

**Notice of Proposed Rulemaking**  
**Department of Environmental Protection**  
**Environmental Quality Board**  
**(25 Pa. Code Chapter 129)**  
**Large Appliance and Metal Furniture Surface Coating Processes**

**Preamble**

The Environmental Quality Board (Board) proposes to amend Chapter 129 (relating to standards for sources) to read as set forth in Annex A.

The proposed rulemaking would amend Chapter 129 to limit emissions of volatile organic compounds (VOCs) from the use and application of coatings and cleaning materials in large appliance and metal furniture surface coating processes. The proposal would add § 129.52a (relating to control of VOC emissions from large appliance and metal furniture surface coating processes) and amend §§ 129.51 and 129.52 (relating to general; and surface coating processes).

This proposal was adopted by the Board at its meeting on (date).

**A. Effective Date**

This proposed rulemaking will be effective upon final-form publication in the *Pennsylvania Bulletin*.

**B. Contact Persons**

For further information contact Arleen J. Shulman, Chief, Division of Air Resource Management, P.O. Box 8468, Rachel Carson State Office Building, Harrisburg, PA 17105-8468, (717) 772-3436, or Kristen Campfield Furlan, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Information regarding submitting comments on this proposal appears in Section J of this preamble. Persons with a disability may use the AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposal is available electronically through the Department of Environmental Protection's (Department) Web site at [www.depweb.state.pa.us](http://www.depweb.state.pa.us) (Quick Access: Public Participation).

**C. Statutory Authority**

This proposed rulemaking is authorized under section 5 of the Air Pollution Control Act (APCA) (35 P. S. § 4005), which in subsection (a)(1) grants the Board the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth, and which in subsection (a)(8) grants the Board the authority to adopt rules and regulations designed to implement the provisions of the Clean Air Act (CAA).

## **D. Background and Purpose**

The purpose of this proposed rulemaking is to reduce VOC emissions from large appliance and metal furniture surface coating operations. VOCs are a precursor for ozone formation. Ground-level ozone is not emitted directly by surface coatings to the atmosphere, but is formed by a photochemical reaction between VOCs and nitrogen oxides (NO<sub>x</sub>) in the presence of sunlight. The proposed rulemaking adopts the emission limits and other requirements of the U.S. Environmental Protection Agency's (EPA) 2007 Control Techniques Guidelines (CTGs) for large appliance coatings and metal furniture coatings in order to meet Federal CAA requirements.

The EPA is responsible for establishing National Ambient Air Quality Standards (NAAQS) for six criteria pollutants considered harmful to public health and the environment: ozone, particulate matter, NO<sub>x</sub>, carbon monoxide, sulfur dioxide and lead. The CAA established two types of NAAQS: primary standards, limits set to protect public health; and secondary standards, limits set to protect public welfare, including protection against visibility impairment and from damage to animals, crops, vegetation and buildings. The EPA has established primary and secondary ozone NAAQS to protect public health and welfare.

When ground-level ozone is present in concentrations in excess of the Federal health-based 8-hour NAAQS for ozone, public health and welfare are adversely affected. Ozone exposure correlates to increased respiratory disease and higher mortality rates. Ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced. Over a long time period, lung tissue may become permanently scarred, resulting in permanent loss of lung function and a lower quality of life. When ambient ozone levels are high, more people with asthma have attacks that require a doctor's attention or use of medication. Ozone also makes people more sensitive to allergens including pet dander, pollen and dust mites, all of which can trigger asthma attacks.

The EPA has concluded that there is an association between high levels of ambient ozone and increased hospital admissions for respiratory ailments including asthma. While children, the elderly and those with respiratory problems are most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to high levels of ambient ozone while engaged in activities that involve physical exertion. High levels of ozone also affect animals in ways similar to humans.

In addition to causing adverse human and animal health effects, the EPA has concluded that ozone affects vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields by destroying chlorophyll; reduced growth and survivability of tree seedlings; and increased plant susceptibility to disease, pests, and other environmental stresses, including harsh weather. In long-lived species, these effects may become evident only after several years or even decades and have the potential for long-term adverse impacts on forest ecosystems. Ozone damage to the foliage of trees and other plants can decrease the aesthetic value of ornamental species used in residential landscaping, as well as the natural beauty of parks and recreation areas. Through deposition, ground-level ozone also contributes to pollution in the Chesapeake Bay. The economic value of some welfare losses due to ozone can be calculated, such as crop yield loss from both reduced seed production and visible injury to some leaf crops,

including lettuce, spinach and tobacco, as well as visible injury to ornamental plants, including grass, flowers and shrubs. Other types of welfare loss may not be quantifiable, such as the reduced aesthetic value of trees growing in heavily visited parks.

