

**Flexible Packaging Printing Presses,
Offset Lithographic Printing Presses and Letterpress Printing Presses; and
Adhesives, Sealants, Primers and Solvents
[25 Pa. Code Chs. 121, 129 and 130]**

The Environmental Quality Board (Board) proposes to amend Chapters 121, 129 and 130 (relating to general provisions; standards for sources; and standards for products) to read as set forth in Annex A. The proposed rulemaking would amend Chapter 121 to add terms and definitions in § 121.1 (relating to definitions) and Chapter 129 to limit emissions of volatile organic compounds (VOCs) from inks, coatings, adhesives, fountain solutions and cleaning materials used or applied on or with flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. The proposed rulemaking would also amend the recently promulgated adhesives, sealants, primers and solvents regulations under Chapters 129 and 130 published at 40 Pa. B. 7340 (December 25, 2010) to clarify the applicability of the adhesive, sealant, adhesive primer and sealant primer requirements of §§ 129.77 and 130.703 (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and exemptions and exceptions) to the adhesives used or applied on or with the printing presses proposed for regulation under this rulemaking.

The proposed rulemaking would amend §§ 129.51, 129.67, 129.77 and 130.703 and would add §§ 129.67a and 129.67b (relating to control of VOC emissions from flexible packaging printing presses; and control of VOC emissions from offset lithographic printing presses and letterpress printing presses).

This proposed rulemaking was adopted by the Board at its meeting on _____, 2011.

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 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 proposed rulemaking appears in Section J of this preamble. Persons with a disability may use the Pennsylvania AT&T Relay Service (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposed rulemaking is available electronically through the Department of Environmental Protection's (Department) web site at www.depweb.state.pa.us (DEP Search/Keyword: Public Participation).

C. Statutory Authority

This proposed rulemaking is authorized under section 5 of the Air Pollution Control Act (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 Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q).

D. Background and Purpose

The purpose of this proposed rulemaking is to reduce VOC emissions from inks, coatings, adhesives, fountain solutions and cleaning materials used or applied on or with flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. VOCs are a precursor for ground-level ozone formation. Ground-level ozone is not emitted directly by inks, coatings and other materials to the atmosphere, but is formed by a photochemical reaction between VOCs and nitrogen oxides (NO_x) in the presence of sunlight. In accordance with sections 172(c)(1), 182(b)(2)(A) and 184(b)(1)(B) of the CAA (42 U.S.C.A. §§ 7502(c)(1), 7511a(b)(2)(A) and 7511c(b)(1)(B)), the proposed rulemaking would establish the emission limits and other requirements of the United States Environmental Protection Agency's (EPA) 2006 Control Techniques Guidelines (CTG) for flexible packaging printing and for offset lithographic printing and letterpress printing for these sources in this Commonwealth. See *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747 (October 5, 2006).

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_x, 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 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 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 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 promulgated primary and secondary ozone standards at a level of 0.08 part per million (ppm) averaged over 8 hours. See 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. As of October 2010, all areas in the Commonwealth are monitoring attainment of the 1997 standard. The Department must ensure that the 1997 ozone standard is attained and maintained by implementing permanent and enforceable control measures to ensure violations of the standard do not occur for the next decade.

Furthermore, in March 2008, the EPA lowered the standard 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. See 73 FR 16436 (March 27, 2008). The EPA is reconsidering the March 2008 ozone NAAQS and proposed at 75 FR 2938 (January 19, 2010) to set a more protective 8-hour ozone primary standard between 0.060 and 0.070 ppm to provide increased protection for children and other at-risk groups. The EPA also proposed that the secondary ozone standard, which was set identically to the revised primary standard in the 2008 final rule, should instead be a new cumulative, seasonal standard. See 75 FR 2938. This seasonal standard is designed to protect plants and trees from damage occurring from repeated ozone exposure, which can reduce tree growth, damage leaves and increase susceptibility to disease. The final revised ozone NAAQS is expected by July 29, 2011. If the revised primary ozone standard is 0.060-0.065 ppm, all ozone monitors in this Commonwealth will violate the revised primary ozone standard; approximately 23 counties would be designated nonattainment if the revised primary ozone standard is set at 0.070 ppm.

There are no Federal statutory or regulatory limits for VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. State regulations to control VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses are required under Federal law, however, and will be reviewed by the EPA to determine if the provisions meet the “reasonably available control technology” (RACT) requirements of the CAA and its implementing regulations. See *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747 (October 5, 2006).

The EPA defines RACT as “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.” *State Implementation Plans; General Preamble for Proposed Rulemaking on Approval of Plan Revisions for Nonattainment Areas--Supplement (on Control Techniques Guidelines)*, 44 FR 53761 (September 17, 1979).

