomer that ~~contains between 56.7% and 74% chlorine~~ has undergone a polymerization chlorination process to increase the chlorine content of the PVC polymer beyond its base chlorine content of 57 percent. CPVC plastic ~~and~~ is normally identified with a CPVC marking.

MassDEP researched the technical literature on CPVC prior to proposing its regulations and concluded that the chlorine content of CPVC spans a range of values. The value "56.7%" is the chlorine content of the polyvinyl chloride base polymer. MassDEP only found a reference to the 67% chlorine content (as in EPA's CTG) in conjunction with the extrusion grade chlorinated polyvinyl chloride used for piping applications. MassDEP has further investigated this issue and concluded that the chlorine content of the extrusion grade CPVC used in pipes is not a fixed value; rather it spans a range of values depending on the application. In addition, pipes could be manufactured using an injection molding process. Therefore, MassDEP has adopted a definition that accounts for the range of chlorine values that may be in CPVC.

Flexible Vinyl. MassDEP did not make any changes to its final regulations. The definition of Flexible Vinyl in MassDEP's regulations does not include a reference to "5 percent by weight plasticizer" (as in EPA's CTG definition) because MassDEP was not able to find any reference to this specification in technical literature as a determining criterion for flexible vinyl. MassDEP is concerned that such a specification may be too narrow.

Porous Materials. MassDEP has changed the definition of "Porous Materials" in its final regulations by excluding wood from this definition in order to make it consistent with EPA's CTG definition.

Single-ply Roof Membrane. MassDEP did not make any changes in its final regulations. MassDEP believes it is appropriate to include EPDM roof membranes within the definition of "Single-ply Roof Membranes," consistent with other OTC states and California, with a VOC content limit of 250 g/l. While EPA does not include EPDM in the definition of Single-ply Roof Membrane in its CTG, it regulates EPDM adhesives under the category of adhesives applied to rubber substrates, which also has a VOC content limit of 250 g/l.

Therefore, MassDEP's regulations and EPA's CTG require the same VOC content limit for EPDM.

Undefined Terms. In its final regulations, MassDEP did not add a separate definition for "EPDM Roof Membrane" because its definition of "Single-ply Roof Membrane" includes the definition of EPDM.

MassDEP did not add product categories for "Motor Vehicle Adhesives" and "Motor Vehicle Weather-strip Adhesives" in order to be consistent with other OTC states. These adhesives will be regulated under the applicable category limits for Adhesives Applied to Particular Substrates. The category limits for Adhesives Applied to Particular Substrates, with a maximum VOC limit of 250 g/l, are at least as stringent as the limits for "Motor Vehicle Adhesives" and "Motor Vehicle Weather-strip Adhesives" in the EPA CTG, which are 250 g/l and 750 g/l, respectively.

13. Comment: Although the OTC model rule has definitions for "Tire Repair" and "Tire Retread" in order to distinguish between the two operations, it does not regulate adhesives applied for tire repair operations as a category; rather, these adhesives are regulated under "Adhesives Applied to the Listed Substrate, Rubber" at 250 g/l. The correct category to be regulated with a VOC content limit of 100 g/l is the "Tire Retread" category. This category, and not "Tire Repair" adhesives, also has been regulated under CARB's Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Adhesives and Sealants and various California air districts regulations with the same VOC content limit. MassDEP should change "Tire Repair" in the 310 CMR 7.18(30)(c) Table 1 of its proposed regulations to "Tire Retread". [DE]

Response: In its final regulations, MassDEP has changed the term "Tire Repair" to "Tire Retread" in 310 CMR 7.18(30)(c) Table 1, and has corrected the definition for this category in its Definitions section as follows:

TIRE ~~TREAD~~ RETREAD ADHESIVE means any adhesive intended by the manufacturer for application to the back of pre-cure tread rubber and to the casing and cushion rubber. Tire retread adhesive may also be used to seal buffed tire casings to prevent oxidation while the tire is being prepared for a new tread.