High levels of ground-level ozone can also cause damage to buildings and synthetic fibers, including nylon, and reduced visibility on roadways and in natural areas. The implementation of additional measures to address ozone air quality nonattainment in this Commonwealth is necessary to protect the public health and welfare, animal and plant health and welfare and the environment.

In July 1997, the EPA established primary and secondary ozone standards at a level of 0.08 parts per million (ppm) averaged over 8 hours. 62 FR 38855 (July 18, 1997). In 2004, the EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS. This Commonwealth is meeting the 1997 standard in all areas except the five-county Philadelphia and seven-county Pittsburgh-Beaver Valley areas. The areas in which the 1997 standard has been attained are required to have permanent and enforceable control measures to ensure violations do not occur for the next decade. The Commonwealth must demonstrate that the two areas currently not attaining the 1997 standard will meet the 1997 standard as expeditiously as practicable. Should these two areas not attain the standard during the 2009 ozone season, additional reductions will be required.

In March 2008, the EPA lowered the standards to 0.075 ppm averaged over 8 hours to provide even greater protection for children, other at-risk populations and the environment against the array of ozone-induced adverse health and welfare effects. 73 FR 16436 (March 27, 2008). As required by the CAA requirements that states regulate sources covered by CTGs issued by the EPA, the Commonwealth submitted recommendations to the EPA in 2009 to designate 29 counties as nonattainment for the 2008 8-hour ozone NAAQS. The EPA is expected to take final action on the designation recommendation by March 2010. The EPA's designations will take effect 60 days after the EPA publishes a notice in the *Federal Register*. Monitors in most urban areas and some rural areas of this Commonwealth are currently not meeting the 2008 ozone standard.

There are no Federal statutory or regulatory limits for VOC emissions from large appliance and metal furniture surface coating operations. State regulations to control VOC emissions from large appliance and metal furniture surface coating operations are required under Federal law, however, and will be reviewed by the EPA for whether they meet the "reasonably available control technology" (RACT) requirements of the CAA and its implementing regulations. *Consumer and Commercial Products; Control Techniques Guidelines in lieu of Regulations for Paper, Film, and Foil Coatings; Metal Furniture Coatings; and Large Appliance Coatings*, 72 FR 57215, 57218 (October 9, 2007).

Section 172(c)(1) of the CAA provides that State Implementation Plans (SIPs) for nonattainment areas must include "reasonably available control measures," including RACT, for sources of emissions. 42 U.S.C. § 7502(c)(1). Section 182(b)(2) of the CAA provides that for moderate ozone nonattainment areas, states must revise their SIPs to include RACT for sources of VOC emissions covered by a CTG document issued by the EPA prior to the area's date of attainment. 42 U.S.C. § 7511a(b)(2). More importantly, § 184(b)(1)(B) of the CAA requires

that states in the Ozone Transport Region (OTR), including Pennsylvania, submit a SIP revision requiring implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG. 42 U.S.C. § 7511c(b)(1)(B).

Section 183(e) of the CAA directs the EPA to list for regulation those categories of products that account for at least 80% of the VOC emissions from consumer and commercial products in ozone nonattainment areas. 42 U.S.C. § 7511b(e). Section 183(e)(3)(C) of the CAA further provides that the EPA may issue a CTG in place of a National regulation for a product category where the EPA determines that the CTG will be “substantially as effective as regulations” in reducing emissions of VOC in ozone nonattainment areas. 42 U.S.C. § 7511b(e)(3)(C).

In 1995, the EPA listed large appliance coatings and metal furniture coatings on its § 183(e) list and, in 2007, issued CTGs for these two product categories. 60 FR 15264 (March 23, 1995) and 72 FR 57215 (October 9, 2007). In the 2007 notice, the EPA determined that the CTGs would be substantially as effective as National regulations in reducing VOC emissions from these product categories in ozone nonattainment areas. 72 FR at p. 57220.

The CTG provides states with the EPA’s recommendation of what constitutes RACT for the covered category. States can use the recommendations provided in the CTG to inform their own determination as to what constitutes RACT for VOC emissions from the covered category. State air pollution control agencies are free to implement other technically sound approaches that are consistent with the CAA requirements and the EPA’s implementing regulations or guidelines.

The Department has reviewed the recommendations included in the 2007 CTGs for large appliance and metal furniture coatings for their applicability to the ozone reduction measures necessary for this Commonwealth. The Department has determined that the measures provided in the CTGs for large appliance and metal furniture coatings are appropriate to be implemented in this Commonwealth as RACT for this category.

