## ENVIRONMENTAL PROTECTION AGENCY

## 40 CFR Parts 9 and 63

**[AD–FRL–5509–1]**

**RIN 2060–AD95**

# National Emission Standards for Hazardous Air Pollutants; Final Standards for Hazardous Air Pollutant Emissions From the Printing and Publishing Industry

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** This action promulgates national emission standards for hazardous air pollutants (NESHAP) under section 112 of the Clean Air Act (CAA), as amended in 1990 for the printing and publishing industry. The NESHAP requires existing and new major sources to control emissions using the maximum achievable control technology (MACT) to control hazardous air pollutants (HAP). The standards were proposed in the Federal Register on March 14, 1995 (60 FR 13664). This Federal Register action announces the EPA's final decisions on the rule.

The final rule includes organic HAP emission limits for publication rotogravure, product and packaging rotogravure, and wide-web flexographic printing. A variety of organic HAP are used as solvents and components of inks and other materials used by printers. The HAP emitted by the facilities covered by this final rule include xylene, toluene, ethylbenzene, methyl ethyl ketone, methyl isobutyl ketone, methanol, ethylene glycol, and certain glycol ethers. All of these pollutants can cause reversible or irreversible toxic effects following exposure. The potential toxic effects include eye, nose, throat, and skin irritation; and damage to the heart, liver, kidneys, and blood cells. The final rule is estimated to reduce baseline emissions of HAP by 31 percent or 6700 megagrams per year (Mg/yr) (7400 tons per year (tpy)).

The emissions reductions achieved by these standards, combined with the emissions reductions achieved by similar standards, will achieve the primary goal of the CAA, which is to ''enhance the quality of the Nation's air resources so as to promote the public health and welfare and productive capacity of its population''. The intent of this final regulation is to protect the public health by requiring the maximum degree of reduction in emissions of organic HAP from new and existing sources, taking into consideration the cost of achieving such emission reduction, any nonair quality, health and environmental impacts, and energy requirements.

**EFFECTIVE DATE:** May 30, 1996.

**ADDRESSES:** *Background Information Document.* The background information document (BID) for the promulgated standards may be obtained from the U.S. Department of Commerce, National Technical Information Service, Springfield, Virginia, 22161, telephone number (703) 487–4650. Please refer to ''National Emission Standards for Hazardous Air Pollutants for the Printing and Publishing Industry—Background Information for Promulgated Standards,'' EPA–453/R–96–005b. The BID contains (1) a summary of the changes made to the standards since proposal, and (2) a summary of all the public comments made on the proposed standards and the Administrator's response to the comments.

Electronic versions of the promulgation BID as well as this final rule are available for download from the EPA's Technology Transfer Network (TTN), a network of electronic bulletin boards developed and operated by the Office of Air Quality Planning and Standards. The TTN provides information and technology exchange in various areas of air pollution control. The service is free, except for the cost of a phone call. Dial (919) 541–5742 for data transfer of up to 14,400 bits per second. If more information on TTN is needed, contact the systems operator at (919) 541–5384.

*Docket.* Docket No. A–92–42, containing supporting information used in developing the promulgated standards, is available for public inspection and copying from 8 a.m. to 5:30 p.m., Monday through Friday, at the EPA Air and Radiation Docket and Information Center, Waterside Mall, Room M–1500, Ground Floor, 401 M Street, SW, Washington, DC 20460; telephone number (202) 260–7548, FAX (202) 260–4400. A reasonable fee may be charged for copying.

**FOR FURTHER INFORMATION CONTACT:** Mr. David Salman at (919) 541–0859, Emission Standards Division (MD–13), U. S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

**SUPPLEMENTARY INFORMATION:**

## Regulated Entities

Entities potentially regulated by this action are those which have the potential to emit HAP listed in section 112(b) of the CAA in the following regulated categories and entities:

| Category | Examples of regulated entities |
|---|---|
| Industry ..... | Printers, publishers, and manufacturers of packaging, wall and floor coverings, house furnishings and sanitary paper products employing rotogravure printing or wide-web flexographic printing technologies. |

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that the EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability criteria in § 63.820 of the rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.

Under section 307(b)(1) of the CAA, judicial review of NESHAP is available only by the filing of a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under section 307(b)(2) of the CAA, the requirements that are the subject of today's notice may not be challenged later in civil or criminal proceedings brought by the EPA to enforce these requirements.

The information presented in this preamble is organized as follows:

I. Background

*A. Regulatory Background and Purpose*

Section 112 of the CAA requires control of emissions of HAP to protect public health and the environment. This final regulation will reduce emissions of organic HAP from rotogravure and wide-web flexographic printing operations.

In part, section 112 requires that emission standards be promulgated for all categories of major sources of HAP, and for many categories of small ''area'' sources. The CAA lists 189 HAP believed to cause adverse health or environmental effects. Major sources are defined as those that emit or have the potential to emit at least 10 tons per year of any single HAP or 25 tons per year of any combination of HAP.

In the July 16, 1992, Federal Register (57 FR 31576), the EPA published the initial list of categories of sources slated for regulation. This list includes the printing and publishing category. Emissions standards for the listed source categories are required to be promulgated between November 1992 and November 2000.

Congress specified that each of these standards must require the maximum reduction in emissions of HAP that the EPA determines is achievable considering cost, non-air-quality health and environmental impacts, and energy requirements. In essence, these MACT standards ensure that all major sources of air toxics achieve the level of control already being achieved by the better controlled and lower emitting sources in each category. This approach creates a level economic playing field, ensuring that facilities that employ cleaner processes and good emissions controls are not disadvantaged relative to competitors with poorer controls. At the same time, this approach provides assurance to every citizen, in every community, that any major source of toxic air pollution located nearby will have to effectively control its emissions.

All U.S. publication rotogravure facilities and some product and packaging rotogravure and wide-web flexographic printing facilities are major sources of HAP emissions, with the potential to emit over 23 Mg/yr (25 tpy) of organic HAP, including toluene, xylene, ethylbenzene, methanol, methyl ethyl ketone, methyl isobutyl ketone, ethylene glycol, and certain glycol ethers. All of these pollutants can cause reversible or irreversible toxic effects following exposure. The potential toxic effects include irritation of the eyes, nose, throat, and skin; and damage to the heart, liver, kidneys, and blood cells.

The EPA recognizes that the degree of adverse effects to health resulting from the most significant emissions identified can range from mild to severe. The extent to which the effects could be experienced is dependent upon the ambient concentrations and exposure time. The latter is further influenced by source-specific characteristics such as emission rates and local meteorological conditions. Human variability factors, including genetics, age, pre-existing health conditions, and lifestyle also influence the degree to which effects to health occur.

The final standards will reduce organic HAP emissions from rotogravure and wide-web flexographic printing operations by 6,700 Mg/yr (7,400 tpy) from a baseline level of 21,700 Mg/yr (23,900 tpy). No small firms are at risk of closure as a result of the final standards, and there will not be a significant economic impact on a substantial number of small entities.

*B. Common Sense Initiative*

On October 17, 1994, the Administrator established the Common Sense Initiative (CSI) Council in accordance with the Federal Advisory Committee Act (U.S.C. App. 2, section 9(c)) requirements. The CSI addresses six industrial sectors. The Printing CSI Subcommittee addresses the Printing and Publishing industry.

The following are the six principles of the CSI program, as stated in the ''Advisory Committee Charter.''

1. *Regulation.* Review existing regulations for opportunities to get better environmental results at less cost. Improve new rules through increased coordination.

2. *Pollution Prevention.* Actively promote pollution prevention as the standard business practice and a central ethic of environmental protection.

3. *Recordkeeping and Reporting.* Make it easier to provide, use, and publicly disseminate relevant pollution and environmental information.

4. *Compliance and Enforcement.* Find innovative ways to assist companies that seek to comply and exceed legal requirements while consistently enforcing the law for those that do not achieve compliance.

5. *Permitting.* Improve permitting so that it works more efficiently, encourages innovation, and creates more opportunities for public participation.

6. *Environmental Technology.* Give industry the incentives and flexibility to develop innovative technologies that meet and exceed environmental standards while cutting costs.

The Printing CSI Subcommittee met for the first time just before the proposed rule was published. Several Subcommittee members were very involved in the development of the proposed rule. All Subcommittee members were made aware of the proposal and copies of the proposal were provided to all interested Subcommittee members. Although the Subcommittee did not choose to make review of the proposed rule one of its projects, several Subcommittee members did submit comments on the proposed rule. The subcommittee was provided with an update on the final rule at its March 19, 1996 meeting.

Many aspects of the CSI principles are reflected in the final standards. The alternatives considered in the development of this regulation, including those alternatives selected as standards for new and existing printing facilities, are based on process and emissions data received from over 600 printing facilities. The EPA met with industry and trade groups on numerous occasions to discuss these data. In addition, printers, trade organizations, ink manufacturers, and State and local regulatory authorities commented on draft versions of the proposed regulation and on the proposed regulation. Two trade organizations provided extensive comments. All comments were considered, and a number of changes to the final rule reflect these comments. Of major concern to industry were the opportunity to comply through pollution prevention by using low HAP content materials, the analytical method for HAP content determination, reliance on formulation data for HAP and volatile matter determination, and flexible compliance demonstration provisions that account for different configurations of work stations and printing presses within a facility.

The regulation allows sources the flexibility to select from various options for compliance. Sources may reduce HAP usage and emissions through conversion to waterborne, lower HAP solvent-borne or ultraviolet/electron beam cure materials. Alternatively, sources may install or upgrade existing capture and control devices to meet the proposed standard. Finally, sources have the option to comply by a combination of lower HAP materials and capture and control. Facilities may select the most cost-effective option based on facility specific considerations.

The final rule allows existing facilities three years from the date of promulgation to comply. This is the maximum amount of time allowed under the CAA. This time frame will provide the greatest opportunity for

developing and adopting low-HAP content materials, and provide sufficient time for facilities that choose to install or upgrade capture and control equipment.

Included in the final rule are methods for determining initial compliance as well as monitoring, recordkeeping, and reporting requirements. All of these components are necessary to ensure that sources will comply with the standards both initially and over time. However, the EPA has made every effort to simplify the requirements in the rule. The EPA has also attempted to maintain consistency with existing regulations.

Representatives from other interested EPA offices and programs were included in the regulatory development process as members of the work group. The work group reviewed and concurred with the regulation before proposal and promulgation. Therefore, the EPA believes that the implications to other EPA offices and programs have been adequately considered during the development of the rule.

## II. The Standards

The final rule is applicable to all existing and new rotogravure and wide-web flexographic facilities that are major sources of HAP or are located at plant sites that are major sources of HAP.

Publication rotogravure facilities subject to this rule must limit emissions of organic HAP to no more than eight percent of the total volatile matter used each month. The emission limitation may be achieved by capture and control of at least 92 percent of organic HAP used, by substitution of non-HAP materials for organic HAP, or by a combination of capture and control technologies and substitution of materials.

Product and packaging rotogravure and wide-web flexographic printing facilities subject to this rule must limit emissions to no more than five percent of the organic HAP applied each month, or to no more than four percent of the mass of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, and other materials applied each month, or to no more than 20 percent of the solids applied each month, or to an equivalent allowable mass based on the as-applied solids contents of the materials applied each month.

Section 112(a) of the CAA defines major source as a source, or group of sources, located within a contiguous area and under common control that emits or has the potential to emit, considering controls, 9.1 Mg/yr (10 tpy) or more of any individual HAP or 22.7 Mg/yr (25 tpy) or more of any combination of HAP. Area sources are stationary sources that do not qualify as ''major.'' ''Potential to emit'' is defined in the section 112 General Provisions (40 CFR 63.2) as ''the maximum capacity of a stationary source to emit a pollutant under its physical or operational design.'' Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on the hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is Federally enforceable.

The EPA notes that in recent decisions, *National Mining Ass'n* v. *EPA*, 59 F.3d 1351 (D.C. Cir. 1995) and *Chemical Manufacturers Ass'n* v. *EPA*, No. 89–1514, slip op. (D.C. Cir. Sept. 15, 1995), the District of Columbia Circuit court addressed challenges related to the EPA's requirement that a source which wishes to limit its potential to emit must obtain a federally enforceable limit for the New Source Review and NESHAP programs. The EPA is currently reviewing its Federal enforceability requirements in light of these court decisions, and has not yet decided how it will address this issue. Once the EPA has completed its review of the Federal enforceability requirements in all relevant programs including the NESHAP program, the EPA will make available in a Federal Register notice its response to the court decisions. In the interim, the EPA has issued its Interim Policy on Enforceability of Limitations on Potential to Emit (January 22, 1996), which summarizes how certain State-enforceable limits may be recognized under this definition pending further rulemaking.

To determine the applicability of this rule to facilities that are within a contiguous area of other HAP-emitting emission sources that are not part of the source category covered by this rule, the owner or operator must determine whether the plant site as a whole is a major source. A formal HAP emissions inventory must be used to determine if total potential HAP emissions from all HAP emission sources at the plant site meet the definition of a major source. If the facility commits to HAP usage restrictions as provided in the rule that ensure potential HAP emissions will be below the major source cutoffs, only simplified reporting and recordkeeping requirements apply. A facility may also limit its potential to emit through other appropriate mechanisms that may be available through the permitting authority.

Existing major sources may switch to area source status by obtaining and complying with a federally enforceable limit on their potential to emit prior to the ''compliance date'' of the regulation. The ''compliance date'' for existing sources for this regulation is defined as May 30, 1999. New major sources are required to comply with the NESHAP requirements upon start-up or the promulgation date, whichever is later. A facility that has not obtained federally enforceable limits on its potential to emit by the compliance date, and that has not complied with the NESHAP requirements, will be in violation of the NESHAP. All sources that are major sources for HAP on the compliance date or become major sources after the compliance date are required to comply permanently with the NESHAP to ensure that the maximum achievable reductions in toxic emissions are achieved and maintained.

The final standards impose limits on organic HAP emissions from rotogravure and wide-web flexographic printing. Publication rotogravure facilities must demonstrate compliance on a monthly basis considering all organic HAP used on publication rotogravure presses and all affiliated equipment, including proof presses, cylinder and parts cleaners, ink and solvent mixing and storage equipment, and solvent recovery equipment. Facilities may comply using capture and control equipment, substitution of non-HAP solvents for HAP, or a combination of these methods.

Product and packaging rotogravure and wide-web flexographic printing facilities must demonstrate compliance on a monthly basis considering all organic HAP applied on product and packaging rotogravure and wide-web flexographic printing presses. Certain presses which are used primarily for coating, laminating, or printing using other technologies than rotogravure printing and wide-web flexographic printing may be excluded from the affected source, subject only to simplified recordkeeping requirements. Owners or operators of such equipment will be subject to the appropriate source category standard when such a standard is issued.

Product and packaging rotogravure and wide-web flexographic printers may comply through the use of capture and control equipment, the substitution of non-HAP solvents for HAP, or a combination of these methods. Facilities may comply on the basis of organic HAP emissions per mass of solids applied, organic HAP emissions per mass of

materials applied, allowable organic HAP emissions based on the as-applied solids content of the materials applied, or overall organic HAP control efficiency.

III. Summary of Impacts

These standards will reduce nationwide emissions of HAP from rotogravure and wide-web flexographic printing operations by approximately 6700 Mg/yr (7400 tpy) in 1999 compared to the emissions that would result in the absence of the standards. These standards will also, to some extent, reduce volatile organic compounds (VOC) emissions from those same operations compared to the emissions that would result in the absence of the standards. The extent of the reduction in VOC emissions cannot be predicted because of uncertainty over the extent to which printers will comply through substitution of water and non-VOC organics for organic HAP. No significant adverse secondary air, water, solid waste, or energy impacts are anticipated from the promulgation of these standards.

