ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[FRL–7163–3]

RIN 2060–AH89

National Emission Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule and notice of revisions to list of categories of major and area sources and to the promulgation schedule for standards.

SUMMARY: This action adds wet-formed fiberglass mat production to the list of categories of major sources of hazardous air pollutants (HAP) published under section 112(c) of the Clean Air Act (CAA) and to the source category schedule for national emission standards for hazardous air pollutants (NESHAP).

This action promulgates the NESHAP for new and existing sources at wet-formed fiberglass mat production facilities. The primary organic HAP emitted by these facilities are formaldehyde, methanol, and vinyl acetate. Exposure to these HAP can cause reversible or irreversible adverse health effects including carcinogenic, respiratory, nervous system, developmental, reproductive, and/or dermal health effects. These NESHAP will reduce nationwide emissions of HAP from the drying and curing ovens at these facilities by 199 megagrams per year (Mg/yr) (219 tons per year or tons/yr), an approximate 74 percent reduction from the current level of emissions.

These NESHAP are based on the Administrator's determination that wet-formed fiberglass mat production facilities emit several of the 188 HAP listed in the CAA from the various process operations found within the industry, and that these facilities can be major sources of HAP. These NESHAP will protect the public by requiring all wet-formed fiberglass mat production facilities that are major sources to meet HAP emission standards reflecting the application of the maximum achievable control technology (MACT).

EFFECTIVE DATE: April 11, 2002. The incorporation by reference of certain publications listed in the subpart is approved by the Director of the Federal Register as of April 11, 2002.

ADDRESSES: *Docket.* Docket No. A–97–54 contains the information considered by EPA in developing this rule. This docket is located at the U.S. Environmental Protection Agency, Air and Radiation Docket and Information Center, 401 M Street, SW., Room M–1500, Waterside Mall, Washington, DC 20460 and may be inspected from 8 a.m. to 5:30 p.m., Monday through Friday, excluding legal holidays.

FOR FURTHER INFORMATION CONTACT: For information concerning the final rule, contact Mr. Juan Santiago, Minerals and Inorganic Chemicals Group, Emission Standards Division (MD–13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541–1084, e-mail address: *santiago.juan@epa.gov.* For information regarding Method 316 or Method 318, contact Ms. Rima N. Howell; Emissions, Monitoring, and Analysis Division (MD–19); U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541–0443, e-mail address: *howell.rima@epa.gov.*

SUPPLEMENTARY INFORMATION: *Docket.* The docket is an organized and complete file of all the information considered by EPA in the development of this rulemaking. The docket is a dynamic file because material is added throughout the rulemaking process. 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. Along with the proposed and promulgated standards and their preambles, the contents of the docket will serve as the record in the case of judicial review. (See section 307(d)(7)(A) of the CAA.) The regulatory text and other materials related to this rulemaking are available for review in the docket or copies may be mailed on request from the Air and Radiation Docket and Information Center by calling (202) 260–7548. A reasonable fee may be charged for copying docket materials.

Worldwide Web (WWW). In addition to being available in the docket, an electronic copy of this notice will be available on the WWW through the Technology Transfer Network (TTN). Following signature, a copy of the notice will be posted on the TTN's policy and guidance page at *http://www.epa.gov/ttn/oarpg.* The TTN provides information and technology exchange in various areas of air pollution control. If more information regarding the TTN is needed, call the TTN HELP line at (919) 541–5384.

Regulated Entities. Entities potentially regulated by this action are those industrial facilities that manufacture wet-formed fiberglass mat. Wet-formed fiberglass mat production is classified under Standard Industrial Classification (SIC) code 3229325; the NAICS code is 327212, Non-woven Fabric Mills. Regulated categories and entities are shown in table 1. This table is not intended to be exhaustive, but provides a guide for readers regarding entities likely to be regulated by the final rule. This table lists the types of entities that EPA is now aware could potentially be regulated by the final rule. To determine whether your facility would be regulated by the final rule, carefully examine the applicability criteria in § 63.2981 of the final rule. If there are any questions regarding the applicability of this action to a particular entity, consult Mr. Juan Santiago (See **FOR FURTHER INFORMATION CONTACT**).

TABLE 1.—REGULATED CATEGORIES AND ENTITIES

Category	SIC/NAICS	Description
Industrial	3229325/327212	Wet-formed fiberglass mat production facilities.

Judicial Review. These NESHAP for wet-formed fiberglass mat production facilities were proposed on May 26, 2000 (65 FR 34278). This action announces EPA's final decisions on the rule. Under section 307(b)(1) of the CAA, judicial review of the NESHAP is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of April 11, 2002. Under section 307(b)(2) of the CAA, the requirements that are the subject of today's final action may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

Organization of this Document. The information in this preamble is organized as follows:

I. Background

A. Regulatory Background and Addition to Source Category List

Section 112(c) of the CAA directs us to list each category of major and area sources, as appropriate, that emits one or more of the 188 HAP listed in section 112(b) of the CAA. The term ''major source'' is defined in section 112(a)(1) to mean:

* * * any stationary source or group of stationary sources located within a contiguous area under common control that emits or has the potential to emit, considering controls, in the aggregate 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants * * *.