This rulemaking, if adopted as a final rule, would assist in reducing VOC emissions locally as well as reducing the transport of VOC emissions and ground-level ozone to downwind states. Adoption of VOC emission requirements for large appliance and metal furniture surface coating operations is part of the Commonwealth’s strategy, in concert with other OTR jurisdictions, to further reduce transport of VOC ozone precursors and ground-level ozone throughout the OTR to attain and maintain the 8-hour ozone NAAQS. The proposed rulemaking is required under the CAA and is reasonably necessary to attain and maintain the health-based 8-hour ozone NAAQS in this Commonwealth. When final, this rulemaking will be submitted to the EPA as a revision to the SIP.

The concepts of the proposed rulemaking were discussed with the Air Quality Technical Advisory Committee (AQTAC) at its October 30 and December 11, 2008, meetings. The proposed rulemaking was discussed with the AQTAC on May 28, 2009. The AQTAC concurred with the Department’s recommendation to present the proposed amendments to the Board for approval for publication as a proposed rulemaking. The Department also consulted with the Citizens Advisory Council on July 21, 2009, and with the Small Business Compliance Advisory Committee on October 22, 2008, and April 22 and July 22, 2009.

## **E. Summary of Regulatory Requirements**

The proposed rulemaking would amend § 129.51(a) to extend its coverage to large appliance and metal furniture surface coating processes covered by this proposed rulemaking, as well as to paper, film and foil surface coating processes and flat wood paneling surface coating processes, which are covered in parallel rulemakings. Section 129.51(a) provides an alternative method for owners and operators of facilities to achieve compliance with air emission limits.

The proposed rulemaking would amend § 129.52 by adding paragraph (i). Section 129.52 specifies requirements and emission limits for various surface coating processes. The amendment in this proposed rulemaking would clarify in new paragraph (i) that the requirements and limits already specified in § 129.52 for metal furniture coatings, large appliance coatings and paper coatings are superseded by the requirements and limits that will be adopted in this proposed rulemaking and in the proposed rulemaking for paper, film and foil surface coating processes.

One emission limit is expressed in § 129.52 for large appliance coatings and one emission limit is expressed for metal furniture coatings, whereas in the CTGs separate emission limits are expressed for eight different coating types within each of these two categories. Several of the limits in the CTGs are more stringent and several are less stringent than the existing limits expressed in § 129.52. As is explained in the discussion, below, regarding Tables I and II (relating to emission limits of VOCs for large appliance surface coatings; and emission limits of VOCs for metal furniture surface coatings), the more stringent limits are adopted in this proposed rulemaking.

The proposed rulemaking would add § 129.52a to regulate VOC emissions from large appliance and metal furniture surface coating processes. The applicability of this new section is described in subsection (a), which establishes that § 129.52a applies to the owner and operator of a large appliance or metal furniture surface coating process if the total actual VOC emissions from all large appliance or metal furniture surface coating operations, including related cleaning activities, at the facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls. The emission limits and other requirements of this section supersede the emission limits and other requirements of § 129.52. Basing the applicability on a 12-month rolling period is generally considered to be more stringent than basing it on a calendar year, as in § 129.52, but is consistent with the CTGs.

Proposed subsection (b) explains that the requirements of § 129.52a supersede the requirements of a RACT permit for VOC emissions from a large appliance or metal furniture surface coating operation already issued to the owner or operator of a source subject to § 129.52a, except to the extent the RACT permit contains more stringent requirements.

Proposed subsection (c) establishes VOC emission limits. Beginning January 1, 2011, a person may not cause or permit the emission into the outdoor atmosphere of VOCs from a large appliance or metal furniture surface coating process, unless (1) the VOC content of each as applied coating is equal to or less than the limit specified in one of the two tables in § 129.52a, or (2) the overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor

recovery, incineration or another method that is acceptable under § 129.51(a). The second option also addresses the overall efficiency of a control system.

Proposed subsection (d) identifies daily records that must be kept to demonstrate compliance with § 129.52a, including records of parameters and VOC content of each coating, thinner, component and cleaning solvent, as supplied, and the VOC content of each as applied coating or cleaning solvent.

Proposed subsection (e) requires that the records be maintained for 2 years and submitted to the Department on request.

Under proposed subsection (f), an owner or operator subject to § 129.52a may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of large appliance or metal furniture surface coatings, unless the coatings are applied using electrostatic coating, roller coating, flow coating, dip coating (including electrodeposition), high volume-low pressure (HVLP) spray, or brush coating. An owner or operator may use another coating application method if a request is submitted in writing that demonstrates that the method is capable of achieving a transfer efficiency equivalent to or better than that achieved by the other methods listed in subsection (f), and is approved in writing by the Department prior to use.