Implementation of this regulation is expected to result in nationwide annual costs (including capital recovery) of approximately $40 million beyond baseline. These costs include $21 million per year for publication rotogravure printers and $19 million per year for package and product rotogravure and wide-web flexographic printers. These costs include capital recovery over a ten year period, operating costs for newly installed and upgraded capture and control systems, and costs for recordkeeping, reporting, and monitoring. Cost estimates for publication rotogravure printers remain unchanged from the proposed rule. Estimated costs for package and product rotogravure and wide-web flexographic printers are $2 million less than those for the proposed rule as a result of the facility-wide definition of affected source.

The economic impact analysis conducted before proposal showed that the economic impacts from the proposed standards would be insignificant. Since compliance costs and reporting and recordkeeping burdens have been reduced in the final rule, the economic impacts of the final rule are also insignificant.

IV. Significant Changes to the Proposed Standards

*A. Public Participation*

The standards were proposed and the preamble was published in the Federal Register on March 14, 1995 (60 FR 13664). The preamble to the proposed standards discussed the availability of the regulatory text and proposal BID, which described the regulatory alternatives considered and the impacts of those alternatives. Public comments were solicited at the time of proposal, and copies of the regulatory text and BID were distributed to interested parties. Electronic versions of the preamble, regulation, and BID were made available to interested parties via the TTN (see **SUPPLEMENTARY INFORMATION** section of this preamble). A correction notice which addressed minor typographical errors was published in the Federal Register on April 3, 1995 (60 FR 16920).

The preamble to the proposed standards provided the public the opportunity to request a public hearing. However, a public hearing was not requested. The public comment period was from March 14, 1995 to May 30, 1995. In all, 117 comment letters were received. The comments have been carefully considered, and changes have been made to the proposed standards when determined by the Administrator to be appropriate.

*B. Comments on the Proposed Standards*

Comments on the proposed standards were received from 117 commenters; the commenters were comprised of printers, ink manufacturers, State and local air pollution control agencies, trade organizations for printers and control equipment manufacturers, and citizens. A detailed discussion of these comments and responses can be found in the promulgation BID, which is referred to in the **ADDRESSES** section of this preamble. The discussion of comments and responses in the BID serves as the basis for the revisions that have been made to the standards between proposal and promulgation. Many of the comment letters contained multiple comments.

*C. Significant Changes*

Several significant changes have been made in response to the comments received on the proposed standards. A summary of the major changes is presented below.

(1) Incidental Printing and Ancillary Printing Equipment

The rule affects rotogravure and wide-web flexographic printing operations at major sources. Several commenters noted that this will include facilities that use little or no HAP on rotogravure or wide-web flexographic printing presses, but are major sources as a result of activities conducted on other equipment in other source categories. In addition, commenters noted that equipment that meets the definition of rotogravure or wide-web flexographic printing press but conducts only a small amount of rotogravure or wide-web flexographic printing operations and is primarily used for coating, laminating, or printing by other processes would have, as proposed, been subject to the standard.

The first case above can be characterized as ''incidental printing'' because the total work done on rotogravure and wide-web flexographic printing presses at the facility is minimal and is incidental to the other operations conducted at the facility. In the second case above, the equipment can be characterized as ''ancillary printing equipment'' because the work being done on rotogravure and wide-web flexographic print stations is minimal in comparison to, and ancillary to, the work being done on other work stations (i.e., coating stations) on that equipment.

The EPA has considered control requirements for incidental printing as a separate subgroup. Under the rule, product and packaging rotogravure and wide-web flexographic printing affected sources that apply no more than 500 kilograms of materials each month and that are located at facilities that are major sources of HAP are considered incidental printers. This definition ensures that the total work done on product and packaging rotogravure and wide-web flexographic presses at the facility is minimal and is incidental to the other operations conducted at the facility.

The EPA believes it is appropriate not to subject incidental printing operations to the requirements in § 63.825 that apply to product and packaging rotogravure and wide-web flexographic printing. The EPA's analysis of the MACT floor for product and packaging rotogravure and wide-web flexographic printing is based on emissions levels and control techniques at facilities primarily engaged in printing that generally apply more than 500 kilograms of material each month on product and packaging rotogravure and wide-web flexographic presses. The EPA has little information on which to establish a MACT control level for incidental printing. The available information indicates that the MACT floor for this subgroup is no control.

The final standard includes simplified requirements and does not mandate emission controls for incidental printers. Affected sources within this subgroup are those which apply no more than 500 kilograms of material

each month or no more than 400 kilogams of HAP each month on product and packaging rotogravure and wide-web flexographic presses. The 400 kilogram of HAP applied per month alternative threshold has been included to provide affected sources applying somewhat more than 500 kilograms of material per month with the opportunity to maintain incidental printer status if they reduce the HAP content of the materials applied so that the monthly HAP applied is no more than would be applied by an affected source that applied 500 kilograms of material per month. Affected sources in this subgroup would be subject only to initial notification requirements and recordkeeping requirements to show that one of the thresholds is met every month.

The type of simplified requirements included in the final standard for this subgroup of product and packaging or wide-web flexographic sources were not made available to publication rotogravure affected sources because each press at a publication rotogravure affected source would far exceed the thresholds every month. A single publication rotogravure press would, in fact, be a major source of HAP.

The final standard also permits the owner or operator of a product and packaging rotogravure or wide-web flexographic printing affected source to choose to exclude ancillary printing equipment from the affected source. This equipment is used primarily for coating, laminating, or other operations besides product and packaging rotogravure and wide-web flexographic printing. Presses on which five weight-percent or less of the total material applied each month is applied by rotogravure or wide-web flexographic print stations would be subject only to a simplified recordkeeping requirement. The EPA believes it is appropriate to provide the owner or operator with the option not to subject these presses to the HAP emission limitations for product and packaging and wide-web flexographic printing in § 63.825 because the work being done on the rotogravure and wide-web flexographic print stations on these presses is ancillary to the work being done on other work stations (i.e., coating stations) on these presses. The EPA is separately establishing MACT for other source categories, such as the paper and other web coating source category and the metal coil coating source category, which may be more appropriate for this type of equipment. Ancillary printing equipment, if excluded from this standard, will be subject to the appropriate source category standard when such a standard is issued.

(2) Research and Laboratory Equipment

Several comments were received requesting exemption of research and laboratory equipment. Commenters noted that the purpose and operation of research presses are independent of their location. One commenter noted that research and laboratory operations could be exempted from this standard and a separate standard for these operations could be developed.

All research and laboratory equipment has been excluded from the final standard whether or not it is collocated with production facilities. In order to regulate research and laboratory equipment, it would be necessary to develop a separate source category as directed by section 112(c)(7) of the CAA to assure equitable treatment of such equipment.

(3) Addition of Presses to Existing Affected Sources

Comments were received concerning triggering of new source compliance deadlines as a result of adding new presses to existing control systems or new stations to existing presses. Commenters noted that this would discourage replacement and modification of presses or stations to take advantage of low-HAP materials.

Addition of presses to existing affected sources will subject the affected source to the compliance deadline for new sources only if the additional press or presses constitutes a reconstruction of the source, as defined in § 63.2. Additions, replacements, and modifications to existing sources which do not meet the definition of reconstruction do not alter the compliance deadline.

(4) Affected Source for Product and Packaging Rotogravure and Wide-web Flexographic Printing Facilities

Comments were received suggesting changes in the definition of affected source at product and packaging rotogravure and wide-web flexographic printing facilities to simplify compliance demonstration. One commenter stated that a facility-wide definition of affected source would significantly cut recordkeeping expenses.

In response, the final standard considers all rotogravure and wide-web flexographic printing equipment at a given facility as a single affected source. This grouping is more consistent with the way that the MACT floor was determined and is consistent with other MACT standards which have grouped various emission points into a single affected source. It is also more consistent with the definition of affected source for publication rotogravure.

This definition of affected source simplifies reporting and recordkeeping in many cases. In addition, sources may achieve the required emissions reductions by considering emissions from the entire affected source, including controlled and uncontrolled presses. This will allow sources to comply in the most cost-effective way and will not require expensive control equipment for small presses which emit relatively small amounts of organic HAP if equivalent emissions reductions can be achieved elsewhere in the affected source.

(5) Organic HAP Analysis Methods

Ninety-six comments were received requesting that the EPA accept formulation data in lieu of requiring the use of EPA Method 311 to determine organic HAP content of printing materials. Formulation data were preferred to reduce analytical cost and delays due to chemical analysis. Some commenters also suggested various modifications to the proposed analytical technique in the interests of improved accuracy, consistency with apparatus presently in operation, and reduced analytical costs.

The final standard adopts Method 311, as revised and promulgated with the Wood Furniture Manufacturing Operations NESHAP (60 FR 62930), for organic HAP analysis. Printers and ink manufacturers have the option of relying on formulation data if the data meet specified criteria. In the event of any discrepancy between formulation data and the results of EPA Method 311, the results of EPA Method 311 shall be presumed to govern for all compliance purposes. In addition, the printer may determine the total volatile matter content of the material and use this value for the organic HAP content for all compliance purposes. This option may be chosen by printers using materials in which all, or nearly all, of the volatile matter is organic HAP in order to avoid the need for a more time-consuming analytic procedure.

(6) Volatile Matter Analysis Methods

Several comments were received requesting that formulation data be acceptable instead of chemical analysis data. Commenters noted this would greatly reduce analytical costs.

The final standard allows printers and ink manufacturers the option of relying on formulation data for volatile matter and solids content, in lieu of EPA Methods 24 and 24A. In the event of any

discrepancy between formulation data and the results of the EPA test methods, the test methods shall be presumed to govern for all compliance purposes.

(7) Compliance Monitoring for Catalytic Oxidizers

Nine commenters noted that the temperature downstream of a catalytic oxidizer was inappropriate for use as a monitoring parameter to indicate HAP destruction. The commenters noted that downstream temperature parameters established during performance testing under normal conditions might not be maintained during low-load conditions, yet this would not be an indication of excess emissions.

The final standard requires owners or operators using a catalytic oxidizer (that is, a catalytic incinerator) and monitoring an operating parameter to ensure compliance with the standard to monitor the temperature immediately upstream of the catalyst bed. The requirement to monitor the temperature downstream of the catalyst bed has been eliminated. Since the operating parameters are established during a test under normal operating conditions, a downstream temperature monitoring parameter might be impossible to meet during periods when organic loading to the oxidizer was lower than normal. This might have led to exceedances which were not indicative of improper operating conditions or excessive emissions.

(8) Additional Compliance Options for Product and Packaging Rotogravure and Wide-web Flexographic Printing Affected Sources

Several commenters requested clarification that compliance need only be demonstrated by a single procedure appropriate to the source's compliance strategy. Several commenters suggested that the rule should provide a variety of compliance demonstration alternatives to accomodate different aggregations of work stations and HAP control strategies.

In order to make the compliance options consistent with facility-wide definition of affected source, additional means of demonstrating compliance have been added to the final rule. Facilities may demonstrate that each material applied meets either of the organic HAP thresholds, or that all materials on average meet either of the organic HAP thresholds, or that the organic HAP emitted is less than the organic HAP allowed taking these thresholds into account. In addition, emissions from controlled and uncontrolled presses are aggregated to determine compliance across the entire affected source.

The final rule has been expanded to include ten procedures under which compliance can be demonstrated under different circumstances. Any one of the ten procedures can be used. These procedures are consistent with the proposed standards for low HAP materials and HAP emission control device operation. These procedures encompass the range of suggestions made by the commenters. The new compliance demonstration procedures in the final rule are expected to have a negligible impact on HAP emissions compared to the provisions in the proposed rule.

(9) Capture Efficiency Protocols and Test Methods

Four commenters requested that the rule allow the use of alternate capture efficiency test protocols approved by the EPA in lieu of the procedures specified in § 52.741.

The final rule includes additional options for capture efficiency tests. Provisions of the proposed rule pertaining to verification of permanent total enclosures and temporary total enclosure capture efficiency testing in accordance with § 52.741 have been retained in the final rule. The final rule also allows, as an alternative, the use of any capture efficiency protocol and test methods which satisfy the criteria of either the Data Quality Objective or Lower Confidence Limit approaches. An appendix describing these approaches has been added to the final rule. The use of these alternative approaches is optional for the owner or operator of the affected source and the EPA has determined that capture efficiency tests satisfying the criteria of these alternate approaches will be sufficiently rigorous to ensure compliance with the standard.

(10) Transition from Area Source to Major Source Status

A commenter requested that a provision allowing a transition period for a newly designated major source to come into compliance be incorporated in the rule. The commenter noted that the proposed rule had no provisions for a source to make this transition without being in violation of the standard.

A provision has been added to the final rule which provides a mechanism for owners or operators that have used the provisions of § 63.820(a)(2) to establish the facility as an area source to reestablish the facility as a major source. Such a source must continue to comply with its HAP usage commitments until it meets all requirements for major sources.

(11) Definition of ''Month''

In response to a comment, the definition of ''month'' in the final rule has been changed to include prespecified periods of 28 to 35 days. The revised definition will fit better with the materials accounting systems used by some facilities and have little or no effect on the emission reduction achieved by the standard.

(12) Alternatives to Vent Stream Flow Rate Monitoring

Seven commenters requested inclusion of alternative methods for vent stream flow rate monitoring, substitution of flow indicators rather than flow meters, or elimination of the flow rate monitoring requirement. One commenter recommended that press interlocks be permitted as an alternative to vent stream flow rate monitoring.

The final regulation includes alternatives to the vent stream flow rate measurement requirement. These alternatives are simpler than the requirements in the proposed rule, but still ensure that sufficient records will be generated to show when HAP containing vent streams are being delivered to a control device and to allow for proper calculation of HAP emissions. Owners or operators of product and packaging rotogravure or wide-web flexographic presses with intermittently-controllable work stations may, as alternatives to measuring vent stream flow rate, install flow indicators on the bypass lines, secure bypass line valves with locking mechanisms or car seals, continuously monitor bypass valve position, or equip the press with an interlock preventing operation when the control device is bypassed. Sampling lines for gas analyzers and relief valves needed for safety purposes are not considered bypass lines for the purposes of these provisions. Presses that do not have any intermittently-controllable work stations are not subject to these provisions.

(13) Provisions for Inclusion of Stand-alone Coating Equipment in Affected Source

One comment was received suggesting that off-line coaters sharing a common control device with printing presses should be included in the affected source at the discretion of the facility. It was noted that such a provision would avoid penalizing facilities that had tightened up their control systems by tying in other sources of HAP.

Provisions have been added to the final rule through which owners or operators of affected sources may, at

their option, under certain conditions, include stand-alone coating equipment in the affected source subject to this standard. This type of coating equipment is expected to be covered by one of several MACT standards (e.g., Paper and Other Web Coating) which are scheduled to be promulgated in the future. Printers choosing this option may avoid the difficulty of complying with multiple standards in the future. Stand-alone coating equipment must meet certain requirements to be eligible for inclusion under this provision. To be eligible, stand-alone coating equipment must either share a control device with a press included in the affected source, or process the same substrate as a press included in the affected source, or apply one or more of the same solids-containing materials as a press included in the affected source. If any eligible equipment is included under this provision, all eligible equipment at the facility must be included.