We published an initial list of source categories on July 16, 1992 (57 FR 31576). Included on the initial source category list were major sources of HAP emissions from the asphalt roofing and processing industry.

As stated in the preamble to the proposed rule (65 FR 34279; May 26, 2000), during development of the asphalt roofing and processing NESHAP, industry representatives informed us of the existence of the wet-formed fiberglass mat production industry and its relationship to the asphalt roofing production industry. We proposed separate NESHAP for wet-formed fiberglass mat production because the production processes and pollutant emissions differ from those in the asphalt roofing industry. In addition, wet-formed fiberglass mat is produced at both stand-alone facilities and those collocated with asphalt roofing and processing facilities. The CAA provides that we may amend the source category list anytime. Consequently, we proposed adding wet-formed fiberglass mat production to the source category list under section 112(c) of the CAA.

Wet-formed fiberglass mat is the substrate for several asphalt roofing products. In wet-formed fiberglass mat production, glass fibers are bonded with an organic resin. The mat is formed as the resin is dried and cured in heated ovens. The majority of HAP emissions associated with wet-formed fiberglass mat production are emitted from the drying and curing oven exhaust. Based on HAP emission data obtained during the development of the rule, we have determined that all wet-formed fiberglass mat production facilities are major sources of HAP. Nine of the 14 facilities (10 of the 15 production lines) control the drying and curing oven exhaust emissions. Several of the five remaining facilities that do not control the drying and curing oven exhaust are also major sources of HAP.

We received no public comments that were opposed to adding wet-formed fiberglass mat facilities to the source category list. Therefore, today's action adds wet-formed fiberglass mat production to the list of source categories under section 112(c) of the CAA for which MACT standards are to be developed. Section 112(c)(5) requires that final standards for this source category be promulgated no later than May 26, 2002 (2 years after adding the source category to the list). Today's action satisfies that requirement.

B. What Is the Source of Authority for Development of NESHAP?

Section 112 of the CAA requires us to promulgate standards for the control of HAP emissions from each source category listed under section 112(c). The statute requires the standards to reflect the maximum degree of reduction in emissions of HAP that is achievable taking into consideration the cost of achieving the emission reduction, any non-air quality health and environmental impacts, and energy requirements. This level of control is commonly referred to as MACT. The MACT standards can be based on the emission reductions achievable through application of measures, processes, methods, systems, or techniques including, but not limited to: (1) Reducing the volume of, or eliminating emissions of, such pollutants through process changes, substitution of materials, or other modifications; (2) enclosing systems or processes to eliminate emissions; (3) collecting, capturing, or treating such pollutants when released from a process, stack, storage, or fugitive emissions point; (4) design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in section 112(h) of the CAA; or (5) a combination of the above (see section 112(d)(2) of the CAA).

For new sources, MACT standards cannot be less stringent than the emission control achieved in practice by the best-controlled similar source (see section 112(d)(3) of the CAA). The MACT standards for existing sources can be less stringent than standards for new sources. However, they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources for categories and subcategories with 30 or more sources, or the best-performing five sources for categories or subcategories with fewer than 30 sources.

The MACT floor is the minimum control level allowed for NESHAP and is defined under section 112(d)(3) of the CAA. In essence, MACT standards are designed to ensure that all major sources of air toxic emissions achieve the level of control already being achieved by the better-controlled and lower-emitting sources in each category or subcategory. This approach provides assurance to the public that each major source of toxic air pollution will be required to effectively control its emissions. At the same time, this

approach provides a level economic playing field, ensuring that facilities that employ cleaner processes and good emission controls are not disadvantaged relative to competitors with poorer controls.

In developing MACT, we also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on consideration of the cost of achieving the emission reductions, any non-air quality health and environmental impacts, and energy requirements.

C. What Are the Health Effects of Pollutants Emitted From This Source Category?

The CAA was created, in part, ''to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population'' (see section 101(b) of the CAA). These NESHAP will protect public health by reducing emissions of HAP from wet-formed fiberglass mat production facilities.

Emission data collected during development of the NESHAP show that formaldehyde, vinyl acetate, and methanol are emitted from wet-formed fiberglass mat production facilities. The emission limits in these NESHAP will reduce emissions of these pollutants emitted from drying and curing ovens. As a result of controlling these HAP, the final NESHAP will also reduce emissions of volatile organic compounds (VOC). A summary of the potential health effects caused by exposure to these pollutants is presented in the preamble to the proposed rule (65 FR 34280; May 26, 2000).

D. Stakeholder and Public Participation

Various stakeholders were involved in the development of these standards. Individual wet-formed fiberglass mat production facilities and the Technical Association of the Pulp and Paper Industry (TAPPI) were consulted throughout the development of these standards. Representatives from State and Regional enforcement agencies, as well as representatives from other offices within EPA, participated in the regulatory development process by reviewing and commenting on the standards during development.