The National Emission Standard for Hazardous Air Pollutants (NESHAP) for the printing and publishing industry promulgated in May 1996 and codified at 40 CFR Part 63, Subpart KK, applies to “major sources” of flexible package printing. For the purpose of regulating hazardous air pollutants, a “major source” is considered to be a stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit 10 tons per year (tpy) of any single listed hazardous air pollutant (HAP) or 25 tpy of any combination of HAPs. See CAA section 112(a)(1) (42 U.S.C.A. § 7412(a)(1)); see also 61 FR at p. 27133 (May 30, 1996). Many HAPs are VOCs, but not all VOCs are HAPs. The EPA took the 1996 NESHAP into account when developing its Flexible Packaging Printing CTG.

Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)) provides that State Implementation Plans (SIPs) for nonattainment areas must include “reasonably available control measures,” including RACT, for sources of emissions. Section 182(b)(2) of the CAA (42 U.S.C.A. § 7511a(b)(2)) 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. More importantly, section 184(b)(1)(B) of the CAA (42 U.S.C.A. § 7511c(b)(1)(B)) requires that states in the Ozone Transport Region (OTR), including the Commonwealth, submit a SIP revision requiring implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG.

Section 183(e) of the CAA (42 U.S.C.A. § 7511b(e)) 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. 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 when the EPA determines that the CTG will be “substantially as effective as regulations” in reducing emissions of VOC in ozone nonattainment areas. In 1995, the EPA listed flexible packaging printing materials, lithographic printing materials and letterpress printing materials on its section 183(e) list and, in 2006, issued CTGs for flexible packaging printing materials and for

offset lithographic printing and letterpress printing materials. See 60 FR 15264 (March 23, 1995) and 71 FR 58745 (October 5, 2006).

In the 2006 notice, the EPA determined that the CTGs would be substantially as effective as a National regulation in reducing VOC emissions from these product categories in ozone nonattainment areas. See 71 FR 58745. The CTGs provide states with the EPA's recommendation of what constitutes RACT for the covered category. States can use the recommendations provided in the CTGs 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 reviewed the recommendations included in the 2006 CTGs for flexible packaging printing presses and for offset lithographic printing presses and letterpress printing presses for their applicability to the ozone reduction measures necessary for this Commonwealth. The Department determined that the measures provided in the CTGs are appropriate to be implemented in this Commonwealth as RACT for these source categories.

This proposed rulemaking would achieve VOC emission reductions locally and would also reduce the transport of VOC emissions and ground-level ozone to downwind states. Adoption of VOC emission requirements for flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses 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 required to attain and maintain the health-based 8-hour ozone NAAQS and to satisfy related CAA requirements in this Commonwealth. If published as final-form regulation in the *Pennsylvania Bulletin*, this proposed rulemaking will be submitted to the EPA as a revision to the SIP.

The proposed rulemaking was discussed with the Air Quality Technical Advisory Committee (AQTAC) on December 16, 2010. During the AQTAC's consideration of the proposed rulemaking, flexibility and compliance assistance for recordkeeping and reporting requirements for small businesses were discussed. The Department agreed to consider these during development of the rulemaking. There was also discussion of the number and extent of potentially affected facilities and questions pertaining to the definition of flexible packaging and a compliance monitoring equation. The Department has considered these items in developing this proposed rulemaking. Following the discussion, the AQTAC voted to concur with the Department's recommendation to present the proposed rulemaking, with consideration of the issues discussed by AQTAC and identified in the minutes, to the Board for approval for publication as a proposed rulemaking.

The Department consulted with the Small Business Compliance Advisory Committee (SBCAC) on January 26, 2011. The SBCAC encouraged the Department to reach out to the potentially affected small businesses with information about the proposed rulemaking. The SBCAC concurred with the Department's recommendation to forward the proposed rulemaking to the Board for consideration for publication as a proposed rulemaking. The Department also

consulted with the Citizens Advisory Council (CAC) Air Committee on January 24, 2011. The CAC Air Committee reported on the proposed rulemaking to the CAC at its meeting of February 15, 2011. The CAC, on the recommendation of the Air Committee, concurred with presenting the proposed rulemaking to the Board.

The Department communicated with several industry associations during development of the proposed rulemaking, namely Printing Industries of America, the Graphic Arts Association and the National Federal of Independent Businesses. The Department will notify these groups, as well as other parties that have expressed interested, when the proposed rulemaking is available for public comment. Outreach by the associations to their members will also be useful.

E. Summary of Regulatory Requirements

Section 121.1 - Definitions

The proposed rulemaking would add definitions of the following terms to § 121.1 to support the addition of §§ 129.67a and 129.67b: “alcohol,” “alcohol substitute,” “batch,” “first installation date,” “flexible packaging,” “flexible packaging printing press,” “fountain solution,” “heatset dryer,” “heatset ink,” “letterpress printing,” “lithographic plate,” “lithographic printing,” “offset lithographic printing,” “printing press,” “sheet-fed printing,” “varnish” and “web printing.” The proposed rulemaking would amend the definition of the term “rotogravure printing” to insert a missing word. The proposed rulemaking would also amend the definition of the term “paper, film or foil coating or paper, film or foil surface coating” to clarify that a coating applied to a flexible packaging substrate is considered surface coating and not printing, if the coating is not applied on or in-line with a flexible packaging printing press. These coating processes would be regulated under § 129.52b (relating to the control of VOC emissions from paper, film and foil surface coating processes).