(14) Addition of Criteria To Determine Whether Method 25 or Method 25A is Appropriate for Performance Testing

The proposed rule required that performance tests employ either Method 25 or 25A, as appropriate to the conditions of the site. The final rule has been clarified to specify the conditions based on the required or anticipated organic volatile matter concentration at the exhaust from the control device. These conditions are based on guidance provided to regional offices and State programs, and clarify the conditions under which Method 25A are appropriate. This will reduce the administrative burden on some sources and will not reduce the stringency of the rule.

(15) Conditions Under Which Performance Test Is To Be Conducted

One commenter recommended testing under reasonably expected conditions and a second commenter recommended testing under normal conditions instead of maximum conditions.

The final rule has been made consistent with the General Provisions to require performance testing under ''normal operating conditions'' rather than ''maximum capacity.'' This will result in establishment of more representative operating parameters and will not cause an increase in HAP emissions.

(16) Clarification of Reporting and Recordkeeping Requirements

Several comments were received requesting clarification that only recordkeeping and reporting applicable to the specific control strategy employed were required. One commenter stated that area sources should be required to submit initial notifications so that States would be advised of their operations.

The final rule enumerates the types of excess emissions (including operating parameter exceedences) which must be included, as applicable, in the summary report. Recordkeeping requirements for incidental printing, ancillary printing equipment, and optional inclusion of stand-alone coating equipment have been added to the final rule.

The requirement for annual reporting of HAP usage by sources using the optional provisions of this rule to establish area source status has been eliminated from the final rule. A less burdensome requirement that such sources submit initial notifications has been added to the final rule. This initial notification will inform the Administrator that a source is using these optional provisions to establish area source status. The annual report was determined to be unnecessary because the source is required to maintain monthly records of HAP usage and to report any 12 month period in which the area source commitment is not met as part of its summary report.

*D. Minor Changes*

This section contains a list of several of the minor changes to the final rule.

(1) Revisions to definitions and phrasing have been made to clarify the regulation.

(2) Variables have been redefined as necessary to avoid ambiguity, and additional variables have been defined where necessary to explicitly describe the additional compliance options available in the final rule.

(3) Typographical errors have been corrected.

(4) The citation of the basis for delegation of regulatory authority has been corrected.

(5) The summary table in the proposed rule has been eliminated. (The General Provisions cross reference table has been retained and additional clarifying notes have been added.)

(6) Language has been added to the final rule which clarifies that the optional area source mechanism included in the rule does not preclude an owner or operator from taking advantage of other mechanisms which are available to establish area source status.

(7) A provision in the proposed rule requiring owners or operators of affected sources to obtain part 70 or part 71 operating permits has been eliminated from the final rule because this provision may have been inadvertently interpreted to require these permits for sources which used the optional provisions of the rule to establish area source status. Such sources may be required to obtain such permits, but are not required to obtain them as a result of using the optional provision in this standard.

(8) The deadline for initial notification for existing sources has been extended until one year before the compliance date.

V. Administrative Requirements

*A. Docket*

The Docket is an organized and complete file of all the information considered by the EPA in the development of this rulemaking. The Docket is a dynamic file, since material is added throughout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they can effectively participate in the rulemaking process. The contents of the Docket, including the BID for the proposed and promulgated standards and the EPA responses to significant comments, will serve as the record in case of judicial review (see 42 U.S.C. 7607(d)(7)(A)).

*B. Paperwork Reduction Act*

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and has assigned OMB control number 2060–0335. The EPA is therefore amending the table of currently approved information collection request (ICR) control numbers issued by OMB for various regulations. This amendment updates the table to accurately display those information requirements contained in this final rule. This display of the OMB control number and its subsequent codification in the Code of Federal Regulations satisfies the requirements of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*) and OMB's implementing regulations at 5 CFR part 1320.

The ICR was previously subject to public notice and comment prior to OMB approval. As a result, the EPA finds that there is ''good cause'' under section 553(b) of the Administrative Procedure Act (5 U.S.C. 553(b)) to amend the table in part 9 without prior notice and comment. Due to the technical nature of the table, further notice and comment would be unnecessary. For the same reasons, the EPA finds that there is good cause under 5 U.S.C. 553(d)(3).

The information required to be collected by this rule is necessary to identify the regulated entities who are subject to the rule and to ensure their compliance with the rule. The recordkeeping and reporting requirements are mandatory and are being established under authority of section 114 of the CAA. All information submitted to the EPA for which a claim of confidentiality is made will be safeguarded according to the EPA policies set forth in title 40, part 2, subpart B—Confidentiality of Business Information.

The total annual reporting and recordkeeping burden for this collection averaged over the first three years is estimated to be 89,965 hours per year. The average burden, per respondent, is 164 hours per year. The rule requires an initial one-time notification from each respondent and subsequent reports/notification would have to be submitted semiannually. Respondents operating capture systems and control devices would also be required to submit notifications of performance tests, performance test plans and reports of performance tests. There would be an estimated 500 respondents to the collection requirements. This estimate includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing methods for compliance with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

Send comments on the EPA's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, to the Director, OPPE Regulatory Information Division; U.S. Environmental Protection Agency (2136), 401 M St. SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th St. NW, Washington, DC 20503; marked ''Attention: Desk Officer for EPA.'' Include the OMB control number in any correspondence.

*C. Executive Order 12866: Administrative Designation and Regulatory Analysis*

Under Executive Order 12866 (58 FR 51735 (October 4, 1993)), the EPA is required to judge whether a regulation is ''significant'' and therefore subject to OMB review and the requirements of this executive order to prepare a regulatory impact analysis (RIA). The order defines ''significant regulatory action'' as one that is likely to result in a rule that may (1) have an annual effect on the economy of $100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities, (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency, (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligation of recipients thereof, or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the executive order.

Pursuant to the terms of Executive Order 12866, OMB has notified the EPA that it considers this a ''significant regulatory action'' within the meaning of the executive order. The EPA has submitted this action to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

*D. Executive Order 12875*

To reduce the burden of Federal regulations on States and small governments, the President issued Executive Order 12875 on October 26, 1993, entitled *Enhancing the Intergovernmental Partnership*. In particular, this executive order is designed to require agencies to assess the effects of regulations that are not required by statute and that create mandates upon State, local, or tribal governments. Two methods exist for complying with the requirements of the executive order: (1) Assure that funds necessary to pay direct costs of compliance with a regulation are provided, or (2) provide OMB a description of the communications and consultations with State/local/tribal governments, the nature of their concerns, any written submission from them, and the EPA's position supporting the need to issue the regulation.

The EPA has always been concerned about the effect of the cost of regulations on small entities; the EPA has consulted with and sought input from public entities to explain costs and burdens they may incur.

The EPA advised interested parties on July 16, 1992 (57 FR 21592), of the categories considered as major and area sources of HAP, and the printing/publishing (surface coating) industry was listed as a category of both major and area sources. The EPA made significant effort to hear from all levels of interest and all segments of the rotogravure and wide-web flexographic printing industry. To facilitate comments and input, the EPA participated in numerous meetings with trade organizations representing all industry sectors affected by this rule. Throughout the regulatory development process, and more specifically, in consultation meetings, industry representatives from printing companies, ink manufacturers, and various trade associations were given an opportunity to comment on the proposed regulatory approach and the MACT alternatives being developed. The major topic areas resulting from these discussions included industry segmentation, the determination of the MACT floor, test methods, monitoring procedures, facility-wide averaging, compliance deadlines, and pollution prevention. Documentation of all meetings and public comments can be found in Docket A–92–42.

Representatives of State and local air pollution control agencies participated in all of the EPA work group meetings, and several State and local agencies submitted public comments in response to the proposed standards.

The EPA has considered the purpose and intent of Executive Order 12875 and has determined that printing and publishing NESHAP are needed. The rule is generally required by statute under section 112 of the CAA because printing and publishing facilities emit significant quantities of air pollutants. Through meetings and consultations during project development and proposal, efforts were made to inform entities of the costs required to comply with the regulation; in addition, modifications were made to reduce the burden to small entities.

*E. Regulatory Flexibility Act*

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires the EPA to consider potential impacts of proposed regulations on small business ''entities.'' If a preliminary analysis indicates that a proposed regulation would have a significant economic impact on 20 percent or more of small entities, then a final Regulatory Flexibility Analysis

(RFA) must be prepared. The EPA's analysis of these impacts was summarized in the preamble to the proposed rule (60 FR 13664).

In addition, the EPA has a set of Regulatory Flexibility Guidelines (RFG), published in April 1992, that require the EPA to conduct a final RFA if any small business or small entity impacts occur resulting from a rule whose Start Action Notice (SAN) is approved after the date of publication of the EPA RFG. The SAN for this rule was approved before that date, thus the former Regulatory Flexibility Act guidelines hold. An RFA was conducted, however, as part of the larger economic impact analysis whose results were presented in the preamble to the proposed rule. The RFA prepared meets the EPA RFG as well as the original Regulatory Flexibility Act Guidelines. It also meets the analytical requirements of the Small Business Regulatory Enforcement Fairness Act of 1996.

This analysis found that the proposed rule would not have a significant economic impact on a substantial number of small entities. No comments were received on this analysis. The changes made in the final rule reduce the cost of achieving and demonstrating compliance for affected small and large entities. Therefore, pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that this rule will not have a significant economic impact on a substantial number of small business entities.

*F. Unfunded Mandates Act of 1995*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub.L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, the EPA generally must prepare a written statement including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires the EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before the EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA, a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of the EPA regulatory proposals with significant Federal intergovernmental mandates and informing, educating, and advising small governments on compliance with the regulatory requirements.

The EPA has determined that the action promulgated today does not include a Federal mandate that may result in estimated costs of $100 million or more in any one year to either State, local, or tribal governments in the aggregate, or to the private sector. Therefore, the requirements of the UMRA do not apply to this action.

*G. Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA)*

Pursuant to Subtitle E of SBREFA, this rule, which is nonmajor, was submitted to Congress before publication in the Federal Register.

List of Subjects in 40 CFR parts 9 and 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements, Standard for printing and publishing industry.

Dated: May 15, 1996.

Carol M. Browner,

*Administrator.*

For reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

## PART 9—[AMENDED]

1. The authority citation for Part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313(d), 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345(d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 *et seq.*, 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

2. Section 9.1 is amended by adding a new entry to the table under the indicated heading in numerical order to read as follows:

**§ 9.1 OMB approvals under the Paperwork Reduction Act.**

* * * * *

| 40 CFR citation | OMB control No. |
|---|---|
| * * * * * | |
| National Emission Standards for Hazardous Air Pollutants for Source Categories [13] | |
| * * * * * | |
| 63.829–63.830 ..... | 2060–0335 |
| * * * * * | |

[3] The ICRs referenced in this section of the table encompass the applicable general provisions contained in 40 CFR part 63, subpart A, which are not independent information collection requirements.

## PART 63—[AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: Secs. 101, 112, 114, 116, 183(f) and 301 of the CAA, as amended (42 U.S.C. 7401, 7411, 7414, 7416, 7511b(f), 7601).

2. Part 63 is amended by adding a new subpart KK consisting of §§ 63.820 through 63.839 to read as follows:

**Subpart KK—National Emission Standards for the Printing and Publishing Industry**

Sec.



## Subpart KK—National Emission Standards for the Printing and Publishing Industry

### § 63.820 Applicability.

(a) The provisions of this subpart apply to:

(1) Each new and existing facility that is a major source of hazardous air

pollutants (HAP), as defined in 40 CFR 63.2, at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated, and

(2) each new and existing facility at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated for which the owner or operator chooses to commit to, and meets the criteria of paragraphs (a)(2)(i) and (a)(2)(ii) of this section for purposes of establishing the facility to be an area source with respect to this subpart:

(i) Use less than 9.1 Mg (10 tons) per each rolling 12-month period of each HAP at the facility, including materials used for source categories or purposes other than printing and publishing, and

(ii) Use less than 22.7 Mg (25 tons) per each rolling 12-month period of any combination of HAP at the facility, including materials used for source categories or purposes other than printing and publishing.

(3) Each facility for which the owner or operator chooses to commit to and meets the criteria stated in paragraph (a)(2) of this section shall be considered an area source, and is subject only to the provisions of § 63.829(d) and § 63.830(b)(1) of this subpart.

(4) Each facility for which the owner or operator commits to the conditions in paragraph (a)(2) of this section may exclude material used in routine janitorial or facility grounds maintenance, personal uses by employees or other persons, the use of products for the purpose of maintaining electric, propane, gasoline and diesel powered motor vehicles operated by the facility, and the use of HAP contained in intake water (used for processing or noncontact cooling) or intake air (used either as compressed air or for combustion).

(5) Each facility for which the owner or operator commits to the conditions in paragraph (a)(2) of this section to become an area source, but subsequently exceeds either of the thresholds in paragraph (a)(2) of this section for any rolling 12-month period (without first obtaining and complying with other limits that keep its potential to emit HAP below major source levels), shall be considered in violation of its commitment for that 12-month period and shall be considered a major source of HAP beginning the first month after the end of the 12-month period in which either of the HAP-use thresholds was exceeded. As a major source of HAP, each such facility would be subject to the provisions of this subpart as noted in paragraph (a)(1) of this section and would no longer be eligible to use the provisions of paragraph (a)(2) of this section, even if in subsequent 12-month periods the facility uses less HAP than the thresholds in paragraph (a)(2) of this section.

(6) An owner or operator of an affected source subject to paragraph (a)(2) of this section who chooses to no longer be subject to paragraph (a)(2) of this section shall notify the Administrator of such change. If, by no longer being subject to paragraph (a)(2) of this section, the facility at which the affected source is located becomes a major source:

(i) The owner or operator of an existing source must continue to comply with the HAP usage provisions of paragraph (a)(2) of this section until the source is in compliance with all relevant requirements for existing affected sources under this subpart;

(ii) The owner or operator of a new source must continue to comply with the HAP usage provisions of paragraph (a)(2) of this section until the source is in compliance with all relevant requirements for new affected sources under this subpart.

(7) Nothing in this paragraph is intended to preclude a facility from establishing area source status by limiting its potential to emit through other appropriate mechanisms that may be available through the permitting authority.

(b) This subpart does not apply to research or laboratory equipment.

### § 63.821 Designation of affected sources.

(a) The affected sources subject to this subpart are:

(1) All of the publication rotogravure presses and all affiliated equipment, including proof presses, cylinder and parts cleaners, ink and solvent mixing and storage equipment, and solvent recovery equipment at a facility.

(2) All of the product and packaging rotogravure or wide-web flexographic printing presses at a facility plus any other equipment at that facility which the owner or operator chooses to include in accordance with paragraph (a)(3) of this section, except

(i) Proof presses, and

(ii) Any product and packaging rotogravure or wide-web flexographic press which is used primarily for coating, laminating, or other operations which the owner or operator chooses to exclude, provided that

(A) The sum of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials applied by the press using product and packaging rotogravure work stations and the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials applied by the press using wide-web flexographic print stations in each month never exceeds five weight-percent of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials applied by the press in that month, including all inboard and outboard stations, and

(B) The owner or operator maintains records as required in § 63.829(f).