14. Comment: Certain VOC limits in the proposed regulations are not the same as those in EPA's CTG:

- MassDEP's limit for Automotive Glass Adhesives is more stringent than EPA's CTG limit
- MassDEP's limit for wood adhesives is less stringent than that of EPA's CTG limit (120 g/l versus 30 g/l) because MassDEP's definition of Porous Materials includes wood
- The proposed MassDEP regulations establish limits for the following product categories for which there are no VOC limits in the EPA's CTG:
 - Computer Diskette Jacket Manufacturing Adhesives
 - CPVC Welding Adhesives
 - Non-membrane Roof Installation/Repair Adhesives and Sealants
 - PVC Welding Adhesives

- Traffic Marking Tape Adhesive Primers
- Adhesives Applied to Particular Substrates: Fiberglass
- the six product categories listed under “sealants”, and
- the four product categories listed under “sealant primers”

MassDEP should either revise the wood adhesives limit to be consistent with EPA’s CTG or provide supporting documentation to demonstrate that this alternative limit represents RACT. [EPA]

Response: In its final regulations, MassDEP has excluded wood from the definition of “Porous Materials,” and has added a category for wood under “Adhesives Applied to Particular Substrates” to be consistent with the more stringent VOC limit in EPA’s CTG. The other categories in MassDEP’s regulations for which there are no CTG definitions are consistent with the OTC model rule and provide additional emission reduction benefits and regional consistency with other OTC states.

15. Comment: The proposed re-wording of 310 CMR 7.19(1)(c)9. should be revised. As currently written, the first sentence is an incomplete sentence; this should be corrected by merging the first sentence with the second sentence in the paragraph. [EPA]

Response: MassDEP did not make any change to 310 CMR 7.19(1)(c)9 in its final regulations. The first part of the text in 310 CMR 7.19(1)(c)9. is the last part of a sentence that starts at the beginning of 310 CMR 7.19(1)(c) with the words: “The requirements of 310 CMR 7.19 do not apply to:” and continues with a numbered list. The second sentence in 310 CMR 7.19(1)(c)9. is a complete sentence that provides further information about item number nine in the list (i.e., about 310 CMR 7.19(1)(c)9).

B. OTHER CHANGES TO THE FINAL REGULATIONS

MassDEP made several other changes in its final regulations to provide clarification and/or technical corrections.

1. Single-ply Roof Membrane Installation and Repair Adhesives, Single-ply Roof Membrane Sealants, and Single-ply Roof Membrane Adhesive Primers.

MassDEP eliminated the proposed phase-in compliance provisions for sale and use of Single-ply Roof Membrane installation and repair adhesives, Single-ply Roof Membrane sealants, and Single-ply Roof Membrane adhesive primers because the new compliance date for users of these products is three years later than the originally proposed full phase-in date (i.e., May 1, 2016 instead of May 1, 2013).

2. ASTM Test Methods.

MassDEP eliminated specific ASTM test method citations in its final regulations because ASTM International frequently updates its test methods with new methods. Instead, a general reference to ASTM methods appears in the regulations.

3. Definition Changes.

MassDEP made the following changes to clarify and/or provide a more accurate definition:

PLASTIC CEMENT WELDING ADHESIVE means any adhesive intended by the manufacturer for use to dissolve the surface of ~~P~~plastic to form a bond between mating surfaces. Plastic cement welding adhesive does not include ABS welding, PVC welding, or CPVC welding adhesives.

METAL TO URETHANE/RUBBER MOLDING OR CASTING ADHESIVE means any adhesive intended by the manufacturer to bond metal to high density or elastomeric urethane or molded ~~R~~rubber materials, in heater-heated molding or casting processes, ~~to fabricate products such as rollers for computer printers or other paper handling equipment.~~

4. Technical Correction regarding proposed language for 310 CMR 7.18(2)(a)

As a technical correction, MassDEP has deleted the following language from the proposed regulations because MassDEP's original intention was to eliminate a potential conflict between the testing requirements specified in 310 CMR 7.18(30) and the requirements of 310 CMR 7.18(2)(a):

Persons Subject to 310 CMR 7.18 solely due to 310 CMR 7.18(30) are not subject to the testing requirements of 310 CMR 7.18(2)(a).

Upon careful analysis, MassDEP has determined that the requirements of 310 CMR 7.18(2)(a) are not in conflict with the testing requirements specified in 310 CMR 7.18(30). On the contrary, they complement the latter because they provide the necessary averaging times for the EPA test methods specified in 310 CMR 7.18(30)(f).

5. Editorial Changes.

In the final regulations, MassDEP made a few editorial changes that provide a cleaner text. For example, MassDEP has reorganized the table of standards in 310 CMR 7.18(30)(c) to list the product categories in alphabetical order.