Several AQTAC members questioned the scope of the definition of “flexible packaging” at the December 16, 2010, committee meeting, and questioned the need to list certain items that are excluded from the definition. In response, the Department has simplified the definition. The proposed rulemaking defines the term as:

A package or part of a package, such as a bag, pouch, liner or wrap, the shape of which can be readily changed. Flexible packaging may be made of paper, plastic, film, aluminum foil, metalized or coated paper, metalized or coated film, or other material. The term also includes a shrink-wrap label or wrapper printed on or in-line with a flexible packaging printing press. The term does not include folding cartons or other rigid packaging or self-adhesive labels.

Rigid packaging printing operations are often located at the same facility as a flexible packaging printing operation, but rigid packaging is not included in the definition of the term “flexible packaging.” Folding cartons, some labels and wrappers, gift wraps, wall coverings, vinyl products, decorative laminates, floor coverings, tissue products and miscellaneous specialty products are not considered flexible packaging. Printing of self-adhesive labels would also not be considered flexible packaging. Adhesives used on or applied to self-adhesive labels would be

regulated under the paper, film or foil surface coating process category “pressure sensitive tapes and labels” found in § 129.52b. Other non-packaging materials sometimes manufactured at a facility with a flexible packaging printing press (due to the capability of flexible packaging manufacturers to apply coatings), such as gift wraps and hot stamp foils, are not included in the definition of the term.

Section 129.51 - General

The proposed rulemaking would amend § 129.51(a) (relating to general) to extend its applicability to the owners and operators of flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses covered by this proposed rulemaking. Section 129.51(a) provides an alternative method for the owner and operator of an affected facility to achieve compliance with air emission limits.

Section 129.67 – Graphic Arts Systems

The proposed rulemaking would amend § 129.67 (relating to graphic arts systems) to account for the proposed requirements that would apply to the owners and operators of flexible packaging printing presses under § 129.67a. Section 129.67 applies more broadly than proposed § 129.67a would, in two ways. Firstly, § 129.67 applies to rotogravure and flexographic printing presses beyond those used for flexible packaging printing. Secondly, § 129.67 requires VOC emissions from surface coating operations to count toward the total VOC emissions that trigger applicability of the section to the owner and operator of a facility that has emissions from a rotogravure or flexible printing press. The VOC emission applicability threshold is higher, however, than under proposed § 129.67a.

The proposed amendments to § 129.67 would clarify that an owner or operator of a flexible packaging printing press, who was required to install a control device under § 129.67 prior to the effective date of this proposed rulemaking and who is also subject to the recordkeeping, reporting and work practice requirements of proposed § 129.67a by virtue of meeting the 15 pounds per day (lb/day) or 2.7 tons per 12-month rolling period, or both, VOC emission threshold in proposed § 129.67a(a)(1)(ii), would be subject both to the existing control device requirement of § 129.67 and the new recordkeeping, reporting and work practice requirements of § 129.67a.

The proposed amendments to § 129.67 also clarify, however, that an owner or operator of a flexible packaging printing press who is subject to the control requirements of proposed § 129.67a by virtue of meeting the threshold of 25 tpy of potential emissions of VOC, before consideration of add-on controls, for an individual flexible packaging printing press dryer under proposed § 129.67a(a)(1)(i), would not be subject to § 129.67 because they will be subject to more stringent control requirements under § 129.67a. This owner and operator would also be subject to the recordkeeping, reporting, work practice and other requirements of § 129.67a.

Section 129.67a – Control of VOC Emissions from Flexible Packaging Printing Presses

The proposed rulemaking would add § 129.67a to regulate VOC emissions from flexible packaging printing presses. As explained in proposed subsection (b), the requirements of § 129.67a would supersede the requirements of a RACT permit for VOC emissions from a flexible packaging printing press already issued to the owner or operator of a source subject to § 129.67a, except to the extent the RACT permit contains more stringent requirements.

The applicability of proposed § 129.67a is described in subsection (a), which establishes a threshold with broad applicability in subsection (a)(1)(ii) and a threshold for control requirements on higher VOC-emitting presses in subsection (a)(1)(i).

The broadly applicable threshold in subsection (a)(1)(ii) is as follows: 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per 12-month rolling period of actual VOC emissions, before consideration of add-on controls, from all flexible packaging printing operations, and all emissions from related cleaning activities, at the facility. An owner and operator of a facility that meets or exceeds this threshold shall comply with the recordkeeping, reporting and work practice requirements of subsections (e) and (g) and the sampling and testing requirements in subsection (f).