(3) The owner or operator of an affected source, as defined in paragraph (a)(2) of this section, may elect to include in that affected source stand-alone coating equipment subject to the following provisions:

(i) Stand-alone coating equipment meeting any of the criteria specified in this subparagraph is eligible for inclusion:

(A) The stand-alone coating equipment and one or more product and packaging rotogravure or wide-web flexographic presses are used to apply solids-containing materials to the same web or substrate, or

(B) The stand-alone coating equipment and one or more product and packaging rotogravure or wide-web flexographic presses apply a common solids-containing material, or

(C) A common control device is used to control organic HAP emissions from the stand-alone coating equipment and from one or more product and packaging rotogravure or wide-web flexographic printing presses;

(ii) All eligible stand-alone coating equipment located at the facility is included in the affected source; and

(iii) No product and packaging rotogravure or wide-web flexographic presses are excluded from the affected source under the provisions of paragraph (a)(2)(ii) of this section.

(b) Each product and packaging rotogravure or wide-web flexographic printing affected source at a facility that is a major source of HAP, as defined in 40 CFR 63.2, that complies with the criteria of paragraphs (b)(1) or (b)(2) on and after the applicable compliance date as specified in § 63.826 of this subpart is subject only to the requirements of § 63.829(e) and § 63.830(b)(1) of this subpart.

(1) The owner or operator of the source applies no more than 500 kg per month, for every month, of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials on product and packaging rotogravure or wide-web flexographic printing presses, or

(2) The owner or operator of the source applies no more than 400 kg per month, for every month, of organic HAP

on product and packaging rotogravure or wide-web flexographic printing presses.

(c) Each product and packaging rotogravure or wide-web flexographic printing affected source at a facility that is a major source of HAP, as defined in 40 CFR 63.2, that complies with neither the criterion of paragraph (b)(1) nor (b)(2) of this section in any month after the applicable compliance date as specified in § 63.826 of this subpart is, starting with that month, subject to all relevant requirements of this subpart and is no longer eligible to use the provisions of paragraph (b) of this section, even if in subsequent months the affected source does comply with the criteria of paragraphs (b)(1) or (b)(2) of this section.

**§ 63.822 Definitions.**

(a) All terms used in this subpart that are not defined below have the meaning given to them in the CAA and in subpart A of this part.

*Always-controlled work station* means a work station associated with a dryer from which the exhaust is delivered to a control device, with no provision for the dryer exhaust to bypass the control device. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

*Capture efficiency* means the fraction of all organic HAP emissions generated by a process that are delivered to a control device, expressed as a percentage.

*Capture system* means a hood, enclosed room, or other means of collecting organic HAP emissions into a closed-vent system that exhausts to a control device.

*Car-seal* means a seal that is placed on a device that is used to change the position of a valve or damper (e.g., from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

*Certified product data sheet (CPDS)* means documentation furnished by suppliers of inks, coatings, varnishes, adhesives, primers, solvents, and other materials or by an outside laboratory that provides the organic HAP content of these materials, by weight, measured using Method 311 of appendix A of this Part 63 or an equivalent or alternative method (or formulation data as provided in § 63.827(b)) and the solids content of these materials, by weight, determined in accordance with § 63.827(c). The purpose of the CPDS is to assist the owner or operator in demonstrating compliance with the emission limitations presented in §§ 63.824–63.825.

*Coating operation* means the application of a uniform layer of material across the entire width of a substrate.

*Coating station* means a work station on which a coating operation is conducted.

*Control device* means a device such as a carbon adsorber or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

*Control device efficiency* means the ratio of organic HAP emissions recovered or destroyed by a control device to the total HAP emissions that are introduced into the control device, expressed as a percentage.

*Day* means a 24-consecutive-hour period.

*Facility* means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

*Flexographic press* means an unwind or feed section, a series of individual work stations, one or more of which is a flexographic print station, any dryers (including interstage dryers and overhead tunnel dryers) associated with the work stations, and a rewind, stack, or collection station. The work stations may be oriented vertically, horizontally, or around the circumference of a single large impression cylinder. Inboard and outboard work stations, including those employing any other technology, such as rotogravure, are included if they are capable of printing or coating on the same substrate.

*Flexographic print station* means a work station on which a flexographic printing operation is conducted. A flexographic print station includes a flexographic printing plate which is an image carrier made of rubber or other elastomeric material. The image (type and art) to be printed is raised above the printing plate.

*HAP applied* means the organic HAP content of all inks, coatings, varnishes, adhesives, primers, solvent, and other materials applied to a substrate by a product and packaging rotogravure or wide-web flexographic printing affected source.

*HAP used* means the organic HAP applied by a publication rotogravure printing affected source, including all organic HAP used for cleaning, parts washing, proof presses, and all organic HAP emitted during tank loading, ink mixing, and storage.

*Intermittently-controllable work station* means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device depending on the position of a valve or damper. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

*Month* means a calendar month or a prespecified period of 28 days to 35 days.

*Never-controlled work station* means a work station which is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.

*Overall Organic HAP control efficiency* means the total efficiency of a control system, determined either by:

(1) The product of the capture efficiency and the control device efficiency or

(2) A liquid-liquid material balance.

*Print station* means a work station on which a printing operation is conducted.

*Printing operation* means the formation of words, designs, and pictures on a substrate other than fabric through the application of material to that substrate.

*Product and packaging rotogravure printing* means the production, on a rotogravure press, of any printed substrate not otherwise defined as publication rotogravure printing. This includes, but is not limited to, folding cartons, flexible packaging, labels and wrappers, gift wraps, wall and floor coverings, upholstery, decorative laminates, and tissue products.

*Proof press* means any device used only to check the quality of the image formation of rotogravure cylinders or flexographic plates, which prints only non-saleable items.

*Publication rotogravure printing* means the production, on a rotogravure press, of the following saleable paper products:

(1) Catalogues, including mail order and premium,

(2) Direct mail advertisements, including circulars, letters, pamphlets, cards, and printed envelopes,

(3) Display advertisements, including general posters, outdoor advertisements, car cards, window posters; counter and floor displays; point of purchase and other printed display material,

(4) Magazines,

(5) Miscellaneous advertisements, including brochures, pamphlets, catalog sheets, circular folders, announcements, package inserts, book jackets, market circulars, magazine inserts, and shopping news,

(6) Newspapers, magazine and comic supplements for newspapers, and preprinted newspaper inserts, including hi-fi and spectacolor rolls and sections,

(7) Periodicals, and

(8) Telephone and other directories, including business reference services.

*Research or laboratory equipment* means any equipment for which the primary purpose is to conduct research and development into new processes and products, where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.

*Rotogravure press* means an unwind or feed section, a series of one or more work stations, one or more of which is a rotogravure print station, any dryers associated with the work stations, and a rewind, stack, or collection section. Inboard and outboard work stations including those employing any other technology, such as flexography, are included if they are capable of printing or coating on the same substrate.

*Rotogravure print station* means a work station on which a rotogravure printing operation is conducted. A rotogravure print station includes a rotogravure cylinder and ink supply. The image (type and art) to be printed is etched or engraved below the surface of the rotogravure cylinder. On a rotogravure cylinder the printing image consists of millions of minute cells.

*Stand-alone coating equipment* means an unwind or feed section, a series of one or more coating stations and any associated dryers, and a rewind, stack or collection section that:

Is not part of a product and packaging rotogravure or wide-web flexographic press, and

Is used to conduct one or more coating operations on a substrate. Stand-alone coating equipment

May or may not process substrate that is also processed by a product and packaging rotogravure or wide-web flexographic press, apply solids-containing materials that are also applied by a product and packaging rotogravure or wide-web flexographic press, and utilize a control device that is also utilized by a product and packaging rotogravure or wide-web flexographic press. Stand-alone coating equipment is sometimes referred to as ''off-line'' coating equipment.

*Wide-web flexographic press* means a flexographic press capable of printing substrates greater than 18 inches in width.

*Work station* means a unit on a rotogravure or wide-web flexographic press where material is deposited onto a substrate.

(b) The symbols used in equations in this subpart are defined as follows:

(1) $C_{ahi}$=the monthly average, as-applied, organic HAP content of solids-containing material, i, expressed as a weight-fraction, kg/kg.

(2) $C_{asi}$=the monthly average, as applied, solids content, of solids-containing material, i, expressed as a weight-fraction, kg/kg.

(3) $C_{hi}$=the organic HAP content of ink or other solids-containing material, i, expressed as a weight-fraction, kg/kg.

(4) $C_{hij}$=the organic HAP content of solvent j, added to solids-containing material i, expressed as a weight-fraction, kg/kg.

(5) $C_{hj}$=the organic HAP content of solvent j, expressed as a weight-fraction, kg/kg.

(6) $C_i$=the organic volatile matter concentration in ppm, dry basis, of compound i in the vent gas, as determined by Method 25 or Method 25A.

(7) $C_{si}$=the solids content of ink or other material, i, expressed as a weight-fraction, kg/kg.

(8) $C_{vi}$=the volatile matter content of ink or other material, i, expressed as a weight-fraction, kg/kg.

(9) E=the organic volatile matter control efficiency of the control device, percent.

(10) F=the organic volatile matter capture efficiency of the capture system, percent.

(11) $G_i$=the mass fraction of each solids containing material, i, which was applied at 20 weight-percent or greater solids content, on an as-applied basis, kg/kg.

(12) H=the total monthly organic HAP applied, kg.

(13) $H_a$=the monthly allowable organic HAP emissions, kg.

(14) $H_L$=the monthly average, as-applied, organic HAP content of all solids-containing materials applied at less than 0.04 kg organic HAP per kg of material applied, kg/kg.

(15) $H_s$=the monthly average, as-applied, organic HAP to solids ratio, kg organic HAP/kg solids applied.

(16) $H_{si}$=the as-applied, organic HAP to solids ratio of material i.

(17) L=the mass organic HAP emission rate per mass of solids applied, kg/kg.

(18) $M_{Bi}$=the sum of the mass of solids-containing material, i, applied on intermittently-controllable work stations operating in bypass mode and the mass of solids-containing material, i, applied on never-controlled work stations, in a month, kg.

(19) $M_{Bj}$=the sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on intermittently-controllable work stations operating in bypass mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on never-controlled work stations, in a month, kg.

(20) $M_{ci}$=the sum of the mass of solids-containing material, i, applied on intermittently-controllable work stations operating in controlled mode and the mass of solids-containing material, i, applied on always-controlled work stations, in a month, kg.

(21) $M_{cj}$=the sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on intermittently-controllable work stations operating in controlled mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on always-controlled work stations in a month, kg.

(22) $M_f$=the total organic volatile matter mass flow rate, kg/h.

(23) $M_{fi}$=the organic volatile matter mass flow rate at the inlet to the control device, kg/h.

(24) $M_{fo}$=the organic volatile matter mass flow rate at the outlet of the control device, kg/h.

(25) $M_{hu}$=the mass of organic HAP used in a month, kg.

(26) $M_i$=the mass of ink or other material, i, applied in a month, kg.

(27) $M_{ij}$=the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, added to solids-containing material, i, in a month, kg.

(28) $M_j$=the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied in a month, kg.

(29) $M_{Lj}$=the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, added to solids-containing materials which were applied at less than 20 weight-percent solids content, on an as-applied basis, in a month, kg.

(30) $M_{vr}$=the mass of volatile matter recovered in a month, kg.

(31) $M_{vu}$=the mass of volatile matter, including water, used in a month, kg.

(32) $MW_i$=the molecular weight of compound i in the vent gas, kg/kg-mol.

(33) n=the number of organic compounds in the vent gas.

(34) p=the number of different inks, coatings, varnishes, adhesives, primers, and other materials applied in a month.

(35) q=the number of different solvents, thinners, reducers, diluents, or other non-solids-containing materials applied in a month.

(36) $Q_{sd}$=the volumetric flow rate of gases entering or exiting the control device, as determined by Method 2, dscm/h.

(37) R=the overall organic HAP control efficiency, percent.

(38) $R_e$=the overall effective organic HAP control efficiency for publication rotogravure, percent.

(39) $R_v$=the organic volatile matter collection and recovery efficiency, percent.

(40) S=the mass organic HAP emission rate per mass of material applied, kg/kg.

(41) 0.0416=conversion factor for molar volume, kg-mol/$m^3$(@ 293 K and 760 mmHg).

**§ 63.823 Standards: General.**

Table 1 to this subpart provides cross references to the 40 CFR part 63, subpart A, general provisions, indicating the applicability of the general provisions requirements to this subpart KK.

**§ 63.824 Standards: Publication rotogravure printing.**

(a) Each owner or operator of any publication rotogravure printing affected source that is subject to the requirements of this subpart shall comply with these requirements on and after the compliance dates as specified in § 63.826 of this subpart.

(b) Each publication rotogravure affected source shall limit emissions of organic HAP to no more than eight percent of the total volatile matter used each month. The emission limitation may be achieved by overall control of at least 92 percent of organic HAP used, by substitution of non-HAP materials for organic HAP, or by a combination of capture and control technologies and substitution of materials. To demonstrate compliance, each owner or operator shall follow the procedure in paragraph (b)(1) of this section when emissions from the affected source are controlled by a solvent recovery device, the procedure in paragraph (b)(2) of this section when emissions from the affected source are controlled by an oxidizer, and the procedure in paragraph (b)(3) of this section when no control device is used.

(1) Each owner or operator using a solvent recovery device to control emissions shall demonstrate compliance by showing that the HAP emission limitation is achieved by following the procedures in either paragraph (b)(1)(i) or (b)(1)(ii) of this section:

(i) Perform a liquid-liquid material balance for each month as follows:

(A) Measure the mass of each ink, coating, varnish adhesive, primer, solvent, and other material used by the affected source during the month.

(B) Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material used by the affected source during the month following the procedure in § 63.827(b)(1).

(C) Determine the volatile matter content, including water, of each ink, coating, varnish, adhesive, primer, solvent, and other material used by the affected source during the month following the procedure in § 63.827(c)(1).

(D) Install, calibrate, maintain and operate, according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be initially certified by the manufacturer to be accurate to within ±2.0 percent.

(E) Measure the amount of volatile matter recovered for the month.

(F) Calculate the overall effective organic HAP control efficiency ($R_e$) for the month using Equation 1:

$$R_e = (100)\frac{M_{vu} - M_{hu} + \left[\left(M_{vr}\right)\left(M_{hu} / M_{vu}\right)\right]}{M_{vu}} \qquad \text{Eq 1}$$

For the purposes of this calculation, the mass fraction of organic HAP present in the recovered volatile matter is assumed to be equal to the mass fraction of organic HAP present in the volatile matter used.

(G) The affected source is in compliance for the month, if $R_e$ is at least 92 percent each month.

(ii) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency as specified in paragraphs (b)(1)(ii)(A) through (b)(1)(ii)(E) of this section:

(A) Install continuous emission monitors to determine the total organic volatile matter mass flow rate (e.g., by determining the concentration of the vent gas in grams per cubic meter, and the volumetric flow rate in cubic meters per second, such that the total organic volatile matter mass flow rate in grams per second can be calculated and summed) at both the inlet to and the outlet from the control device, such that the percent control efficiency (E) of the control device can be calculated for each month.

(B) Determine the percent capture efficiency (F) of the capture system according to § 63.827(e).

(C) Calculate the overall effective organic HAP control efficiency ($R_e$) achieved for each month using Equation 2.

$$R_e = (100)\frac{M_{vu} - M_{hu} + \left[(E/100)\,(F/100)M_{hu}\right]}{M_{vu}} \qquad \text{Eq 2}$$

(D) Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameter established in accordance with § 63.828(a)(5) whenever a publication rotogravure printing press is operated.