The NESHAP for wet-formed fiberglass mat production (40 CFR part 63, subpart HHHH) was proposed in the **Federal Register** on May 26, 2000 (65 FR 34278). The public comment period ended on July 25, 2000. Industry representatives, regulatory authorities, and environmental groups had the opportunity to comment on the proposed NESHAP and to provide additional information during the public comment period. Although the Agency offered the opportunity at proposal for oral presentation of data, views, or arguments concerning the proposed rule, no one requested a hearing and, therefore, a hearing was not held. The EPA received five letters containing comments on the proposed NESHAP from various groups including a State university and two trade associations representing industry. These final NESHAP reflect EPA's full consideration of the comments. The major public comments, along with EPA's responses to these comments on the proposed rule, are summarized in this preamble. A discussion of all public comments and EPA's responses is contained in the docket.

II. What Are the Requirements of These NESHAP?

A. Do These NESHAP Apply to Me?

These NESHAP apply to you if you own or operate an existing or newly constructed or reconstructed drying and curing oven located at a wet-formed fiberglass mat production facility that is a major source of HAP or that is collocated with a major source of HAP emissions. A major source means any source that has the potential to emit 10 tons/yr or more of any one HAP or 25 tons/yr or more of any combination of HAP.

You would not be subject to the NESHAP if your facility is determined to be an area source. An area source of HAP is any facility that is not a major source as defined in 40 CFR part 63, subpart A.

B. What Emission Limits Must I Meet?

These NESHAP regulate emissions of formaldehyde as a surrogate for total HAP emissions. Control of formaldehyde by thermal oxidation will also result in control of vinyl acetate and methanol. You must meet either a mass HAP emission limit or percentage reduction requirement for each drying and curing oven. The HAP emission limits are the same for new and existing drying and curing ovens. The HAP emission limits for the exhaust from new and existing drying and curing ovens are a maximum formaldehyde emission rate of 0.03 kilograms per megagram (kg/Mg) of wet-formed fiberglass mat produced (0.05 pounds per ton (lb/ton) of wet-formed fiberglass mat produced) or a minimum of 96 percent destruction efficiency of formaldehyde (as shown in Table 2). You can choose to comply with either the emission rate limit or the percent reduction requirement. If you use a thermal oxidizer or other control device to achieve the mass emission limit or percentage reduction requirement, you must collect and convey the emissions from each drying and curing oven to the control device according to the procedures specified in chapters 3 and 5 of ''Industrial Ventilation: A Manual of Recommended Practice.'' Section 63.3003 of the rule explains how to obtain a copy of this reference.

TABLE 2.—SUMMARY OF EMISSION LIMITS FOR NEW AND EXISTING DRYING AND CURING OVENS AT WET-FORMED FIBERGLASS MAT MANUFACTURING PLANTS

Process	Emission limit
Each existing and new drying and curing oven.	0.03 kg of formaldehyde per Mg of fiberglass mat (0.05 lb of formaldehyde per ton of fiberglass mat) or 96 percent reduction of formaldehyde.

C. What Operating Limits Must I Meet?

In addition to the emission limits, the final NESHAP contain specific operating limits, summarized in Table 3. The operating limits require you to maintain certain process or control device parameters within the levels established during the initial performance test. All operating limits must reflect operation of the process and control device during a performance test that demonstrates achievement of the emission limit during operating conditions that would achieve the highest potential emission rate.

TABLE 3.—SUMMARY OF OPERATING LIMITS FOR NEW AND EXISTING AFFECTED SOURCES

Affected source	Parameter, operation, or process to monitor	Operating limits
Each affected drying and curing oven (regardless of control technology).	Resin free-formaldehyde content, and	Use a resin with a free-formaldehyde content no greater than that of the resin used during the performance test, as determined by the resin purchase specification or test method.
	Application rate of urea-formaldehyde resin solids, and	Do not exceed the urea-formaldehyde resin solids application rate achieved during the performance test.
	Corrective action	Initiate corrective action within 1 hour of an established operating parameter deviation and complete and document action per operation, maintenance and monitoring plan.
Each affected drying and curing oven controlled by a thermal oxidizer.	Thermal oxidizer operating temperature, and	Maintain the average temperature for each 3-hour period at or above the average operating temperature achieved during the performance test.
	Thermal oxidizer operation	Operate the thermal oxidizer in accordance with the operation, maintenance, and monitoring plan; annually inspect the thermal oxidizer for structural and design integrity.
Each affected drying and curing oven controlled by process modifications or a control device other than a thermal oxidizer.	Process or control device parameters.	Maintain the process or control device parameter within the ranges established during the performance test.

You must also prepare an operation, maintenance, and monitoring (OMM) plan. The OMM plan must specify the parameters that must be monitored, how they will be monitored, the operating limits, and the corrective actions that must be followed whenever a monitored parameter deviates from the operating limits. The OMM plan shall be incorporated by reference into your title V permit.

Following the performance test, whenever you detect that a monitored parameter deviates from the established operating limits, you must initiate the corrective actions specified in the OMM plan within 1 hour. You must complete the corrective actions in an expeditious manner and implement them as specified in your OMM plan.