The threshold for control requirements on higher VOC-emitting presses in subsection (a)(1)(i) is 25 tpy potential emissions from the dryer of an individual flexible packaging printing press of VOC from inks, coatings and adhesives combined, before consideration of add-on controls. An owner and operator of a press that meets or exceeds this threshold shall comply with the emission limits in subsection (c) and the compliance monitoring requirements in subsection (d), as well as the sampling and testing requirements in subsection (f) and the recordkeeping, reporting and work practice requirements of subsections (e) and (g).

The applicability of proposed § 129.67a is further described in subsection (a)(2), which establishes that an owner or operator of a flexographic or rotogravure printing press subject to subsection (a)(1)(ii) and § 129.67 that prints flexible packaging materials, who was required to install a control device under § 129.67 prior to the effective date of this section, namely _____ (*Editor's note: The blank refers to the effective date of adoption of this proposed rulemaking*), shall continue the operation of that control device and also meet the requirements of this section.

Proposed subsection (a)(3) clarifies that VOCs from adhesives used at the facility that are not used or applied on or with the flexible packaging printing press are not subject to section 129.67a and may be regulated under § 129.52b, § 129.77 or Chapter 130, Subchapter D (relating to adhesives, sealants, primers and solvents).

Proposed subsection (c) would establish VOC emission limits for a person subject to § 129.67a by virtue of meeting or exceeding the 25-tpy threshold in subsection (a)(1)(i). Beginning January 1, 2013, a person subject to subsection (a)(1)(i) may not cause or permit the emission into the outdoor atmosphere of VOCs from a flexible packaging printing press, unless one or more of the VOC content limits for inks, coatings and adhesives in subsection (c) is met; one or

more of the VOC vapor recovery, incineration or other control system requirements in subsection (c) is met; or the Department has issued a plan approval, operating permit or Title V permit to the owner or operator prior to January 1, 2013, establishing a Federally-enforceable limitation to limit potential emissions of VOC from the flexible packaging printing press below 25 tpy. The dates in subsection (c)(3), Table I, reflect the date of the proposed 1996 NESHAP for the printing and publishing industry, namely March 14, 1995, and the compliance date of this proposed rulemaking, namely January 1, 2013. The EPA used these events for suggested cut-off dates, in the CTG.

Proposed subsection (d) describes compliance monitoring requirements for a person subject to § 129.67a by virtue of meeting or exceeding the 25-tpy threshold in subsection (a)(1)(i). Subsection (d)(1) describes how the VOC content of the as applied ink, coating or adhesive, expressed in units of weight of VOC per weight of solids, would be calculated for purposes of subsection (c)(1). Subsection (d)(2) describes the minimum overall efficiency that would be required for a control system for a single flexible packaging printing press that uses a combination of a control system and a noncomplying ink, coating or adhesive, or a combination of noncomplying and complying inks, coatings or adhesives for purposes of subsection (c)(4) or a combination of (c)(3) and (c)(4). Subsection (d)(3) describes monitoring equipment and operational records supporting the compliance monitoring system used, that would be required of an owner or operator of a printing press using an add-on air pollution control device under subsection (c)(3).

Proposed subsection (e) identifies daily records that would be required to demonstrate compliance for all persons subject to § 129.67a, beginning January 1, 2013. Subsection (e)(1) requires records of specified parameters of each VOC-containing material, including of each ink, coating, adhesive, thinner, component or cleaning solvent, as supplied. Subsections (e)(2) and (3) require that daily records be kept of the VOC content and volume used of each ink, coating, adhesive, thinner, component and cleaning solvent as applied. Subsection (e)(4) requires that records be maintained for 2 years unless a longer period is required under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements). The records shall be submitted to the Department upon receipt of a written request.

Proposed subsection (f), applicable to all persons subject to § 129.67a, would require that sampling and testing be done in accordance with the procedures and test methods specified in 25 *Pa. Code* Chapter 139 (relating to sampling and testing), unless the Department approves another test method in writing in advance.

Proposed subsection (g) establishes work practice requirements for cleaning materials applicable to all persons subject to § 129.67a. Subsection (g)(1) establishes work practices for cleaning materials, with which an owner or operator of a flexible packaging printing press shall comply, beginning January 1, 2013. Subsections (g)(2) and (3) specify the cleaning-relating activities to which the work practices would apply. Consistent with a 1-page internal EPA memorandum clarifying this aspect of the CTG, the proposed rulemaking does not specify work practices for cleaning activities addressed by the EPA's 2006 Industrial Cleaning Solvents CTG. See *Reasonably Available Control Technology (RACT) for Cleaning in Flexible Package Printing*, Peter Tsirigotis, Director, Sector Policies and Programs Division (D205-01), EPA, February 9,

2009. Subsection (g) is more stringent than what is recommended in the CTG for flexible packaging printing presses. The CTG recommends that the work practices for cleaning materials apply to parts washers or cold cleaners used for cleaning press parts. The use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations). The requirements of § 129.63 are more stringent than the recommendation in the CTG, but must be maintained to satisfy the anti-backsliding provisions of sections 110 and 193 of the CAA (42 U.S.C.A. §§ 7410 and 7515).