(E) The affected source is in compliance with the requirement for the month if $R_e$ is at least 92 percent, and the capture device is operated at an average value greater than, or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5) for each three-hour period.

(2) Each owner or operator using an oxidizer to control emissions shall demonstrate compliance by showing that the HAP emission limitation is achieved by following the procedure in either paragraph (b)(2)(i) or (b)(2)(ii) of this section:

(i) Demonstrate initial compliance through performance tests and continuing compliance through continuous monitoring as follows:

(A) Determine the oxidizer destruction efficiency (E) using the procedure in § 63.827(d).

(B) Determine the capture efficiency (F) using the procedure in § 63.827(e).

(D) Calculate the overall effective organic HAP control efficiency ($R_e$) achieved using Equation 2.

(E) The affected source is in initial compliance if $R_e$ is at least 92 percent. Demonstration of continuing compliance is achieved by continuous monitoring of an appropriate oxidizer operating parameter in accordance with § 63.828(a)(4), and by continuous monitoring of an appropriate capture system monitoring parameter in accordance with § 63.828(a)(5). The affected source is in continuing compliance if the capture device is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5), and

(*1*) if an oxidizer other than a catalytic oxidizer is used, the average combustion temperature for all three-hour periods is greater than or equal to the average combustion temperature established under § 63.827(d), or

(*2*) if a catalytic oxidizer is used, the average catalyst bed inlet temperature for all three-hour periods is greater than or equal to the average catalyst bed inlet temperature established in accordance with § 63.827(d).

(ii) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency in accordance with the requirements of paragraph (b)(1)(ii) of this section.

(3) To demonstrate compliance without the use of a control device, each owner or operator shall compare the mass of organic HAP used to the mass of volatile matter used each month, as specified in paragraphs (b)(3)(i) through (b)(3)(iv) of this section:

(i) Measure the mass of each ink, coating, varnish adhesive, primer, solvent, and other material used in the affected source during the month,

(ii) Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material used during the month following the procedure in § 63.827(b)(1), and

(iii) Determine the volatile matter content, including water, of each ink, coating, varnish, adhesive, primer, solvent, and other material used during the month following the procedure in § 63.827(c)(1).

(iv) The affected source is in compliance for the month if the mass of organic HAP used does not exceed eight percent of the mass of volatile matter used.

**§ 63.825 Standards: Product and packaging rotogravure and wide-web flexographic printing.**

(a) Each owner or operator of any product and packaging rotogravure or wide-web flexographic printing affected source that is subject to the requirements of this subpart shall comply with these requirements on and after the compliance dates as specified in § 63.826 of this subpart.

(b) Each product and packaging rotogravure or wide-web flexographic printing affected source shall limit emissions to no more than five percent of the organic HAP applied for the month; or to no more than four percent of the mass of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, and other materials applied for the month; or to no more than 20 percent of the mass of solids applied for the month; or to a calculated equivalent allowable mass based on the organic HAP and solids contents of the inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, and other materials applied for the month. The owner or operator of each product and packaging rotogravure or wide-web flexographic printing affected source shall demonstrate compliance with this standard by following one of the procedures in paragraphs (b)(1) through (b)(10) of this section:

(1) Demonstrate that each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner, and other material applied during the month contains no more than 0.04 weight-fraction organic HAP, on an as-purchased basis, as determined in accordance with § 63.827(b)(2).

(2) Demonstrate that each ink, coating, varnish, adhesive, primer, and other solids-containing material applied during the month contains no more than 0.04 weight-fraction organic HAP, on a monthly average as-applied basis as determined in accordance with paragraphs (b)(2)(i)–(ii) of this section. The owner or operator shall calculate the as-applied HAP content of materials which are reduced, thinned, or diluted prior to application, as follows:

(i) Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner, and other material applied on an as-purchased basis in accordance with § 63.827(b)(2).

(ii) Calculate the monthly average as-applied organic HAP content, $C_{ahi}$ of each ink, coating, varnish, adhesive, primer, and other solids-containing material using Equation 3.

$$C_{ahi} = \frac{\left( C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} \right)}{M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq 3}$$

(3)(i) Demonstrate that each ink, coating, varnish, adhesive, primer, and other solids-containing material applied, either

(A) Contains no more than 0.04 weight-fraction organic HAP on a monthly average as-applied basis, or

(B) Contains no more than 0.20 kg of organic HAP per kg of solids applied, on a monthly average as-applied basis.

(ii) The owner or operator may demonstrate compliance in accordance with paragraphs (b)(3)(ii) (A)–(C) of this section.

(A) Use the procedures of paragraph (b)(2) of this section to determine which materials meet the requirements of paragraph (b)(3)(i)(A) of this section,

(B) Determine the as-applied solids content following the procedure in § 63.827(c)(2) of all materials which do not meet the requirements of paragraph (b)(3)(i)(A) of this section. The owner or operator may calculate the monthly average as-applied solids content of materials which are reduced, thinned, or diluted prior to application, using Equation 4, and

$$C_{asi} = \frac{C_{si} M_i}{M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq 4}$$

(C) Calculate the as-applied organic HAP to solids ratio, $H_{si}$, for all materials which do not meet the requirements of

paragraph (b)(3)(i)(A) of this section, using Equation 5.

$$H_{si} = \frac{C_{ahi}}{C_{asi}} \qquad \text{Eq 5}$$

(4) Demonstrate that the monthly average as-applied organic HAP content, $H_L$, of all materials applied is less than 0.04 kg HAP per kg of material applied, as determined by Equation 6.

$$H_L = \frac{\sum_{i=1}^{p} M_i C_{hi} + \sum_{j=1}^{q} M_j C_{hj}}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_j} \qquad \text{Eq 6}$$

(5) Demonstrate that the monthly average as-applied organic HAP content on the basis of solids applied, $H_s$, is less than 0.20 kg HAP per kg solids applied as determined by Equation 7.

$$H_S = \frac{\sum_{i=1}^{p} M_i C_{hi} + \sum_{j=1}^{q} M_j C_{hj}}{\sum_{i=1}^{p} M_i C_{si}} \qquad \text{Eq 7}$$

(6) Demonstrate that the total monthly organic HAP applied, H, as determined by Equation 8, is less than the calculated equivalent allowable organic HAP, $H_a$, as determined by paragraph (e) of this section.

$$H = \sum_{i=1}^{p} M_i C_{hi} + \sum_{j=1}^{q} M_j C_{hj} \qquad \text{Eq 8}$$

(7) Operate a capture system and control device and demonstrate an overall organic HAP control efficiency of at least 95 percent for each month. If the affected source operates more than one capture system or more than one control device, and has only always-controlled work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of either paragraph (f) or (h) of this section. If the affected source operates one or more never-controlled work stations or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance in accordance with the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(8) Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.20 kg organic HAP emitted per kg solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance following the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(9) Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg organic HAP emitted per kg material applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance following the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(10) Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with paragraph (e) of this section. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance following the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(c) To demonstrate compliance with the overall organic HAP control efficiency requirement in § 63.825(b)(7) or the organic HAP emissions limitation requirements in § 63.825(b)(8)–(10), each owner or operator using a solvent recovery device to control emissions shall show compliance by following the procedures in either paragraph (c)(1) or (c)(2) of this section:

(1) Perform a liquid-liquid material balance for each and every month as follows:

(i) Measure the mass of each ink, coating, varnish, adhesive, primer, solvent and other material applied on the press or group of presses controlled by a common solvent recovery device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(b)(2).

(iii) Determine the volatile matter content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(v) Install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be initially certified by the manufacturer to be accurate to within ±2.0 percent.

(vi) Measure the amount of volatile matter recovered for the month.

(vii) Calculate the volatile matter collection and recovery efficiency, $R_v$, using Equation 9.

$$R_v = 100\frac{M_{vr}}{\sum_{i=1}^{p} M_i C_{vi} + \sum_{j=1}^{q} M_j} \qquad \text{Eq 9}$$

(viii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP

emission rate based on material applied or emission of less than the calculated allowable organic HAP, calculate the organic HAP emitted during the month, H, using Equation 10.

$$H = \left[1 - \frac{R_v}{100}\right]\left[\sum_{i=1}^{p}\left(C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij}\right)\right] \qquad \text{Eq 10}$$

(ix) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, calculate the organic HAP emission rate based on solids applied, L, using Equation 11.

$$L = \frac{H}{\sum_{i=1}^{p} C_{si}M_i} \qquad \text{Eq 11}$$

(x) If demonstrating compliance on the basis of organic HAP emission rate based on materials applied, calculate the organic HAP emission rate based on material applied, S, using Equation 12.

$$S = \frac{H}{\sum_{i=1}^{p}\left[M_i + \sum_{j=1}^{q} M_{ij}\right]} \qquad \text{Eq 12}$$

(xi) The affected source is in compliance if

(A) The organic volatile matter collection and recovery efficiency, $R_v$, is 95 percent or greater, or

(B) The organic HAP emission rate based on solids applied, L, is 0.20 kg organic HAP per kg solids applied or less, or

(C) the organic HAP emission rate based on material applied, S, is 0.04 kg organic HAP per kg material applied or less, or

(D) the organic HAP emitted during the month, H, is less than the calculated allowable organic HAP, $H_a$, as determined using paragraph (e) of this section.

(2) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency following the procedures in paragraphs (c)(2)(i) through (c)(2)(xi) of this section:

(i) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on materials applied, or emission of less than the calculated allowable organic HAP, measure the mass of each ink, coating, varnish, adhesive, primer, solvent, and other material applied on the press or group of presses controlled by a common control device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(b)(2).

(iii) Install continuous emission monitors to determine the total organic volatile matter mass flow rate (e.g., by determining the concentration of the vent gas in grams per cubic meter, and the volumetric flow rate in cubic meters per second, such that the total organic volatile matter mass flow rate in grams per second can be calculated and summed) at both the inlet to and the outlet from the control device, such that the percent control efficiency (E) of the control device can be calculated for each month.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(v) Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameter established in accordance with § 63.828(a)(5) whenever a product and packaging rotogravure or wide-web flexographic printing press is operated.

(vi) Determine the capture efficiency (F) in accordance with § 63.827(e)–(f).

(vii) Calculate the overall organic HAP control efficiency, (R), achieved for each month using Equation 13.

$$R = \frac{EF}{100} \qquad \text{Eq 13}$$

(viii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, calculate the organic HAP emitted during the month, H, for each month using Equation 14.

$$H = \left[1 - \left(\frac{E}{100}\,\frac{F}{100}\right)\right]\left[\sum_{i=1}^{p}\left(C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij}\right)\right] \qquad \text{Eq 14}$$

(ix) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, calculate the organic HAP emission rate based on solids applied, L, using Equation 15.

$$L = \frac{H}{\sum_{i=1}^{p} C_{si}M_i} \qquad \text{Eq 15}$$

(x) If demonstrating compliance on the basis of organic HAP emission rate based on materials applied, calculate the organic HAP emission rate based on material applied, S, using Equation 16.

$$S = \frac{H}{\sum_{i=1}^{p}\left[M_i + \sum_{j=1}^{q} M_{ij}\right]} \qquad \text{Eq 16}$$

(xi) The affected source is in compliance if the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter

value established in accordance with § 63.828(a)(5) for each three hour period, and

(A) The organic volatile matter collection and recovery efficiency, $R_v$, is 95 percent or greater, or

(B) The organic HAP emission rate based on solids applied, L, is 0.20 kg organic HAP per kg solids applied or less, or

(C) The organic HAP emission rate based on material applied, S, is 0.04 kg organic HAP per kg material applied or less, or

(D) The organic HAP emitted during the month, H, is less than the calculated allowable organic HAP, $H_a$, as determined using paragraph (e) of this section.

(d) To demonstrate compliance with the overall organic HAP control efficiency requirement in § 63.825(b)(7) or the overall organic HAP emission rate limitation requirements in § 63.825(b)(8)–(10), each owner or operator using an oxidizer to control emissions shall show compliance by following the procedures in either paragraph (d)(1) or (d)(2) of this section:

(1) demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters following the procedures in paragraph (d)(1)(i) through (d)(1)(xi) of this section:

(i) Determine the oxidizer destruction efficiency (E) using the procedure in § 63.827(d).

(ii) Determine the capture system capture efficiency (F) in accordance with § 63.827(e)–(f).

(iii) Calculate the overall organic HAP control efficiency, (R), achieved using Equation 13.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on materials applied or emission of less than the calculated allowable organic HAP, measure the mass of each ink, coating, varnish, adhesive, primer, solvent, and other material applied on the press or group of presses controlled by a common solvent recovery device during the month.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(b)(2).

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(vii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, calculate the organic HAP emitted during the month, H, for each month using Equation 14.

(viii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, calculate the organic HAP emission rate based on solids applied, L, for each month using Equation 15.

(ix) If demonstrating compliance on the basis of organic HAP emission rate based on materials applied, calculate the organic HAP emission rate based on material applied, S, using Equation 16.

(x) Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameters established in accordance with § 63.828(a)(4)–(5) whenever a product and packaging rotogravure or wide-web flexographic press is operating.

(xi) The affected source is in compliance, if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with § 63.828(a)(4) for each three-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5) for each three hour period, and

(A) The overall organic HAP control efficiency, R, is 95 percent or greater, or

(B) The organic HAP emission rate based on solids applied, L, is 0.20 kg organic HAP per kg solids applied or less, or

(C) The organic HAP emission rate based on material applied, S, is 0.04 kg organic HAP per kg material applied or less, or

(D) The organic HAP emitted during the month, H, is less than the calculated allowable organic HAP, $H_a$, as determined using paragraph (e) of this section.

(2) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency. Compliance shall be demonstrated in accordance with the requirements of paragraph (c)(2) of this section.

(e) Owners or operators may calculate the monthly allowable HAP emissions, $H_a$, for demonstrating compliance in accordance with paragraph (b)(6), (c)(1)(xi)(D), (c)(2)(xi)(D), or (d)(1)(xi)(D) of this section as follows:

(1) Determine the as-purchased mass of each ink, coating, varnish, adhesive, primer, and other solids-containing material applied each month, $M_i$.

(2) Determine the as-purchased solids content of each ink, coating, varnish, adhesive, primer, and other solids-containing material applied each month, in accordance with § 63.827(c)(2), $C_{si}$.

(3) Determine the as-purchased mass fraction of each ink, coating, varnish, adhesive, primer, and other solids-containing material which was applied at 20 weight-percent or greater solids content, on an as-applied basis, $G_i$.

(4) Determine the total mass of each solvent, diluent, thinner, or reducer added to materials which were applied at less than 20 weight-percent solids content, on an as-applied basis, each month, $M_{Lj}$.

(5) Calculate the monthly allowable HAP emissions, $H_a$, using Equation 17.

$$H_a = 0.20\left[\sum_{i=1}^{p} M_i G_i C_{si}\right] + 0.04\left[\sum_{i=1}^{p} M_i\left(1-G_i\right) + \sum_{j=1}^{q} M_{Lj}\right] \qquad \text{Eq 17}$$

(f) Owners or operators of product and packaging rotogravure or wide-web flexographic printing presses shall demonstrate compliance according to the procedures in paragraphs (f)(1) through (f)(7) of this section if the affected source operates more than one capture system, more than one control device, one or more never-controlled

work stations, or one or more intermittently-controllable work stations.