Proposed subsection (g) exempts stencil coatings, safety-indicating coatings, solid-film lubricants, electric-insulating coatings, thermal-conducting coatings, touch-up and repair coatings and coating applications using hand-held aerosol cans from the VOC coating content limits in Tables I and II (relating to emission limits of VOCs for large appliance surface coatings; and emission limits of VOCs for metal furniture surface coatings) of proposed § 129.52a. Subsection (g) also exempts a coating used exclusively for determining product quality and commercial acceptance and other small quantity coatings, if the quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility and if the owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

Proposed subsection (h) establishes work practices that an owner or operator of a large appliance or metal furniture surface coating process subject to § 129.52a must comply with for coating-related activities.

Proposed subsection (i) establishes work practices that an owner or operator of a large appliance or metal furniture surface coating process subject to § 129.52a must comply with for cleaning materials.

Proposed Table I establishes emission limits for VOCs for eight types of large appliance surface coatings, expressed in weight of VOC per volume of coating solids (kilograms per liter (kg/l) or pounds per gallon (lb/gal)), as applied. Limits are prescribed for coatings that are baked and coatings that are air dried. The emission limits for the following coating types are taken from the large appliance coatings CTG: *Baked (kg/l and lb/gal)* – “General, one component” and “General, multi-component”; *Air Dried (kg/l)* – “General, one component”; and *Air Dried (lb/gal)* – “General, one component,” “General, multi-component” and “Extreme high gloss.” The emission limits for *Air Dried (kg/l)* – “General, multi-component” and “Extreme high gloss”

are taken from both the CTG and the emission limit for “large appliance coatings” in § 129.52, as they are the same in both places. The remaining emission limits are taken from § 129.52 because the limit in § 129.52 is more stringent than the recommended limits in the CTG. Whenever the limit in § 129.52 is the same as or more stringent than the recommended limit in the CTG, the limit in § 129.52 is listed due to the CAA prohibition against backsliding from existing emission control requirements.

Proposed Table II establishes emission limits for VOCs for eight types of metal furniture surface coatings, expressed in weight of VOC per volume of coating solids (kg/l or lb/gal), as applied. Limits are prescribed for coatings that are baked and coatings that are air dried. The emission limits from the following coating types are taken from the metal furniture CTG: *Baked (kg/l and lb/gal)* – “General, one component” and “General, multi-component”; and *Air Dried (kg/l and lb/gal)* – “General, one component,” “General, multi-component” and “Extreme high gloss.” The emission limits for *Baked (kg/l)* – “Extreme high gloss,” “Extreme performance,” “Heat resistant” and “Solar absorbent” are taken from both the CTG and the emission limit for “metal furniture coatings” in § 129.52, as they are the same in both places. The remaining emission limits are taken from § 129.52 because the limit in § 129.52 is more stringent than the recommended limits in the CTG. Whenever the limit in § 129.52 is the same as or more stringent than the recommended limit in the CTG, the limit in § 129.52 is listed due to the CAA prohibition against backsliding from existing emission control requirements.

## **F. Benefits, Costs and Compliance**

### **Benefits**

Implementation of the proposed control measure would benefit the health and welfare of the approximately 12 million humans, animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of VOCs, which are precursors to ground-level ozone air pollution. Although the proposed amendments are designed primarily to address ozone air quality, the reformulation or substitution of coating products to meet the VOC content limits applicable to users may also result in reduction of hazardous air pollutant (HAP) emissions, which are also a serious health threat.

The proposed rulemaking provides as one compliance option that coatings used on or applied to large appliance or metal furniture products manufactured in this Commonwealth meet specified limits for VOC content, usually through substitution of low VOC-content solvents or water for the high VOC-content solvents. The reduced levels of high VOC-content solvents would also benefit water quality through reduced loading on water treatment plants and in reduced quantities of high VOC-content solvents leaching into the ground. Owners and operators of affected large appliance and metal furniture coating process facilities may also reduce VOC emissions through the use of add-on controls, or a combination of complying coatings and add-on controls.

In this Commonwealth approximately 4 large appliance surface coating operations combine to emit an estimated total of 18.2 tons of VOCs per year; about 16 metal furniture surface coating operations combine to emit an estimated total of 50.33 tons of VOCs per year.