Section 129.67b – Control of VOC Emissions from Offset Lithographic Printing Presses and Letterpress Printing Presses

The proposed rulemaking would add § 129.67b to regulate VOC emissions from offset lithographic printing presses and letterpress printing presses. As explained in proposed subsection (b), the requirements of § 129.67b would supersede the requirements of a RACT permit for VOC emissions from an offset lithographic printing press or a letterpress printing press, or both, already issued to the owner or operator of a source subject to § 129.67b, except to the extent the RACT permit contains more stringent requirements.

The applicability of proposed § 129.67b is described in subsection (a), which establishes a threshold with broad applicability in subsections (a)(1)(ii) and (iii), and a threshold for control requirements on higher VOC-emitting heatset presses in subsection (a)(1)(i).

The broadly applicable thresholds for letterpress and offset lithographic printing presses are the same. Subsection (a)(1)(ii) explains that § 129.67b would apply to the owner and operator of a letterpress printing press if the total actual VOC emissions from all letterpress printing presses, and all emissions from 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 add-on controls. Similarly, subsection (a)(1)(iii) explains that the section would apply to the owner and operator of an offset lithographic printing press, if the total actual VOC emissions from all offset lithographic printing presses, and all emissions from 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 add-on controls. The owner and operator of a facility that meets or exceeds the broadly applicable 15 lb/day or 2.7 tons per 12-month rolling period threshold shall comply with the emission limits of subsection (c), the compliance and monitoring requirements of subsection (e)(2)-(3), the recordkeeping, reporting and work practice requirements of subsections (f), (g)(1) and (i), and the requirements pertaining to vapor pressure of cleaning materials in subsections (j) and (k).

Proposed subsection (a)(1)(i) establishes the threshold for control requirements on higher VOC-emitting *heatset* presses. Subsection (a)(1)(i) explains that the owner and operator of a single heatset web offset lithographic printing press or a single heatset web letterpress printing press that has potential emissions from the dryer, before consideration of add-on controls, of at least 25 tpy of VOC from heatset inks would be subject to § 129.67b. The owner and operator of a heatset press that meets or exceeds this 25-tpy threshold shall comply with the control requirements in subsection (d), compliance and monitoring requirements in subsection (e)(1), reporting requirement relating to control efficiency in subsection (g)(2), and the sampling and

testing requirements in subsection (h), as well as the broadly applicable emission limits, recordkeeping, reporting and work practice requirements of subsections (c), (e)(2)-(3), (f), (g)(1), (i), (j) and (k).

Proposed subsection (a)(2) clarifies that VOCs from adhesives used at the facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to section 129.67b and may be regulated under § 129.77 or Chapter 130, Subchapter D.

Proposed subsection (c) would establish emission limits for all printing presses subject to this section, beginning January 1, 2013. Subsection (c)(1) would prohibit VOC emissions into the outdoor atmosphere from cleaning materials used in an offset lithographic printing press or a letterpress printing press, unless specified conditions are met. This paragraph would require a VOC content less than 30% by weight for cleaning materials, consistent with the EPA's 1994 Alternative Control Techniques Document for offset lithographic printing and the Department's Air Quality General Permits 7 and 10; and would allow a total gallon exemption for up to 55 gallons of noncomplying cleaning materials, consistent with the Department's Air Quality General Permits 7 and 10. The Department's Air Quality General Permits 7 and 10 for Sheet-fed Offset Lithographic Printing Presses and Non-Heatset Web Offset Lithographic Printing Presses, respectively, require a composite partial vapor pressure less than or equal to 10 mm Hg or a VOC content less than or equal to 30% by weight for cleaning materials and allow a total gallon exemption of up to 55 gallons for noncomplying cleaning materials. These two provisions in the proposed rulemaking are more stringent than the recommendation in the CTG. The Department is specifically seeking comment on these two provisions. Subsection (c)(2) would prohibit VOC emissions into the outdoor atmosphere from fountain solution used in an offset lithographic printing press, unless the fountain solution meets a specified VOC limit. Subsection (c)(3) provides two exemptions from subsection (c)(2).