(1) The owner or operator of each solvent recovery system used to control one or more product and packaging rotogravure or wide-web flexographic presses for which the owner or operator chooses to comply by means of a liquid-liquid mass balance shall determine the organic HAP emissions for those presses controlled by that solvent recovery system either

(i) in accordance with paragraphs (c)(1)(i)–(iii) and (c)(1)(v)–(viii) of this section if the presses controlled by that solvent recovery system have only always-controlled work stations, or

(ii) in accordance with paragraphs (c)(1)(ii)–(iii), (c)(1)(v)–(vi), and (g) of this section if the presses controlled by that solvent recovery system have one or more never-controlled or intermittently-controllable work stations.

(2) The owner or operator of each solvent recovery system used to control one or more product and packaging rotogravure or wide-web flexographic presses, for which the owner or operator chooses to comply by means of an initial test of capture efficiency, continuous emission monitoring of the control device, and continuous monitoring of a capture system operating parameter, shall

(i) For each capture system delivering emissions to that solvent recovery system, monitor an operating parameter established in accordance with § 63.828(a)(5) to assure capture system efficiency, and

(ii) Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that solvent recovery system either

(A) In accordance with paragraphs (c)(2)(i)–(iii) and (c)(2)(v)–(viii) of this section if the presses served by that capture system have only always-controlled work stations, or

(B) In accordance with paragraphs (c)(2)(ii)–(iii), (c)(2)(v)–(vii), and (g) of this section if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

(3) The owner or operator of each oxidizer used to control emissions from one or more product and packaging rotogravure or wide-web flexographic presses choosing to demonstrate compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters, shall

(i) Monitor an operating parameter established in accordance with § 63.828(a)(4) to assure control device efficiency, and

(ii) For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in accordance with § 63.828(a)(5) to assure capture efficiency, and

(iii) Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that oxidizer either

(A) In accordance with paragraphs (d)(1)(i)–(v) and (d)(1)(vii) of this section if the presses served by that capture system have only always-controlled work stations, or

(B) In accordance with paragraphs (d)(1)(i)–(iii), (d)(1)(v), and (g) of this section if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

(4) The owner or operator of each oxidizer used to control emissions from one or more product and packaging rotogravure or wide-web flexographic presses choosing to demonstrate compliance through an initial capture efficiency test, continuous emission monitoring of the control device and continuous monitoring of a capture system operating parameter, shall

(i) For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in accordance with § 63.828(a)(5) to assure capture efficiency, and

(ii) Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that oxidizer either

(A) In accordance with paragraphs (c)(2)(i)–(iii) and (c)(2)(v)–(viii) of this section if the presses served by that capture system have only always-controlled work stations, or

(B) In accordance with paragraphs (c)(2)(ii)–(iii), (c)(2)(v)–(vii), and (g) of this section if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

(5) The owner or operator of one or more uncontrolled product and packaging rotogravure or wide-web flexographic printing presses shall determine the organic HAP applied on those presses using Equation 8. The organic HAP emitted from an uncontrolled press is equal to the organic HAP applied on that press.

(6) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, the owner or operator shall determine the solids content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in § 63.827(c)(2).

(7) The owner or operator shall determine the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to paragraphs (f)(1), (f)(2)(ii), (f)(3)(iii), (f)(4)(ii), and (f)(5) of this section. The affected source is in compliance for the month, if all operating parameters required to be monitored under paragraphs (f)(2)–(4) of this section were maintained at the appropriate values, and

(i) The total mass of organic HAP emitted by the affected source was not more than four percent of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, diluents, reducers, thinners and other materials applied by the affected source, or

(ii) The total mass of organic HAP emitted by the affected source was not more than 20 percent of the total mass of solids applied by the affected source, or

(iii) The total mass of organic HAP emitted by the affected source was not more than the equivalent allowable organic HAP emissions for the affected source, $H_a$, calculated in accordance with paragraph (e) of this section, or

(iv) The total mass of organic HAP emitted by the affected source was not more than five percent of the total mass of organic HAP applied by the affected source. The total mass of organic HAP applied by the affected source in the month shall be determined by the owner or operator using Equation 8.

(g) Owners or operators determining organic HAP emissions from a press or group of presses having one or more never-controlled or intermittently-controllable work stations and using the procedures specified in paragraphs (f)(1)(ii), (f)(2)(ii)(B), (f)(3)(iii)(B), or (f)(4)(ii)(B) of this section shall for that press or group of presses:

(1) Determine the sum of the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on intermittently-controllable work stations in bypass mode and the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on never-controlled work stations during the month, $M_{Bi}$.

(2) Determine the sum of the mass of all solvents, reducers, thinners, and other diluents which are applied on intermittently-controllable work stations in bypass mode and the mass of all solvents, reducers, thinners, and other diluents which are applied on never-

controlled work stations during the month, $M_{Bj}$.

(3) Determine the sum of the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on intermittently-controllable work stations in controlled mode and the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on always-controlled work stations during the month, $M_{Bj}$.

(4) Determine the sum of the mass of all solvents, reducers, thinners, and other diluents which are applied on intermittently-controllable work stations in controlled mode and the mass of all solvents, reducers, thinners, and other diluents which are applied on always-controlled work stations during the month, $M_{Cj}$.

(5) For each press or group of presses for which the owner or operator uses the provisions of paragraph (f)(1)(ii) of this section, the owner or operator shall calculate the organic HAP emitted during the month using Equation 18.

$$H = \left[\sum_{i=1}^{p} M_{Ci} C_{hi} + \sum_{j=1}^{q} M_{Cj} C_{hj}\right]\left[1 - \frac{M_{vr}}{\sum_{i=1}^{p} M_{Ci} C_{vi} + \sum_{j=1}^{q} M_{Cj}}\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{hi} + \sum_{j=1}^{q} M_{Bj} C_{hj}\right] \quad \text{Eq 18}$$

(6) For each press or group of presses for which the owner or operator uses the provisions of paragraphs (f)(2)(ii)(B), (f)(3)(iii)(B), or (f)(4)(ii)(B) of this section, the owner or operator shall calculate the organic HAP emitted during the month using Equation (19).

$$H = \left[\sum_{i=1}^{p} M_{Ci} C_{hi} + \sum_{j=1}^{q} M_{Cj} C_{hj}\right]\left[1 - \left(\frac{E}{100}\,\frac{F}{100}\right)\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{hi} + \sum_{j=1}^{q} M_{Bj} C_{hj}\right] \quad \text{Eq 19}$$

(h) If the affected source operates more than one capture system or more than one control device, and has no never-controlled work stations and no intermittently-controllable work stations, then the affected source is in compliance with the 95 percent overall organic HAP control efficiency requirement for the month if for each press or group of presses controlled by a common control device:

(1) The volatile matter collection and recovery efficiency, $R_v$, as determined by paragraphs (c)(1)(i), (c)(1)(iii), and (c)(1)(v)–(vii) of this section is equal to or greater than 95 percent, or

(2) The overall organic HAP control efficiency as determined by paragraphs (c)(2)(iii) and (c)(2)(v)–(vii) of this section for each press or group of presses served by that control device and a common capture system is equal to or greater than 95 percent and the average capture system operating parameter value for each capture system serving that control device is greater than or less than (as appropriate) the operating parameter value established for that capture system in accordance with § 63.828(a)(5) for each three hour period, or

(3) The overall organic HAP control efficiency as determined by paragraphs (d)(1)(i)–(iii) and (d)(1)(x) of this section for each press or group of presses served by that control device and a common capture system is equal to or greater than 95 percent, the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with § 63.828(a)(4) for each three hour period, and the average capture system operating parameter value for each capture system serving that control device is greater than or less than (as appropriate) the operating parameter value established for that capture system in accordance with § 63.828(a)(5) for each three hour period.

### § 63.826 Compliance dates.

(a) The compliance date for an owner or operator of an existing affected source subject to the provisions of this subpart is May 30, 1999.

(b) The compliance date for an owner or operator of a new affected source subject to the provisions of this subpart is immediately upon start-up of the affected source, or May 30, 1996, whichever is later.

(c) Affected sources which have undergone reconstruction are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution control equipment are not considered in determining whether the affected source has been reconstructed. Additionally, the costs of retrofitting and replacement of equipment that is installed specifically to comply with this subpart are not considered reconstruction costs.

### § 63.827 Performance test methods.

(a) An owner or operator using a control device to comply with the requirements of §§ 63.824–63.825 is not required to conduct an initial performance test to demonstrate compliance if one or more of the criteria in paragraphs (a)(1) through (a)(3) of this section are met:

(1) A control device that is in operation prior to May 30, 1996, does not need to be tested if

(i) It is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration, and capture efficiency has been determined in accordance with the requirements of this subpart, such that an overall HAP control efficiency can be calculated, and

(ii) The continuous emission monitors are used to demonstrate continuous compliance in accordance with § 63.828, or

(2) The owner or operator has met the requirements of either § 63.7(e)(2)(iv) or § 63.7(h), or

(3) The control device is a solvent recovery system and the owner or operator chooses to comply by means of a monthly liquid-liquid material balance.

(b) Determination of the organic HAP content of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, diluents, and other materials for the purpose of meeting the requirements of § 63.824 shall be

conducted according to paragraph (b)(1) of this section. Determination of the organic HAP content of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, diluents, and other materials for the purpose of meeting the requirements of § 63.825 shall be conducted according to paragraph (b)(2) of this section.

(1) Each owner or operator of a publication rotogravure facility shall determine the organic HAP weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, and other material used in a publication rotogravure affected source by following one of the procedures in paragraphs (b)(1)(i) through (b)(1)(iii) of this section:

(i) The owner or operator may test the material in accordance with Method 311 of appendix A of this Part 63. The Method 311 determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 311, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The recovery efficiency of the technique must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(ii) The owner or operator may determine the volatile matter content of the material in accordance with § 63.827(c)(1) and use this value for the organic HAP content for all compliance purposes.

(iii) The owner or operator may, except as noted in paragraph (b)(1)(iv) of this section, rely on formulation data provided by the manufacturer of the material on a CPDS if

(A) The manufacturer has included in the organic HAP content determination all HAP present at a level greater than 0.1 percent in any raw material used, weighted by the mass fraction of each raw material used in the material, and

(B) The manufacturer has determined the HAP content of each raw material present in the formulation by Method 311 of appendix A of this part 63, or by an alternate method approved by the Administrator, or by reliance on a CPDS from a raw material supplier prepared in accordance with § 63.827(b)(1)(iii)(A).

(iv) In the event of any inconsistency between the Method 311 of appendix A of this part 63 test data and formulation data, that is, if the Method 311 test value is higher, the Method 311 test data shall govern, unless after consultation, an owner or operator demonstrates to the satisfaction of the enforcement authority that the formulation data are correct.

(2) Each owner or operator of a product and packaging rotogravure or wide-web flexographic printing facility shall determine the organic HAP weight fraction of each ink, coating, varnish, adhesive, primer, solvent, thinner, reducer, diluent, and other material applied by following one of the procedures in paragraphs (b)(2)(i) through (b)(2)(iii) of this section:

(i) The owner or operator may test the material in accordance with Method 311 of appendix A of this part 63. The Method 311 determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 311, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The recovery efficiency of the technique must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(ii) The owner or operator may determine the volatile matter content of the material in accordance with § 63.827(c)(2) and use this value for the organic HAP content for all compliance purposes.

(iii) The owner or operator may, except as noted in paragraph (b)(2)(iv) of this section, rely on formulation data provided by the manufacturer of the material on a CPDS if

(A) The manufacturer has included in the organic HAP content determination, all organic HAP present at a level greater than 0.1 percent in any raw material used, weighted by the mass fraction of each raw material used in the material, and

(B) The manufacturer has determined the organic HAP content of each raw material present in the formulation by Method 311 of appendix A of this part 63, or, by an alternate method approved by the Administrator, or, by reliance on a CPDS from a raw material supplier prepared in accordance with § 63.827(b)(2)(iii)(A).

(iv) In the event of any inconsistency between the Method 311 of appendix A of this part 63 test data and a facility's formulation data, that is, if the Method 311 test value is higher, the Method 311 test data shall govern, unless after consultation, an owner or operator demonstrates to the satisfaction of the enforcement authority that the formulation data are correct.

(c) Determination by the owner or operator of the volatile matter content of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, diluents, and other materials used for the purpose of meeting the requirements of § 63.824 shall be conducted according to paragraph (c)(1) of this section. Determination by the owner or operator of the volatile matter and solids content of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, diluents, and other materials applied for the purpose of meeting the requirements of § 63.825 shall be conducted according to paragraph (c)(2) of this section.

(1) Each owner or operator of a publication rotogravure facility shall determine the volatile matter weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, reducer, thinner, diluent, and other material used using Method 24A of 40 CFR part 60, appendix A. The Method 24A determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 24A, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The owner or operator may rely on formulation data, subject to the provisions of paragraph (c)(3) of this section.

(2) Each owner or operator of a product and packaging rotogravure or wide-web flexographic printing facility shall determine the volatile matter and solids weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, reducer, thinner, diluent, and other material applied using Method 24 of 40 CFR part 60, appendix A. The Method 24 determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 24, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The owner or operator may rely on formulation data, subject to the provisions of paragraph (c)(3) of this section.

(3) Owners or operators may determine the volatile matter content of materials based on formulation data, and may rely on volatile matter content data provided by material suppliers. In the event of any inconsistency between the formulation data and the results of Test Methods 24 or 24A of 40 CFR part 60, appendix A, the applicable test method shall govern, unless after consultation, the owner or operator can demonstrate to the satisfaction of the enforcement agency that the formulation data are correct.

(d) A performance test of a control device to determine destruction

efficiency for the purpose of meeting the requirements of §§ 63.824–63.825 shall be conducted by the owner or operator in accordance with the following:

(1) An initial performance test to establish the destruction efficiency of an oxidizer and the associated combustion zone temperature for a thermal oxidizer and the associated catalyst bed inlet temperature for a catalytic oxidizer shall be conducted and the data reduced in accordance with the following reference methods and procedures:

(i) Method 1 or 1A of 40 CFR part 60, appendix A is used for sample and velocity traverses to determine sampling locations.

(ii) Method 2, 2A, 2C, or 2D of 40 CFR part 60, appendix A is used to determine gas volumetric flow rate.

(iii) Method 3 of 40 CFR part 60, appendix A is used for gas analysis to determine dry molecular weight.

(iv) Method 4 of 40 CFR part 60, appendix A is used to determine stack gas moisture.

(v) Methods 2, 2A, 3, and 4 of 40 CFR part 60, appendix A shall be performed, as applicable, at least twice during each test period.

(vi) Method 25 of 40 CFR part 60, Appendix A, shall be used to determine organic volatile matter concentration, except as provided in paragraphs (d)(1)(vi)(A)–(C) of this section. The owner or operator shall submit notice of the intended test method to the Administrator for approval along with notice of the performance test required under § 63.7(c). The owner or operator may use Method 25A of 40 CFR part 60, appendix A, if

(A) An exhaust gas organic volatile matter concentration of 50 parts per million by volume (ppmv) or less is required to comply with the standards of §§ 63.824–63.825, or

(B) The organic volatile matter concentration at the inlet to the control system and the required level of control are such to result in exhaust gas organic volatile matter concentrations of 50 ppmv or less, or

(C) Because of the high efficiency of the control device, the anticipated organic volatile matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

(vii) Each performance test shall consist of three separate runs; each run conducted for at least one hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining organic volatile matter concentrations and mass flow rates, the average of results of all runs shall apply.