If you use a thermal oxidizer to achieve compliance with the emission limits, you must operate the thermal oxidizer so that the average operating temperature in any 3-hour block period does not fall below the average temperature established during the performance test. Additionally, an annual inspection of the thermal oxidizer is required to ensure that the structural and design integrity of the combustion chamber is maintained in the same condition as during the performance test. If you use process modifications or an add-on control device other than a thermal oxidizer to achieve compliance with the emission standards, you must maintain the process or control device parameter(s) within the operating limits that you established during the performance test. In addition, you must receive EPA Administrator approval for the alternative monitoring. You must also include the alternative monitoring and alternative operating limits in your OMM plan, which is incorporated by reference into your title V permit.

The operating limits also require you to maintain the free-formaldehyde content of the resin and the urea-formaldehyde resin solids application rate within the levels you established during a compliance test and as specified in your OMM plan. These operating limits apply regardless of which type of control you use to comply with the HAP emission limits.

D. What Are the Performance Test and Initial Compliance Provisions of These NESHAP?

You must conduct a performance test to demonstrate initial compliance with the emission limits. The performance test must be performed initially and every 5 years following the initial performance test. A performance test is also required to change the value or range of an operating limit. Under the final NESHAP, you must conduct the performance test while operating at the maximum urea-formaldehyde resin solids application rate and using the resin with the highest free-formaldehyde content. You must measure formaldehyde emissions as the average of three test runs using EPA Method 316 in appendix A of 40 CFR part 63, ''Sampling and Analysis for Formaldehyde from Stationary Sources in the Mineral Wool and Wool Fiberglass Industries'' or EPA Method 318 in appendix A of 40 CFR part 63, ''Extractive FTIR Method for the Measurement of Emissions from the Mineral Wool and Wool Fiberglass Industries.'' You must demonstrate compliance with either the mass emission limit or the percentage reduction requirement using the instructions and equations contained in the performance test requirements section of these final NESHAP.

If you use a thermal oxidizer to comply with these NESHAP, you must conduct a performance evaluation for the thermal oxidizer temperature monitoring device prior to the initial performance test to determine compliance. The evaluation must be conducted according to the procedures in 40 CFR 63.8(e) of the NESHAP general provisions. The temperature monitoring device must meet the following performance and equipment specifications: (1) The temperature monitoring device must be installed either at the exit of the combustion zone of each thermal oxidizer or at the location specified by the manufacturer, and the device must be installed in a location before any heat recovery or heat exchange equipment; (2) the recorder response range must include zero and 1.5 times the average temperature; and (3) the reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or an alternate reference, subject to the approval of the Administrator.

During the performance tests, you must continuously monitor the thermal oxidizer operating temperature and record the average temperature in 15-minute blocks during each 1-hour test run. After completion of the three required test runs, you must determine the 3-hour average operating temperature of the thermal oxidizer. If you use process modifications or an add-on control device other than a thermal oxidizer to comply with the emission limits, you must determine the

appropriate control device or process parameters to monitor to indicate whether compliance is being achieved. You must include the process or control device parameters, monitoring frequency, and the averaging periods in your site-specific test plan required by the 40 CFR part 63 general provisions prior to conducting your initial performance test. You may perform multiple tests to establish the least restrictive value or operating range for the selected parameters that still demonstrate compliance.

During the performance tests, you must also determine and record the average hourly urea-formaldehyde resin solids application rate during each of the three test runs and the free-formaldehyde content of the resin used to produce the mat.

The final NESHAP allow facilities subject to the NESHAP to conduct short-term experimental production runs, where the resin free-formaldehyde content or urea-formaldehyde resin solids application rate deviate from the levels established during previous performance tests, without conducting additional performance tests. You must apply for approval from the Administrator or delegated State agency to conduct such experimental production runs. The application must be made at least 30 days prior to conducting the run. The application would include information on the nature and duration of the test runs including plans to perform emissions testing. If you conduct such experimental production runs without first receiving approval from the Administrator or delegated State agency, then you must conduct a performance test under those same experimental run conditions to show that you were in compliance with the formaldehyde emission limit or percent reduction.

E. What Monitoring Requirements Must I Meet?

Continuous compliance is demonstrated after the initial performance test and between subsequent performance tests by monitoring operating parameters of emission control devices and processes. The allowable monitoring parameter values or ranges are determined during your initial performance test and must be included in your OMM plan.

If you use a thermal oxidizer to achieve compliance with the emission limits, you must: (1) Install, operate, calibrate, and maintain a device that continuously measures the operating temperature of each thermal oxidizer; and (2) determine and record the temperature in 15-minute and 3-hour block averages. This is typically done using a thermocouple (a standard feature on most thermal oxidizers) and a data logger.

If process modifications or a control device other than a thermal oxidizer is used to achieve compliance with the emission limits, you must monitor the parameters that were established during the performance test and included in your OMM plan.