Proposed subsection (d) applies to a person subject to § 129.67b by virtue of meeting or exceeding the 25-tpy threshold for a heatset press in subsection (a)(1)(i). Beginning January 1, 2013, proposed subsection (d) would prohibit the emission into the outdoor atmosphere of VOCs from a single heatset web offset lithographic printing press or a single heatset web letterpress printing press, unless the overall weight of VOCs emitted to the atmosphere from the heatset press dryer is reduced through the use of vapor recovery or incineration, or another method that is authorized under § 129.51(a). Proposed subsection (d) addresses dryer pressure and overall efficiency of an add-on air pollution control device for a heatset press dryer. Proposed subsection (d) also lists exceptions to the requirement for an add-on air pollution control device, and would not apply if the Department has issued a plan approval, operating permit or Title V permit prior to January 1, 2013, to the owner or operator establishing a Federally enforceable limitation to limit potential emissions below 25 tpy, before consideration of add-on controls.

Proposed subsection (e) describes compliance and monitoring requirements. Subsection (e)(1) sets forth compliance and monitoring requirements applicable to the owner or operator of a printing press using an add-on air pollution control device as a result of meeting or exceeding the 25-tpy threshold for a heatset press in subsection (a)(1)(i). Subsection (e)(2) indicates how an owner or operator of an offset lithographic printing press, who is subject to the fountain solution

VOC limits of subsection (c)(2), may demonstrate compliance. Subsection (e)(3) indicates the acceptable methods by which the owner or operator of an offset lithographic printing press or letterpress printing press may demonstrate compliance with the VOC content limit or VOC composite partial vapor pressure limit for cleaning materials specified in subsection (c)(1).

Proposed subsection (f) identifies daily records required to demonstrate compliance for all persons subject to § 129.67b, beginning January 1, 2013. Subsection (f)(1) requires records of specified parameters for each ink, varnish, coating, adhesive, thinner or component, as supplied. Subsections (f)(2) and (3) require that daily records be kept of the VOC content and volume used of each ink, varnish, coating or adhesive as applied. Subsections (f)(4) through (6) apply to cleaning materials. Subsection (f)(4) requires records of specified parameters for each blanket, roller or other concentrated cleaning material used, as supplied. Subsection (f)(5) requires records of the VOC content or VOC composite partial vapor pressure of each cleaning material, as applied. Subsection (f)(6) requires records of the volume used of each cleaning material, as applied. The remainder of subsection (f) applies to fountain solution. Subsection (f)(7) requires records of specified parameters for each concentrated component or additive, as supplied, used to prepare the press-ready (as applied) fountain solution batch. Subsection (f)(8) requires records of the VOC content of each batch of the press-ready (as applied) fountain solution and subsection (f)(9) requires records of the volume used of each press-ready (as applied) fountain solution.

Proposed subsection (g) applies to all persons subject to § 129.67b. Subsection (g)(1) requires that records be maintained for 2 years unless a longer period is required under § 127.511(b)(2). The records shall be submitted to the Department upon receipt of a written request. Subsection (g)(2) also specifies that the owner or operator of an offset lithographic printing press required to demonstrate control efficiency in subsection (d) shall submit reports to the Department in accordance with Chapter 139.

Proposed subsection (h), applicable to a person subject to § 129.67b by virtue of meeting or exceeding the 25-tpy threshold for a heatset press in subsection (a)(1)(i), would require that sampling and testing be done in accordance with the procedures and test methods specified in Chapter 139 or in accordance with one of the methods and procedures listed in subsection (h), or both. Subsection (h)(1) lists methods and procedures for determining overall efficiency of the add-on air pollution control device. Subsection (h)(2) explains how constant negative pressure into the dryer, as required in subsection (d), must be demonstrated.

Proposed subsection (i), applicable to all persons subject to § 129.67b, would establish work practice requirements for cleaning materials. Subsection (i)(1) sets forth work practices with which an owner or operator of an offset lithographic printing press or letterpress printing press shall comply for cleaning materials, beginning January 1, 2013. Subsections (i)(2) and (3) specify the cleaning-relating activities to which the work practices would apply.

Subsection (i) of the proposed rulemaking is more stringent than what is required in the CTG for offset lithographic printing presses and letterpress printing presses. The CTG recommends that the work practices for cleaning materials apply to parts washers or cold cleaners used for cleaning press parts. The use of parts washers and cold cleaners is regulated under § 129.63.

The requirements of § 129.63 are more stringent than the requirements recommended by the CTG, but must be maintained to satisfy the anti-backsliding provisions of sections 110 and 193 of the CAA (42 U.S.C.A. §§ 7410 and 7515).

Proposed subsection (j), applicable to all persons subject to § 129.67b, would set forth the procedure for determining the composite partial vapor pressure of organic compounds in cleaning materials. Subsection (j)(1) addresses quantifying the amount of each compound in the blend using gas chromatographic analysis. Subsection (j)(2) provides the equation for calculating composite partial vapor pressure.

Proposed subsection (k), applicable to all persons subject to § 129.67b, would list acceptable methods for determining vapor pressure of each single component compound in cleaning materials.