(viii) Organic volatile matter mass flow rates shall be determined using Equation 20:

$$M_f = Q_{sd}\left[\sum_{i=1}^{n} C_i MW_i\right]\left[0.0416\right]\left[10^{-6}\right] \qquad \text{Eq 20}$$

(ix) Emission control device efficiency shall be determined using Equation 21:

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}} \qquad \text{Eq 21}$$

(2) The owner or operator shall record such process information as may be necessary to determine the conditions of the performance test. Operations during periods of start-up, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

(3) For the purpose of determining the value of the oxidizer operating parameter that will demonstrate continuing compliance, the time-weighted average of the values recorded during the performance test shall be computed. For an oxidizer other than catalytic oxidizer, the owner or operator shall establish as the operating parameter the minimum combustion temperature. For a catalytic oxidizer, the owner or operator shall establish as the operating parameter the minimum gas temperature upstream of the catalyst bed. These minimum temperatures are the operating parameter values that demonstrate continuing compliance with the requirements of §§ 63.824–63.825.

(e) A performance test to determine the capture efficiency of each capture system venting organic emissions to a control device for the purpose of meeting the requirements of §§ 63.824(b)(1)(ii), 63.824(b)(2), 63.825(c)(2), 63.825(d)(1)–(2), 63.825(f)(2)–(4), or 63.825(h)(2)–(3) shall be conducted by the owner or operator in accordance with the following:

(1) For permanent total enclosures, capture efficiency shall be assumed as 100 percent. Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure as found in appendix B to § 52.741 of part 52 of this chapter shall be used to confirm that an enclosure meets the requirements for permanent total enclosure.

(2) For temporary total enclosures, the capture efficiency shall be determined according to the protocol specified in § 52.741(a)(4)(iii)(B) of part 52 of this chapter. The owner or operator may exclude never-controlled work stations from such capture efficiency determinations.

(f) As an alternative to the procedures specified in § 63.827(e) an owner or operator required to conduct a capture efficiency test may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective (DQO) or the Lower Confidence Limit (LCL) approach as described in Appendix A of this subpart. The owner or operator may exclude never-controlled work stations from such capture efficiency determinations.

**§ 63.828 Monitoring requirements.**

(a) Following the date on which the initial performance test of a control device is completed, to demonstrate continuing compliance with the standard, the owner or operator shall monitor and inspect each control device required to comply with §§ 63.824–63.825 to ensure proper operation and maintenance by implementing the applicable requirements in paragraph (a)(1) through (a)(5) of this section.

(1) Owners or operators of product and packaging rotogravure or wide-web flexographic presses with intermittently-controllable work stations shall follow one of the procedures in paragraphs (a)(1)(i) through (a)(1)(iv) of this section for each dryer associated with such a work station:

(i) Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and flow control position must be recorded at least once per hour, as well as every time the flow direction is changed. The flow control position indicator shall be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

(ii) Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration; a visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve or damper is maintained in the closed position and the exhaust stream is not diverted through the bypass line.

(iii) Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position. The monitoring system shall be inspected at least once every month to ensure that it is functioning properly.

(iv) Use an automatic shutdown system in which the press is stopped when flow is diverted away from the control device to any bypass line. The automatic system shall be inspected at least once every month to ensure that it is functioning properly.

(2) Compliance monitoring shall be subject to the provisions of paragraphs (a)(2)(i) and (a)(2)(ii) of this section, as applicable.

(i) All continuous emission monitors shall comply with performance specifications (PS) 8 or 9 of 40 CFR part 60, appendix B, as appropriate. The requirements of Appendix F of 40 CFR part 60 shall also be followed. In conducting the quarterly audits required by appendix F, owners or operators must challenge the monitors with compounds representative of the gaseous emission stream being controlled.

(ii) All temperature monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturers specifications. The calibration of the chart recorder, data logger, or temperature indicator shall be verified every three months; or the chart recorder, data logger, or temperature indicator shall be replaced. The replacement shall be done either if the owner or operator chooses not to perform the calibration, or if the equipment cannot be calibrated properly.

(3) An owner or operator complying with §§ 63.824–63.825 through continuous emission monitoring of a control device shall install, calibrate, operate, and maintain continuous emission monitors to measure the total organic volatile matter concentration at both the control device inlet and the outlet.

(4) An owner or operator complying with the requirements of §§ 63.824–63.825 through the use of an oxidizer and demonstrating continuous compliance through monitoring of an oxidizer operating parameter shall:

(i) For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of ±1 percent of the temperature being monitored in °C or ±1 °C, whichever is greater. The thermocouple or temperature sensor shall be installed in the combustion chamber at a location in the combustion zone.

(ii) For a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature with an accuracy of ±1 percent of the temperature being monitored in °C or ±1 °C, whichever is greater. The thermocouple or temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet.

(5) An owner or operator complying with the requirements of §§ 63.824–63.825 through the use of a control device and demonstrating continuous compliance by monitoring an operating parameter to ensure that the capture efficiency measured during the initial compliance test is maintained, shall:

(i) Submit to the Administrator with the compliance status report required by § 63.9(h) of the General Provisions, a plan that

(A) Identifies the operating parameter to be monitored to ensure that the capture efficiency measured during the initial compliance test is maintained,

(B) Discusses why this parameter is appropriate for demonstrating ongoing compliance, and

(C) Identifies the specific monitoring procedures;

(ii) Set the operating parameter value, or range of values, that demonstrate compliance with §§ 63.824–63.825, and

(iii) Conduct monitoring in accordance with the plan submitted to the Administrator unless comments received from the Administrator require an alternate monitoring scheme.

(b) Any excursion from the required operating parameters which are monitored in accordance with paragraphs (a)(4) and (a)(5) of this section, unless otherwise excused, shall be considered a violation of the emission standard.

**§ 63.829 Recordkeeping requirements.**

(a) The recordkeeping provisions of 40 CFR part 63 subpart A of this part that apply and those that do not apply to owners and operators of affected sources subject to this subpart are listed in Table 1 of this subpart.

(b) Each owner or operator of an affected source subject to this subpart shall maintain the records specified in paragraphs (b)(1) through (b)(3) of this section on a monthly basis in accordance with the requirements of § 63.10(b)(1) of this part:

(1) Records specified in § 63.10(b)(2) of this part, of all measurements needed to demonstrate compliance with this standard, such as continuous emission monitor data, control device and capture system operating parameter data, material usage, HAP usage, volatile matter usage, and solids usage that support data that the source is required to report.

(2) Records specified in § 63.10(b)(3) of this part for each applicability determination performed by the owner or operator in accordance with the requirements of § 63.820(a) of this subpart, and

(3) Records specified in § 63.10(c) of this part for each continuous monitoring system operated by the owner or operator in accordance with the requirements of § 63.828(a) of this subpart.

(c) Each owner or operator of an affected source subject to this subpart shall maintain records of all liquid-liquid material balances performed in accordance with the requirements of §§ 63.824–63.825 of this subpart. The records shall be maintained in accordance with the requirements of § 63.10(b) of this part.

(d) The owner or operator of each facility which commits to the criteria of § 63.820(a)(2) shall maintain records of all required measurements and calculations needed to demonstrate compliance with these criteria, including the mass of all HAP containing materials used and the mass fraction of HAP present in each HAP containing material used, on a monthly basis.

(e) The owner or operator of each facility which meets the limits and criteria of § 63.821(b)(1) shall maintain records as required in paragraph (e)(1) of this section. The owner or operator of each facility which meets the limits and criteria of § 63.821(b)(2) shall maintain records as required in paragraph (e)(2) of this section. Owners or operators shall maintain these records for five years, and upon request, submit them to the Administrator.

(1) For each facility which meets the criteria of § 63.821(b)(1), the owner or operator shall maintain records of the total volume of each material applied on product and packaging rotogravure or wide-web flexographic printing presses during each month.

(2) For each facility which meets the criteria of § 63.821(b)(2), the owner or operator shall maintain records of the

total volume and organic HAP content of each material applied on product and packaging rotogravure or wide-web flexographic printing presses during each month.

(f) The owner or operator choosing to exclude from an affected source, a product and packaging rotogravure or wide-web flexographic press which meets the limits and criteria of § 63.821(a)(2)(ii)(A) shall maintain the records specified in paragraphs (f)(1) and (f)(2) of this section for five years and submit them to the Administrator upon request:

(1) The total mass of each material applied each month on the press, including all inboard and outboard stations, and

(2) The total mass of each material applied each month on the press by product and packaging rotogravure or wide-web flexographic printing operations.

**§ 63.830 Reporting requirements.**

(a) The reporting provisions of 40 CFR part 63 subpart A of this part that apply and those that do not apply to owners and operators of affected sources subject to this subpart are listed in Table 1 of this subpart.

(b) Each owner or operator of an affected source subject to this subpart shall submit the reports specified in paragraphs (b)(1) through (b)(6) of this section to the Administrator:

(1) An initial notification required in § 63.9(b).

(i) Initial notifications for existing sources shall be submitted no later than one year before the compliance date specified in § 63.826(a).

(ii) Initial notifications for new and reconstructed sources shall be submitted as required by § 63.9(b).

(iii) For the purpose of this subpart, a Title V or part 70 permit application may be used in lieu of the initial notification required under § 63.9(b), provided the same information is contained in the permit application as required by § 63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA.

(iv) Permit applications shall be submitted by the same due dates as those specified for the initial notifications.

(2) A Notification of Performance Tests specified in § 63.7 and § 63.9(e) of this part. This notification, and the site-specific test plan required under § 63.7(c)(2) shall identify the operating parameter to be monitored to ensure that the capture efficiency measured during the performance test is maintained. The operating parameter identified in the site-specific test plan shall be considered to be approved unless explicitly disapproved, or unless comments received from the Administrator require monitoring of an alternate parameter.

(3) A Notification of Compliance Status specified in § 63.9(h) of this part.

(4) Performance test reports specified in § 63.10(d)(2) of this part.

(5) Start-up, shutdown, and malfunction reports specified in § 63.10(d)(5) of this part, except that the provisions in subpart A pertaining to start-ups, shutdowns, and malfunctions do not apply unless a control device is used to comply with this subpart.

(i) If actions taken by an owner or operator during a start-up, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not completely consistent with the procedures specified in the source's start-up, shutdown, and malfunction plan specified in § 63.6(e)(3) of this part, the owner or operator shall state such information in the report. The start-up, shutdown, or malfunction report shall consist of a letter containing the name, title, and signature of the responsible official who is certifying its accuracy, that shall be submitted to the Administrator.

(ii) Separate start-up, shutdown, or malfunction reports are not required if the information is included in the report specified in paragraph (b)(6) of this section.

(6) A summary report specified in § 63.10(e)(3) of this part shall be submitted on a semi-annual basis (i.e., once every six-month period). In addition to a report of operating parameter exceedances as required by § 63.10(e)(3)(i), the summary report shall include, as applicable:

(i) Exceedances of the standards in §§ 63.824–63.825.

(ii) Exceedances of either of the criteria of § 63.820(a)(2).

(iii) Exceedances of the criterion of § 63.821(b)(1) and the criterion of § 63.821(b)(2) in the same month.

(iv) Exceedances of the criterion of § 63.821(a)(2)(ii)(A).

**§ 63.831 Delegation of authority.**

(a) In delegating implementation and enforcement authority to a State under 40 CFR part 63 subpart E of this part, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authority which will not be delegated to States: § 63.827(b), approval of alternate test method for organic HAP content determination; § 63.827(c), approval of alternate test method for volatile matter determination.

TABLE 1 TO SUBPART KK.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART KK

| General provisions reference | Applicable to subpart KK | Comment |
|---|---|---|
| § 63.1(a)(1)–(a)(4) | Yes. | |
| § 63.1(a)(5) | No | Section reserved. |
| § 63.1(a)(6)–(a)(8) | No. | |
| § 63.1(a)(9) | No | Section reserved. |
| § 63.1(a)(10)–(a)(14) | Yes. | |
| § 63.1(b)(1) | No | Subpart KK specifies applicability. |
| § 63.1(b)(2)–(b)(3) | Yes. | |
| § 63.1(c)(1) | Yes. | |
| § 63.1(c)(2) | No | Area sources are not subject to subpart KK. |
| § 63.1(c)(3) | No | Section reserved. |
| § 63.1(c)(4) | Yes. | |
| § 63.1(c)(5) | No. | |
| § 63.1(d) | No | Section reserved. |
| § 63.1(e) | Yes. | |
| § 63.2 | Yes | Additional definitions in subpart KK. |
| § 63.3(a)–(c) | Yes. | |
| § 63.4(a)(1)–(a)(3) | Yes. | |
| § 63.4(a)(4) | No | Section reserved. |

TABLE 1 TO SUBPART KK.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART KK—Continued

| General provisions reference | Applicable to subpart KK | Comment |
|---|---|---|
| §63.4(a)(5) | Yes. | |
| §63.4(b–c) | Yes. | |
| §63.5(a)(1)–(a)(2) | Yes. | |
| §63.5(b)(1) | Yes. | |
| §63.5(b)(2) | No | Section reserved. |
| §63.5(b)(3)–(b)(6) | Yes. | |
| §63.5(c) | No | Section reserved. |
| §63.5(d) | Yes. | |
| §63.5(e) | Yes. | |
| §63.5(f) | Yes. | |
| §63.6(a) | Yes. | |
| §63.6(b)(1)–(b)(5) | Yes. | |
| §63.6(b)(6) | No | Section reserved. |
| §63.6(b)(7) | Yes. | |
| §63.6(c)(1)–(c)(2) | Yes. | |
| §63.6(c)(3)–(c)(4) | No | Sections reserved. |
| §63.6(c)(5) | Yes. | |
| §63.6(d) | No | Section reserved. |
| §63.6(e) | Yes | Provisions pertaining to start-ups, shutdowns, malfunctions, and CMS do not apply unless an add-on control system is used. |
| §63.6(f) | Yes. | |
| §63.6(g) | Yes. | |
| §63.6(h) | No | Subpart KK does not require COMS. |
| §63.6(i)(1)–(i)(14) | Yes. | |
| §63.6(i)(15) | No | Section reserved. |
| §63.6(i)(16) | Yes. | |
| §63.6(j) | Yes. | |
| §63.7 | Yes. | |
| §63.8(a)(1)–(a)(2) | Yes. | |
| §63.8(a)(3) | No | Section reserved. |
| §63.8(a)(4) | No | Subpart KK specifies the use of solvent recovery devices or oxidizers. |
| §63.8(b) | Yes. | |
| §63.8(c)(1)–(3) | Yes. | |
| §63.8(c)(4) | No | Subpart KK specifies CMS sampling requirements. |
| §63.8(c)(5) | No | Subpart KK does not require COMS. |
| §63.8(c)(6)–(c)(8) | Yes | Provisions for COMS are not applicable. |
| §63.8(d)–(f) | Yes. | |
| §63.8(g) | No | Subpart KK specifies CMS data reduction requirements. |
| §63.9(a) | Yes. | |
| §63.9(b)(1) | Yes. | |
| §63.9(b)(2) | Yes | Initial notification submission date extended. |
| §63.9(b)(3)–(b)(5) | Yes. | |
| §63.9(c)–(e) | Yes. | |
| §63.9(f) | No | Subpart KK does not require opacity and visible emissions observations. |
| §63.9(g) | Yes | Provisions for COMS are not applicable. |
| §63.9(h)(1)–(h)(3) | Yes. | |
| §63.9(h)(4) | No | Section reserved. |
| §63.9(h)(5)–(h)(6) | Yes. | |
| §63.9(i) | Yes. | |
| §63.9(j) | Yes. | |
| §63.10(a) | Yes. | |
| §63.10(b)(1)–(b)(3) | Yes. | |
| §63.10(c)(1) | Yes. | |
| §63.10(c)(2)–(c)(4) | No | Sections reserved. |
| §63.10(c)(5)–(c)(8) | Yes. | |
| §63.10(c)(9) | No | Section reserved. |
| §63.10(c)(10)–(c)(15) | Yes. | |
| §63.10(d)(1)–(d)(2) | Yes. | |
| §63.10(d)(3) | No | Subpart KK does not require opacity and visible emissions observations. |
| §63.10(d)(4)–(d)(5) | Yes. | |
| §63.10(e) | Yes | Provisions for COMS are not applicable. |
| §63.10(f) | Yes. | |
| §63.11 | No | Subpart KK specifies the use of solvent recovery devices or oxidizers. |
| §63.12 | Yes. | |
| §63.13 | Yes. | |
| §63.14 | Yes. | |
| §63.15 | Yes. | |

Appendix A to Subpart KK—Data Quality Objective and Lower Confidence Limit Approaches for Alternative Capture Efficiency Protocols and Test Methods

*1. Introduction*

1.1 Alternative capture efficiency (CE) protocols and test methods that satisfy the criteria of either the data quality objective (DQO) approach or the lower confidence limit (LCL) approach are acceptable under § 63.827(f). The general criteria for alternative CE protocols and test methods to qualify under either the DQO or LCL approach are described in section 2. The DQO approach and criteria specific to the DQO approach are described in section 3. The LCL approach and criteria specific to the LCL approach are described in section 4. The recommended reporting for alternative CE protocols and test methods are presented in section 5. The recommended recordkeeping for alternative CE protocols and test methods are presented in section 6.