You are also required to record the urea-formaldehyde-to-latex ratio in the binder, measure the loss-on-ignition value using the method in Appendix B to 40 CFR part 63, subpart HHHH, measure the weight per square of the wet-formed fiberglass mat produced and the hourly mat production rate, and calculate the urea-formaldehyde resin solids content of the product manufactured. The values of these parameters are determined in order to calculate the hourly average urea-formaldehyde resin solids application rate. You must also determine the free-formaldehyde content of the urea-formaldehyde resins using either the method in Appendix A to 40 CFR part 63, subpart HHHH, or the material supplier's documentation. Because these process parameters affect the amount of HAP emitted from the drying and curing oven, you must monitor them to ensure that operation of the production process is consistent with the conditions of the performance test, and that the production process does not vary in such a way as to increase HAP emissions from the drying and curing oven exhaust.

The final NESHAP contain provisions that allow you to change the thermal oxidizer operating temperature, operating parameters for add-on control devices other than thermal oxidizers, and process operating parameter values from those established using the initial and 5-year performance tests. These provisions allow you to make process changes or to demonstrate that different monitoring parameter values would more appropriately demonstrate compliance with the final emission limits. You may revise the monitoring or process parameter values by conducting additional performance tests to verify compliance at the revised operating levels. For example, if you intend to use a urea-formaldehyde resin with a higher free-formaldehyde content or operate at a higher urea-formaldehyde resin solids application rate, you must perform additional performance tests to verify compliance under conditions of the increased operating or process parameters. You must notify the Administrator in writing of your intention to conduct these additional performance tests and follow the procedures in 40 CFR 63.7.

F. What Are the Notification, Recordkeeping, and Reporting Requirements of These NESHAP?

All notification, recordkeeping, and reporting requirements in the 40 CFR part 63 general provisions, as well as additional requirements, apply to wet-formed fiberglass mat manufacturing facilities. The notification and reporting requirements include, but are not limited to: (1) Initial notification of applicability of the rule, notification of the dates for conducting the performance test, and notification of compliance status including the measured range of each monitored parameter and the operating limits established during the performance test; (2) a report of performance test results; (3) periodic reports of any startup, shutdown, and malfunction events that occur; and (4) semiannual reports of deviations and continuous monitoring system performance. A deviation is any instance when any requirement or obligation established by the rule including, but not limited to, the emission limits and operating limits, is not met. If no deviations occur during a semiannual reporting period, you must submit a semiannual report stating that the affected source has been in continuous compliance during that period. If deviations from established monitoring parameters occur, the frequency of submitting the semiannual reports becomes quarterly until a request to return to semiannual reporting is approved by the Administrator. You cannot submit the request to reduce the frequency of the reporting period until the affected source's reports of deviations and continuous monitoring system performance remain continually within the established parameter ranges for 1 full year.

When using a thermal oxidizer or other control device to reduce HAP emissions, you will have to make your startup, shutdown, and malfunction plan available for inspection if the Administrator requests to see it, but you do not have to submit it to the Administrator for approval. You must keep the plan for the life of the affected source or until the source is no longer subject to the rule. If you revise the plan, you must keep the previous superseded versions on record for 5 years following the revision.

You must maintain records of the following, as applicable: (1) All results of performance tests; (2) thermal oxidizer operating temperature; (3) process parameters for drying and

curing ovens that comply with the emission limits using process modifications or an add-on control device other than a thermal oxidizer; (4) free-formaldehyde content of the resin; (5) urea-formaldehyde-to-latex ratio; (6) loss-on-ignition value of the wet-formed fiberglass mat produced; (7) urea-formaldehyde resin solids content per ton of the wet-formed fiberglass mat produced; (8) weight of the mat per roofing square; (9) average hourly wet-formed fiberglass mat production rate; (10) for operating parameter deviations, the date, time, and duration of each deviation, the date and time corrective actions were initiated and completed, a brief description of the cause of the deviation, and a description of the corrective actions taken to return the parameter to the limit or within the range established in the OMM plan and during the most recent performance test; (11) the OMM plan; (12) the occurrence and duration of each startup, shutdown, or malfunction of the control device; (13) actions taken during startup, shutdown, and malfunction that are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan; (14) maintenance and inspections performed on control devices; and (15) any other information required to be recorded by the general provisions.

The NESHAP general provisions require that records be maintained for at least 5 years from the date of each record. You must retain the records onsite for at least 2 years but you may retain the records offsite for the remaining 3 years. The records must be readily available and in a form suitable for efficient inspection and review. The files may be retained on paper, microfilm, microfiche, a computer, computer disks, or magnetic tape. Reports may be made on paper or on a labeled computer disk using commonly available and compatible computer software.

III. What Are the Impacts of These NESHAP?

A. What Are the Air Emission Impacts?

At the current level of control, nationwide emissions of HAP from the 14 facilities in the industry are estimated to be approximately 268 Mg/yr (295 tons/yr). Under the final NESHAP, it is expected that thermal oxidizers will be added to the five uncontrolled drying and curing ovens, and that existing thermal oxidizers will be replaced with new units for three out of the ten controlled drying and curing ovens. This would result in an estimated reduction in nationwide HAP emissions of 199 Mg/yr (219 tons/yr).