Section 129.77(k)(2) – Control of Emissions from the Use or Application of Adhesives, Sealants, Primers and Solvents

The proposed rulemaking would amend § 129.77(k)(2) to clarify that § 129.77 does not apply to the use or application of adhesives, sealants, adhesive primers and sealant primers that are subject to other regulations in Chapter 129 or 130.

Section 130.703(a)(2) – Adhesives, Sealants, Primers and Solvents: Exemptions and Exceptions

The proposed rulemaking would amend § 130.703(a)(2) to clarify that Chapter 130, Subchapter D does not apply to the use, application, sale, supply, offer for sale or manufacture for sale for use in this Commonwealth of adhesives, sealants, adhesive primers and sealant primers that are subject to other regulations in Chapter 129 or 130.

F. Benefits, Costs and Compliance

Benefits

Implementation of the proposed control measures would benefit the health and welfare of the approximately 12 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of VOCs, which are precursors to the formation of ground-level ozone air pollution. Although the proposed rulemaking is designed primarily to improve air quality by reducing VOC emissions, the reformulation or substitution of printing materials 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 inks, coatings and adhesives used or applied on or with flexible packaging printing presses and inks, coatings, adhesives and cleaning materials used or applied on or with offset lithographic printing presses and letterpress printing presses 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. Products that are technologically and economically feasible for use in meeting the VOC content limits in the proposed rulemaking are available in this region, as similar requirements in other OTR states have helped create a market. The owner and operator of an affected flexible packaging printing press, offset lithographic printing press or letterpress printing press may also reduce VOC emissions with add-on controls, or a combination of complying inks, coatings, adhesives, cleaning materials and add-on controls.

The VOC emission reductions from the flexible packaging printing portion of the proposed rulemaking are estimated to be approximately 69 tpy to 84 tpy. A search of the Department's Air Information Management System (AIMS) database generated a list of 17 flexible packaging printing facilities, with 2009 VOC emissions totaling 139 tons, that could potentially be subject to the proposed rulemaking based on the type of printing activity. AIMS does not provide an exhaustive list of all printing facilities in this Commonwealth, but contains the largest emitters. The AIMS database is a record of permitted and some previously inspected facilities for which permits are not required.

By proportioning the known emissions of these 17 facilities to the unknown emissions of the potentially affected 52 facilities in this Commonwealth estimated using information provided by the Graphic Arts Association (GAA) and the CTG for this source category, the Department estimates that the emissions from the 52 facilities would be 425 tpy ($139 \text{ tons} / 17 \text{ facilities} = X \text{ tons} / 52 \text{ facilities}$). Calculating further using the assumption in the CTG that 25% of affected facilities have potential VOC emissions ≥ 25 tpy from a single press, before consideration of add-on controls, 106 tons of VOC emissions could require add-on control meeting 65%-80% efficiency ($425 \text{ tpy} \times 25\% = 106 \text{ tons}$ possibly requiring add-on control). The estimated maximum amount of VOC emission reduction from add-on control to flexible packaging printing presses with potential VOC emissions ≥ 25 tpy from a single press, before consideration of add-on controls, could be 69 tpy to 84 tpy ($106 \times 65\% = 69 \text{ ton reduction}$; $106 \times 80\% = 84 \text{ ton reduction}$).

The emission reductions from the offset lithographic printing press and letterpress printing press portion of the proposed rulemaking are estimated to be approximately 306 tpy to 323 tpy. A search of the Department's AIMS database generated a list of 60 offset lithographic printing press and letterpress printing press facilities, with 2009 VOC emissions totaling 527 tons, that could potentially be subject to the proposed rulemaking based on type of printing activity.

By proportioning the known emissions of these 60 facilities to the unknown emissions of the potentially affected 387 facilities in this Commonwealth estimated using information provided by the GAA and the CTG for these source categories, the Department estimates that the emissions from the 387 facilities could be 3,400 tpy ($527 \text{ tons} / 60 \text{ facilities} = X \text{ tons} / 387 \text{ facilities}$). Calculating further using the assumption in the CTG that 10% of the affected facilities have potential VOC emissions ≥ 25 tpy from a single press, before consideration of add-on controls, 340 tons could require add-on control meeting 90%-95% efficiency ($3,400 \text{ tpy} \times 10\% = 340 \text{ tons}$ possibly requiring add-on control). The estimated maximum amount of VOC emission reductions from add-on controls for heatset offset lithographic printing presses and

heatset letterpress printing presses with potential VOC emissions ≥ 25 tpy from a single press, before consideration of add-on controls could be 306 tpy to 323 tpy ($340 \times 90\% = 306$ ton reduction; $340 \times 95\% = 323$ ton reduction).

Compliance Costs

The cost of complying with the proposed rulemaking includes the cost of using low VOC-content or VOC-free inks, coatings, adhesives and cleaning materials; add-on control systems; or a combination of these two approaches.