1.2 Although the Procedures L, G.1, G.2, F.1, and F.2 in § 52.741 of part 52 were developed for TTE and BE testing, the same procedures can also be used in an alternative CE protocol. For example, a traditional liquid/gas mass balance CE protocol could employ Procedure L to measure liquid VOC input and Procedure G.1 to measure captured VOC.

*2. General Criteria for DQO and LCL Approaches*

2.1 The following general criteria must be met for an alternative capture efficiency protocol and test methods to qualify under the DQO or LCL approach.

2.2 An alternative CE protocol must consist of at least three valid test runs. Each test run must be at least 20 minutes long. No test run can be longer than 24 hours.

2.3 All test runs must be separate and independent. For example, liquid VOC input and output must be determined independently for each run. The final liquid VOC sample from one run cannot be the initial sample for another run. In addition, liquid input for an entire day cannot be apportioned among test runs based on production.

2.4 Composite liquid samples cannot be used to obtain an ''average composition'' for a test run. For example, separate initial and final coating samples must be taken and analyzed for each run; initial and final samples cannot be combined prior to analysis to derive an ''average composition'' for the test run.

2.5 All individual test runs that result in a CE of greater than 105 percent are invalid and must be discarded.

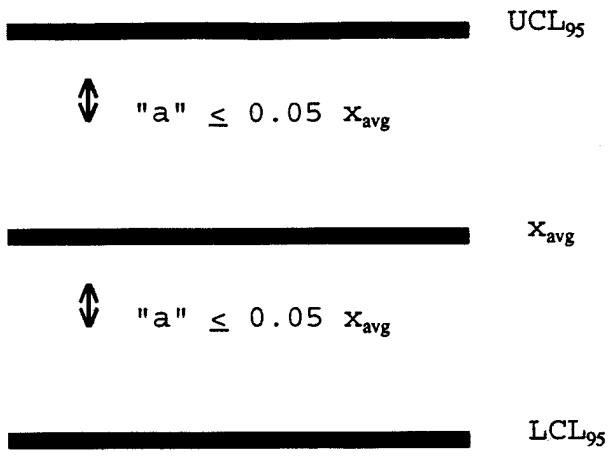
2.6 If the source can demonstrate to the regulatory agency that a test run should not be considered due to an identified testing or analysis error such as spillage of part of the sample during shipping or an upset or improper operating conditions that is not considered part of normal operation then the test result for that individual test run may be discarded. This limited exception allows sources to discard as ''outliers'' certain individual test runs without replacing them with a valid test run as long as the facility has at least three valid test runs to use when calculating its DQO or LCL. This exception is limited solely to test runs involving the types of errors identified above.

2.7 All valid test runs that are conducted must be included in the average CE determination. The individual test run CE results and average CE results cannot be truncated (i.e., 105 percent cannot be reported as 100+ percent) for purposes of meeting general or specific criteria for either the DQO or the LCL. If the DQO is satisfied and the average CE is greater than 100, then 100 percent CE must be considered the result of the test.

2.8 Alternative test methods for measuring VOC concentration must include a three-point calibration of the gas analysis instrument in the expected concentration range.

*3. Data Quality Objective Approach*

3.1 The purpose of the DQO is to allow sources to use alternative CE protocols and test methods while ensuring reasonable precision consistent with pertinent requirements of the Clean Air Act. In addition to the general criteria described in section 2, the specific DQO criterion is that the width of the two-sided 95 percent confidence interval of the mean measured value must be less than or equal to 10 percent of the mean measured value (see Figure 1). This ensures that 95 percent of the time, when the DQO is met, the actual CE value will be ±5 percent of the mean measured value (assuming that the test protocol is unbiased).




3.2 The DQO calculation is made as follows using Equations 1 and 2:

$$P = \frac{a}{x_{avg}} 100 \qquad \text{Eq 1}$$

$$a = \frac{t_{0.975}\, s}{\sqrt{n}} \qquad \text{Eq 2}$$

Where:

a=distance from the average measured CE value to the endpoints of the 95-percent (two-sided) confidence interval for the measured value.

n=number of valid test runs.

P=DQO indicator statistic, distance from the average measured CE value to the endpoints of the 95-percent (two-sided) confidence interval, expressed as a percent of the average measured CE value.

s=sample standard deviation.

$t_{0.975}$=t-value at the 95-percent confidence level (see Table 1).

$x_{avg}$=average measured CE value (calculated from all valid test runs).

$x_i$=the CE value calculated from the ith test run.

| Number of valid test runs, n | $t_{0.975}$ | $t_{0.90}$ | Number of valid test runs, n | $t_{0.975}$ | $t_{0.90}$ |
|---|---|---|---|---|---|
| 1 or 2 | N/A | N/A | 12 | 2.201 | 1.363 |
| 3 | 4.303 | 1.886 | 13 | 2.179 | 1.356 |
| 4 | 3.182 | 1.638 | 14 | 2.160 | 1.350 |
| 5 | 2.776 | 1.533 | 15 | 2.145 | 1.345 |
| 6 | 2.571 | 1.476 | 16 | 2.131 | 1.341 |
| 7 | 2.447 | 1.440 | 17 | 2.120 | 1.337 |
| 8 | 2.365 | 1.415 | 18 | 2.110 | 1.333 |
| 9 | 2.306 | 1.397 | 19 | 2.101 | 1.330 |
| 10 | 2.262 | 1.383 | 20 | 2.093 | 1.328 |
| 1 | 12.228 | 1.372 | 21 | 2.086 | 1.325 |

Table 1.—T-Values

3.3 The sample standard deviation and average CE value are calculated using Equations 3 and 4 as follows:

$$s = \left[ \frac{\sum_{i=1}^{n} \left( x_i - x_{avg} \right)^2}{n-1} \right]^{0.5} \qquad \text{Eq 3}$$

$$x_{avg} = \frac{\sum_{i=1}^{n} x_i}{n} \qquad \text{Eq 4}$$

3.4 The DQO criteria are achieved when all of the general criteria in section 2 are achieved and P ≤5 percent (i.e., the specific DQO criterion is achieved). In order to meet this objective, facilities may have to conduct more than three test runs. Examples of calculating P, given a finite number of test runs, are shown below. (For purposes of this example it is assumed that all of the general criteria are met.)

3.5 Facility A conducted a CE test using a traditional liquid/gas mass balance and submitted the following results and the calculations shown in Equations 5 and 6:

| Run | CE |
|---|---|
| 1 | 96.1 |
| 2 | 105.0 |
| 3 | 101.2 |

Therefore:

n=3

$t_{0.975}$=4.30

$x_{avg}$=100.8

s=4.51

$$a = \frac{(4.30)(4.51)}{\sqrt{n}} = 11.20 \qquad \text{Eq 5}$$

$$P = \frac{11.2}{100.8}100 = 11.11 \qquad \text{Eq 6}$$

3.6 Since the facility did not meet the specific DQO criterion, they ran three more test runs.

| Run | CE |
|---|---|
| 4 | 93.2 |
| 5 | 96.2 |
| 6 | 87.6 |

3.7 The calculations for Runs 1–6 are made as follows using Equations 7 and 8:

n=6
$t_{0.975}$=2.57
$x_{avg}$=96.6
s=6.11

$$a = \frac{(2.57)(6.11)}{\sqrt{6}} = 6.41 \qquad \text{Eq 7}$$

$$P = \frac{6.41}{96.6}100 = 6.64 \qquad \text{Eq 8}$$

3.8 The facility still did not meet the specific DQO criterion. They ran three more test runs with the following results:

| Run | CE |
|---|---|
| 7 | 92.9 |
| 8 | 98.3 |
| 9 | 91.0 |

3.9 The calculations for Runs 1–9 are made as follows using Equations 9 and 10:

n=9
$t_{0.975}$=2.31
$x_{avg}$=95.7
s=5.33

$$a = \frac{(2.31)(5.33)}{\sqrt{9}} = 4.10 \qquad \text{Eq 9}$$

$$P = \frac{4.10}{95.7}100 = 4.28 \qquad \text{Eq 10}$$

3.10 Based on these results, the specific DQO criterion is satisfied. Since all of the general criteria were also satisfied, the average CE from the nine test runs can be used to determine compliance.

*4. Lower Confidence Limit Approach*

4.1 The purpose of the LCL approach is to provide sources, that may be performing much better than their applicable regulatory requirement, a screening option by which they can demonstrate compliance. The approach uses less precise methods and avoids additional test runs which might otherwise be needed to meet the specific DQO criterion while still being assured of correctly demonstrating compliance. It is designed to reduce ''false positive'' or so called ''Type II errors'' which may erroneously indicate compliance where more variable test methods are employed. Because it encourages CE performance greater than that required in exchange for reduced compliance demonstration burden, the sources that successfully use the LCL approach could produce emission reductions beyond allowable emissions. Thus, it could provide additional benefits to the environment as well.

4.2 The LCL approach compares the 80 percent (two-sided) LCL for the mean measured CE value to the applicable CE regulatory requirement. In addition to the general criteria described in section 2, the specific LCL criteria are that either the LCL be greater than or equal to the applicable CE regulatory requirement or that the specific DQO criterion is met. A more detailed description of the LCL approach follows:

4.3 A source conducts an initial series of at least three runs. The owner or operator may choose to conduct additional test runs during the initial test if desired.

4.4 If all of the general criteria are met and the specific DQO criterion is met, then the average CE value is used to determine compliance.

4.5 If the data meet all of the general criteria, but do not meet the specific DQO criterion; and the average CE, using all valid test runs, is above 100 percent then the test sequence cannot be used to calculate the LCL. At this point the facility has the option of (a) conducting more test runs in hopes of meeting the DQO or of bringing the average CE for all test runs below 100 percent so the LCL can be used or (b) discarding all previous test data and retesting.

4.6 The purpose of the requirement in Section 4.5 is to protect against protocols and test methods which may be inherently biased high. This is important because it is impossible to have an actual CE greater than 100 percent and the LCL approach only looks at the lower end variability of the test results. This is different from the DQO which allows average CE values up to 105 percent because the DQO sets both upper and lower limits on test variability.

4.7 If at any point during testing the results meet the DQO, the average CE can be used for demonstrating compliance with the applicable regulatory requirement. Similarly, if the average CE is below 100 percent then the LCL can be used for demonstrating compliance with the applicable regulatory requirement without regard to the DQO.

4.8 The LCL is calculated at a 80 percent (two-sided) confidence level as follows using Equation 11:

$$LC_1 = x_{avg} - \frac{t_{0.90}s}{\sqrt{n}} \qquad \text{Eq 11}$$

Where:

$LC_1$=LCL at a 80 percent (two-sided) confidence level.
n=number of valid test runs.
s=sample standard deviation.
$t_{0.90}$=t-value at the 80-percent (two-sided) confidence level (see Table 3–1).
$x_{avg}$=average measured CE value (calculated from all valid test runs).

4.9 The resulting $LC_1$ is compared to the applicable CE regulatory requirement. If $LC_1$ exceeds (i.e., is higher than) the applicable regulatory requirement, then a facility is in initial compliance. However, if the $LC_1$ is below the CE requirement, then the facility must conduct additional test runs. After this point the test results will be evaluated not only looking at the LCL, but also the DQO of ±5 percent of the mean at a 95 percent confidence level. If the test results with the additional test runs meet the DQO before the LCL exceeds the applicable CE regulatory requirement, then the average CE value will be compared to the applicable CE regulatory requirement for determination of compliance.

4.10 If there is no specific CE requirement in the applicable regulation, then the applicable CE regulatory requirement is determined based on the applicable regulation and an acceptable destruction efficiency test. If the applicable regulation requires daily compliance and the latest CE compliance demonstration was made using the LCL approach, then the calculated $LC_1$ will be the highest CE value which a facility is allowed to claim until another CE demonstration test is conducted. This last requirement is necessary to assure both sufficiently reliable test results in all circumstances and the potential environmental benefits referenced above.

4.11 An example of calculating the LCL is shown below. Facility B's applicable regulatory requirement is 85 percent CE. Facility B conducted a CE test using a traditional liquid/gas mass balance and submitted the following results and the calculation shown in Equation 12:

| Run | CE |
|---|---|
| 1 | 94.2 |
| 2 | 97.6 |
| 3 | 90.5 |

Therefore:

n=3
$t_{0.90}$=1.886
$x_{avg}$=94.1
s=3.55

$$LC_1 = 94.1 - \frac{(1.886)(3.55)}{\sqrt{3}} = 90.23 \qquad \text{Eq 12}$$

4.12 Since the $LC_1$ of 90.23 percent is above the applicable regulatory requirement of 85 percent then the facility is in compliance. The facility must continue to accept the $LC_1$ of 90.23 percent as its CE value until a new series of valid tests is conducted. (The data generated by Facility B do not meet the specific DQO criterion.)

*5. Recommended Reporting for Alternative CE Protocols*

5.1 If a facility chooses to use alternative CE protocols and test methods that satisfy either the DQO or LCL and the additional criteria in section 4., the following information should be submitted with each test report to the appropriate regulatory agency:

1. A copy of all alternative test methods, including any changes to the EPA reference methods, QA/QC procedures and calibration procedures.

2. A table with information on each liquid sample, including the sample identification, where and when the sample was taken, and the VOC content of the sample;

3. The coating usage for each test run (for protocols in which the liquid VOC input is to be determined);

4. The quantity of captured VOC measured for each test run;

5. The CE calculations and results for each test run;

6. The DQO or LCL calculations and results; and

7. The QA/QC results, including information on calibrations (e.g., how often the instruments were calibrated, the calibration results, and information on calibration gases, if applicable).

*6. Recommended Recordkeeping for Alternative CE Protocols.*

6.1 A record should be kept at the facility of all raw data recorded during the test in a suitable form for submittal to the appropriate regulatory authority upon request.

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