Formaldehyde emissions from wet-formed fiberglass mat manufacturing lines account for about 65 percent of the baseline HAP emissions. Methanol emissions account for approximately 30 percent, with vinyl acetate comprising the remaining 5 percent of the baseline HAP emissions. (These percentages are national averages. The actual emission profiles from individual lines will vary with the type of resin and binder used.) Estimated nationwide emissions of formaldehyde from existing wet-formed fiberglass mat production lines are 174 Mg/yr (192 tons/yr) at the current level of control. Implementing the NESHAP will reduce nationwide formaldehyde emissions from existing sources by about 130 Mg/yr (143 tons/yr), and combined emissions of vinyl acetate and methanol will be reduced by 70 Mg/yr (77 tons/yr).

Secondary emissions of nitrogen oxides (NO_X) from thermal oxidizer controls are formed as a result of natural gas combustion. Total emissions of NO_X from all affected sources are estimated to increase by about 15 Mg/yr (16 tons/yr).

B. What Are the Water and Solid Waste Impacts?

Because compliance with the NESHAP is based on the use of thermal oxidizers, no water pollution or solid waste impacts would result from the NESHAP.

C. Are There Any Additional Environmental and Health Impacts?

Reducing HAP emissions will lower occupational HAP and VOC exposure levels. The operation of thermal oxidizers may increase occupational noise levels in the five facilities that currently do not control HAP emissions.

D. What Are the Energy Impacts?

Thermal oxidizers require electrical energy to operate fans. Additional electrical energy requirements are estimated to be 4,260 megawatt hours per year (MW-hr/yr). An additional 275,000 million British thermal units per year (Btu/yr) of natural gas are estimated to be required for eight additional thermal oxidizers that would be added to existing sources. The total additional energy (electricity and natural gas) required as a result of the NESHAP is 290 billion Btu/yr in the fifth year following promulgation of the NESHAP.

We do not have sufficient information to predict the number of new glass mat production lines that will be built and come on line in the 5 years after promulgation or to predict the energy needs for control devices on those new lines. However, the average energy need for the control device on a new line would be about the same as the average energy need for a control device on an existing line, or about 530 MW-hr/yr of electricity and 34,400 million Btu of natural gas.

E. What Are the Cost Impacts?

Cost impacts of the final NESHAP for drying and curing ovens were analyzed using site-specific information included in the TAPPI survey responses coupled with procedures from the ''OAQPS Cost Manual.'' For some facilities where site-specific data necessary for estimating costs (e.g., a vent flow rate) were not available, average factors developed from industry survey data were used to estimate the missing data.

The total capital costs to achieve the final NESHAP are estimated to be $5,272,000. These capital cost impacts arise from the purchase and installation of eight thermal oxidizers—five thermal oxidizers for the five facilities without existing controls and three thermal oxidizers for three facilities that must replace existing thermal oxidizers that cannot meet the final NESHAP. The average capital cost of installing a new thermal oxidizer is estimated at $716,000 per oxidizer. The capital cost estimate to install a new thermal oxidizer to achieve compliance includes the cost of auxiliary burners, combustion chambers, primary heat exchangers, weather-tight housing and insulation, a fan, flow and temperature controls, a stack, and structural supports.

The monitoring requirements for the thermal oxidizer operating temperature are not current industry practice and are expected to impose additional costs on facilities with existing thermal oxidizers. To estimate the impact of the additional monitoring equipment (i.e., a data logging system), a cost of $7,000 ($1,000 for each of the seven facilities with an existing thermal oxidizer that is achieving the NESHAP) was included in the capital cost estimate. No additional capital costs were estimated for monitoring equipment for the new thermal oxidizers since temperature monitors and recording devices are standard equipment and are included in the cost estimates for new thermal oxidizers.

The total annualized cost of the final NESHAP for eight new thermal oxidizers is about $2,414,000. The average annual cost for a typical facility that installs a new thermal oxidizer is $302,000. The annualized cost estimate includes the cost of operation,

maintenance, supervisory labor, maintenance materials, utilities, administrative charges, taxes, insurance, and capital recovery.

F. What Are the Economic Impacts?

Fourteen facilities owned by nine different companies produce wet-formed fiberglass mat domestically. All of these facilities may potentially be affected by the NESHAP because they are major sources or are collocated with other sources (e.g., asphalt roofing plants) that together may be major sources.

The estimated nationwide annualized cost of the NESHAP is $1.595 million. This cost estimate represents approximately 0.069 percent of the 1995 sales revenues for domestically produced wet-formed fiberglass mat. Based upon this estimate, it is reasonable to assume that market price increases and production decreases resulting from the final NESHAP are likely to be very small. Thus, we conclude that the final NESHAP are not likely to have a significant economic impact on the wet-formed fiberglass mat industry as a whole or on secondary markets such as the labor market and foreign trade.

We performed a streamlined economic analysis to determine facility-specific impacts. The facility-specific impacts are examined by calculating the ratio of the estimated annualized costs of emission controls for each facility to the estimated revenues per facility (i.e., a cost-to-sales ratio) to assess the likelihood of facility closures and employment impacts. Cost-to-sales ratios refer to the change in the cost of emission controls divided by the sales revenue of wet-formed fiberglass mat, the goods produced in the process for which additional pollution control is required. This ratio can be estimated for either individual firms or as an average for some set of firms such as affected small business firms. While it has different significance for different market situations, it is a good rough gauge of potential impact. If costs for the individual (or group of) firms are completely passed onto the purchasers of the good(s) being produced, the ratio is an estimate of the price change (in percentage form after multiplying the ratio by 100). If costs are completely absorbed by the producer, this ratio is an estimate of changes in pretax profits (in percentage form after multiplying the ratio by 100). The distribution of cost-to-sales ratios across the whole market, the competitiveness of the market, and profit-to-sales ratios are among the obvious factors that may influence the significance of any particular cost-to-sales ratio for an individual facility.