Based on information provided by the EPA in the CTG, the cost effectiveness of reducing VOC emissions from flexible packaging printing press operations is dependent on the flow rate, hourly solvent usage and operating hours. Using \$5,700 per ton of VOC reduced from a catalytic oxidizer (in 2005 dollars), because the emission reductions of that scenario fit the scale of current emission estimates, the total maximum anticipated annual costs to the regulated industry could range from \$393,300 to \$478,800 (69 tons VOC emissions reduced \times \$5,700/ton reduced; 84 tons VOC emissions reduced \times \$5,700/ton reduced). See Flexible Package Printing CTG, September 2006, p. 21, Table 2, Scenario 1.

Based on information provided by the EPA in the CTG, the cost effectiveness of reducing VOC emissions from heatset offset lithographic printing press and heatset letterpress printing press operations is estimated to range from \$855 to \$2,010 per ton of VOC reduced for control of VOC emissions from cleaning materials and heatset inks, respectively. Using the \$2,010 per ton of VOC removed for heatset inks, the total maximum anticipated annual costs to the regulated industry could range from \$615,060 to \$649,230 (306 tons VOC emissions reduced \times \$2,010/ton reduced; 323 tons VOC emissions reduced \times \$2,010/ton reduced). See Offset Lithographic Printing and Letterpress Printing CTG, September 2006, p. 18, Table 1.

The implementation of the work practices for the use and application of cleaning materials is expected to result in a net cost savings. The recommended work practices should reduce the amounts of cleaning materials used by reducing the amounts that are lost to evaporation, spillage and waste.

Compliance Assistance Plan

As described elsewhere in this preamble, the Department has already begun communications with several industry associations concerning development of this proposal. Through ongoing communications with these groups and through the review of comments received during the public comment period, the Department expects to broaden its understanding of the needs of the regulated community. The Department plans to educate and assist the public and regulated community in understanding the new requirements and how to comply with them after a final-form rulemaking is adopted. This will be accomplished through the Department's ongoing compliance assistance program.

Paperwork Requirements

The owner and operator of an affected flexible packaging printing press, offset lithographic printing press or letterpress printing press would be required to keep daily operational records of information for inks, varnishes, coatings, adhesives, thinners, fountain solutions, cleaning solvents and cleaning materials 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. However, the owner or operator of a “Title V facility” as defined in § 121.1 must maintain the records for at least 5 years. Persons claiming the small quantity exemption 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 Chapter 139.

G. Pollution Prevention

The Federal Pollution Prevention Act of 1990 (42 U.S.C.A. §§ 13101—13109) 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 proposed rulemaking incorporates the following pollution prevention incentives:

The proposed rulemaking will assure that the citizens and the environment of this Commonwealth experience the benefits of reduced emissions of VOCs and HAPs from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. Although the proposed rulemaking is designed primarily to improve air quality through reduced emissions of VOCs, the reformulation or substitution of inks, coatings, adhesives, cleaning materials and other 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 inks, coatings and adhesives used or applied on or with flexible packaging printing presses and inks, coatings, adhesives and cleaning materials used or applied on or with offset lithographic printing presses and letterpress printing presses 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- and HAP-content solvents would also benefit water quality through reduced loading on water treatment plants and in reduced quantities of high VOC- and HAP-content solvents leaching into the ground.

H. Sunset Review

These regulations will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

I. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on _____, the Department submitted a copy of this proposed rulemaking and a copy of a Regulatory Analysis Form to the Independent Regulatory Review Commission (IRRC) and the House and Senate Environmental Resources and Energy Committees. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed rulemaking within 30 days of the close of the public comment period. The comments, recommendations or objections must specify the regulatory review criteria that have not been met. The Regulatory Review Act specifies detailed procedures for review, prior to final publication of the rulemaking, by the Department, the General Assembly and the Governor of comments, recommendations or objections raised.

J. Public Comments

Written Comments—Interested persons are invited to submit comments, suggestions or objections regarding the proposed rulemaking to the Environmental Quality Board, P. O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301). Comments submitted by facsimile will not be accepted. Comments, suggestions or objections must be received by the Board on or before _____. Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received on or before _____. The one-page summary will be provided to each member of the Board in the agenda packet distributed prior to the meeting at which the final regulation will be considered.

Electronic Comments—Comments may be submitted electronically to the Board at RegComments@state.pa.us and must also be received by the Board on or before _____. A subject heading of the proposed rulemaking and a return name and address must be included in each transmission. If an acknowledgement of electronic comments is not received by the sender within 2 working days, the comments should be retransmitted to the Board to ensure receipt.

K. Public Hearings

The Board will hold three public hearings for the purpose of accepting comments on this proposed rulemaking. The hearings will be held as follows:

DATES, TIMES AND LOCATIONS TO BE INSERTED HERE

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.

Michael L. Krancer,
Chairman