The EPA estimates that implementation of the recommended control options for large appliance coatings processes will result in approximately a 30% reduction in VOC emissions. The maximum anticipated additional annual VOC reductions from the large appliance surface coating facilities as a result of this rulemaking is approximately 5.5 tons (18.2 tons x 30%).

The EPA estimates that implementation of the recommended control options for metal furniture coatings processes will result in approximately a 35% reduction in VOC emissions. The maximum anticipated additional annual VOC reductions from the metal furniture surface coating facilities as a result of this rulemaking is approximately 17.6 tons (50.33 tons x 35%).

### **Compliance Costs**

The costs of complying with the proposed amendments include the cost of using alternative product formulations, such as low-VOC or water-based coatings, and the cost of using add-on controls. The facility owner or operator would be given the flexibility to choose controls. Based on information provided by the EPA in the large appliance coating CTG, the cost effectiveness of reducing VOC emissions from large appliance surface coating operations is estimated to be \$500 per ton of VOC reduced. This estimate is based on the use of low VOC-content coatings for control. The estimated annual costs for the owners or operators of the affected large appliance surface coating facilities in this Commonwealth, combined, is \$2,750 (5.5 tons VOC reduced x \$500 per ton reduced).

Similarly, based on information provided by the EPA in the metal furniture coating CTG, the cost effectiveness of reducing VOC emissions from metal furniture surface coating operations is estimated to be \$200 per ton of VOC reduced. This estimate is based on the use of low VOC-content coatings for control. The estimated annual costs for the owners or operators of the affected metal furniture coating facilities in this Commonwealth, combined, is \$3,520 (17.6 tons VOC reduced x \$200 per ton reduced).

The potential total annual costs to the regulated industry of \$2,750 for large appliance surface coating operations and \$3,520 for metal furniture surface coating operations are negligible compared to the improved health and environmental benefits that would be gained from this proposed rulemaking.

The implementation of the work practice requirements for cleaning materials is expected to result in a net cost savings. The recommended work practices should reduce the amount of cleaning materials used by reducing the amount of cleaning materials lost to evaporation, spillage and waste.

### **Compliance Assistance Plan**

The Department plans to educate and assist the public and regulated community in understanding the newly revised requirements and how to comply with them. This will be accomplished through the Department's ongoing compliance assistance program.



## **Paperwork Requirements**

The owners and operators of affected large appliance or metal furniture surface coating operations would be required to keep daily operational records of information for coatings and cleaning solvents sufficient to demonstrate compliance, including identification of materials, VOC content and volumes used. The records must be maintained for 2 years and submitted to the Department upon request. Persons claiming the small quantity exemption or use of exempt coating would be required to keep records demonstrating the validity of the exemption. Persons seeking to comply through the use of add-on controls would be required to meet the applicable reporting requirements specified in *25 Pa. Code* Chapter 139 (relating to sampling and testing).

## **G. Pollution Prevention**

The Federal Pollution Prevention Act of 1990 established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance. This regulation has incorporated the following pollution prevention incentives:

The proposed amendments will assure that the citizens and the environment of this Commonwealth experience the benefits of reduced emissions of VOCs and HAPs from large appliance and metal furniture surface coating processes. Although the proposed amendments are designed primarily to address ozone air quality, the reformulation or substitution of coating products to meet the VOC content limits applicable to users may also result in reduction of HAP emissions, which are also a serious health threat. The proposed rulemaking provides as one compliance option that coatings used on or applied to large appliance or metal furniture products manufactured in this Commonwealth meet specified limits for VOC content, usually through substitution of low VOC-content solvents or water for the high VOC-content solvents. The reduced levels of high VOC-content solvents would also benefit water quality through reduced loading on water treatment plants and in reduced quantities of high VOC-content solvents leaching into the ground. Owners and operators of affected large appliance and metal furniture surface coating process facilities may also reduce VOC emissions through the use of add-on controls, or a combination of complying coatings and add-on controls.

## **H. Sunset Review**

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.



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Persons wishing to present testimony at a hearing are requested to contact the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477, (717) 787-4526, at least 1 week in advance of the hearing to reserve a time to present testimony. Oral testimony is limited to 10 minutes for each witness. Witnesses are requested to submit three written copies of their oral testimony to the hearing chairperson at the hearing. Organizations are limited to designating one witness to present testimony on their behalf at each hearing.

Persons in need of accommodations as provided for in the Americans With Disabilities Act of 1990 should contact the Board at (717) 787-4526 or through the Pennsylvania AT&T Relay Service at (800) 654-5984 (TDD) or (800) 654-5988 (voice users) to discuss how the Board may accommodate their needs.

JOHN HANGER  
Chairperson