For these NESHAP, a cost-to-sales ratio exceeding 1 percent was determined to be an initial indicator of the potential for a significant facility impact. Each of the 14 facilities affected by the final NESHAP has cost-to-sales ratios of less than 1 percent of sales. Therefore, the facility-specific impacts are not considered to be significant for any facility affected by the NESHAP. No facility is likely to close as a result of the final NESHAP. Facilities in the wet-formed fiberglass mat production industry are likely to increase the price charged for the product in response to market price changes, to absorb the costs with no price increase, or to respond with a combination of these alternatives. The economic impacts to consumers and producers of wet-formed fiberglass mat are anticipated to be minimal. The generally small scale of the impacts suggests that there will also be no significant impacts on markets for the products made using wet-formed fiberglass mat. For more information, consult the economic impact report entitled ''Economic Impact Analysis for the Proposed National Emission Standard for Hazardous Air Pollutants from the Production of Wet-Formed Fiberglass Mat,'' January 1999 (Docket A–97–54).

IV. Summary of Changes Since Proposal

We have made changes in the final NESHAP for wet-formed fiberglass mat production facilities in response to comments on the proposed rule. The principal changes made since proposal are summarized below. Additional discussion of changes and the rationale for these changes is presented in section V of this preamble.

A. Operating Limits

In § 63.2984, we have removed the operating limits for binder urea-formaldehyde (UF) content, UF resin solids content, UF resin solids per ton of product, product loss-on-ignition, and production rate. They have been replaced with an operating limit for maximum hourly urea-formaldehyde resin solids application rate, measured as the urea-formaldehyde resin solids left in the product after curing.

B. Performance Test and Initial Compliance Provisions

We revised § 63.2993 of the final rule to allow the use of either EPA Method 318, ''Extractive FTIR Method for the Measurement of Emissions from the Mineral Wool and Wool Fiberglass Industries'' for measuring formaldehyde concentrations, or EPA Method 316,''Sampling and Analysis for Formaldehyde Emissions from Stationary Sources in the Mineral Wool and Wool Fiberglass Industries.''

C. Monitoring Requirements

In § 63.2984(a), we revised the rule to clarify that a deviation of a process or control device parameter from a level established during a performance test is a deviation from an operating limit and is separately enforceable from the emission limit in § 63.2983. We also added a definition of *Deviation* in § 63.3004 of the final rule.

In response to comments, we revised § 63.2984(d) of the final rule to delete the requirement to reference the operating limits in the 40 CFR part 70 operating permit application. Instead, you will include the operating limits in the OMM plan and reference the OMM plan in the 40 CFR part 70 operating permit application. You must also include the operating limits or ranges in the notification of compliance status and the performance test report required under § 63.3000(b) and (d), respectively.

In the final rule, we have deleted § 63.2988 and the requirement that you have your OMM plan approved by the Administrator. You must include in your 40 CFR part 70 operating permit a requirement that you develop an OMM plan and operate according to it at all times. To revise the operating limits specified in your OMM plan, you must conduct a new performance test and include the revised operating limits in the notification of compliance status and performance test results submitted to the Administrator after the test. You must also include the revised operating limits in the revised OMM plan. You may begin operating according to the revised operating limits as soon as you have completed the performance test demonstrating compliance.

We revised § 63.2994(b)(1) of the final rule to allow the gas temperature monitoring device to be installed either at the exit of the combustion zone or at the location specified by the manufacturer. However, the temperature monitoring device must be installed in a location before any heat recovery or heat exchange equipment, and it must remain in the same location for both the performance test and the continuous monitoring of the temperature.

In response to comments, we have revised the monitoring requirements in § 63.2996 so that you must monitor and record the data needed to calculate the hourly urea-formaldehyde resin solids application rate.

D. Definitions

In response to comments, we replaced the definition of *Binder formulation urea formaldehyde content* with a definition of *Urea formaldehyde content in binder formulation* for clarification purposes.

V. Summary of Responses to Major Comments

We received five comment letters on the proposed NESHAP for wet-formed fiberglass mat production. A copy of each comment letter is available for public inspection in the docket for the rulemaking.

We reviewed and carefully considered all of the comments received and made changes to the rule where appropriate. A summary of responses to major comments received on the proposed rule is presented below. Additional discussion of our responses to public comments is presented in the document ''National Emission Standards for Wet-Formed Fiberglass Mat Production—Background for Promulgated Standards, Comment and Response Document'' which is in the docket.

Comment: One commenter stated that basing the operating limits and monitoring requirements on resin free-formaldehyde content, binder UF content, resin UF solids content, resin UF solids content per ton of product, and product loss-on-ignition (LOI) is not practical because most manufacturers do not have a single product that has the maximum value for all these parameters. Therefore, the facility operators would need to perform several performance tests using different products with the maximum for each of these variables.

The commenter recommended that EPA specify an operating standard and monitoring requirement only for urea-formaldehyde (dry) weight per roofing square (100 square feet) of product. According to the commenter, formaldehyde is emitted as the UF binder cures and bonds the glass fibers together into a mat. The greater the amount of UF binder solids per square of mat, the greater the formaldehyde emissions per square of mat, according to the commenter.

The commenter suggested using the following equation for calculating the pounds of UF solids per square of mat:

$$\frac{\text{UF Solids}}{\text{Square of Mat}} = \text{LOI} \times \text{UFL} \times \text{MWs}$$

Where:

LOI = loss on ignition (percent);

UFL = UF-to-latex ratio in the binder (percent of UF solids in total combined solids for UF and latex);

MW = weight of the mat per square (pounds per roofing square).

Response: We agree with the commenter that the suggested monitoring parameters better predict potential emissions than those in the proposed standards and offer greater operating flexibility. We have revised the testing, monitoring, and operating limit requirements in the final rule to reflect the approach recommended by the commenter.

The final rule establishes an operating limit for UF solids hourly application rate. This operating limit is based on the equation suggested by the commenter, with the addition of a term for the glass mat production rate (squares per hour) so the hourly UF solids application rate is calculated.

You must conduct the performance test while producing a product with the greatest hourly UF solids application rate. The hourly UF solids application rate is the product of UF solids per square of mat times the hourly production rate in squares. The hourly UF solids application rate achieved during the initial performance test will become an operating limit that you cannot exceed after the test. After the compliance test, you must monitor the parameters used to calculate the hourly UF solids application rate and use Equation 3 of § 63.2995 of the final rule to ensure compliance with the operating limit for hourly UF solids application rate.

We continue to believe that the resin free-formaldehyde content is an important variable affecting emissions. Therefore, the final rule still requires an operating limit for the resin free-formaldehyde content. The operating limit established for the resin free-formaldehyde content during the initial performance test must not be exceeded after the initial performance test. Continuous compliance with the operating limit will be determined through resin purchase specifications and records. These records are the minimum data requirements necessary to verify continuous compliance with the operating limit.

Comment: One commenter asked EPA to revise the provisions of § 63.2989(a)(4) and (b) for changing an approved OMM plan. As currently written, a facility that has proposed changes to its approved plan must continue to operate according to the approved plan pending the Administrator's approval of the proposed changes. The commenter advocates that a facility be allowed to operate according to the proposed changes, pending the Administrator's approval of the revised plan, after they have demonstrated compliance with the formaldehyde emission limits. The commenter stated that the suggested change is consistent with the title V permit application shield.

Response: The EPA believes the commenter is incorrect that there is a corresponding provision for permit revisions in title V of the CAA or the permit regulations in 40 CFR part 70. The permit application shield applies only to the original permit application and renewals. The shield protects the facility from enforcement actions for operating without a permit in cases where the facility submits an application on time, but there are delays in issuing the permit. However, the permit application shield does not apply to permit revisions. A facility owner or operator submitting an application to revise their operating permit must operate under the approved permit until the revised permit is approved.

However, we have revised the provisions of § 63.2988 to delete the provisions requiring the Administrator's approval of a facility's OMM plan. We have also modified the provisions of § 63.2989(a)(1) through (4) to allow a facility to make changes to the OMM plan without the requirement for obtaining the Administrator's approval. Changes in operating limits still require another performance test to verify compliance. In addition, we have revised § 63.2984(d) of the final rule to delete the requirement to reference the operating standards and their allowable ranges or limits in the 40 CFR part 70 permit. Instead, your OMM plan must be incorporated by reference in your title V permit. These changes allow you to revise the allowable ranges or limits of the operating standards without reopening your permit or going through an approval process. We have also added paragraph (c) to § 63.2989 which provides that if you can anticipate potential changes to operating conditions or multiple operating conditions while demonstrating compliance during an initial or most recent performance test, then those anticipated operating conditions could be accounted for in the OMM plan, and the plan would not need to be revised later. The purpose of the OMM plan is to ensure compliance while at the same time allowing the owner or operator of the affected source flexibility to operate under representative conditions for the affected source.

Comment: One commenter asked EPA to revise § 63.2993 to allow the use of EPA Method 318, ''Extractive Fourier Transfer Infrared Spectrometry (FTIR)

for Measurement of Emissions from the Mineral Wool and Wool Fiberglass Industries,'' for measuring formaldehyde concentrations.

Response: We agree with the commenter that facilities should be able to use FTIR, as specified in EPA Method 318, to measure formaldehyde concentrations. Therefore, § 63.2993 of the final rule has been revised to allow the use of either EPA Method 316, ''Sampling and Analysis for Formaldehyde Emissions from Stationary Sources in the Mineral Wool and Wool Fiberglass Industries,'' or EPA Method 318 (FTIR) to measure formaldehyde concentrations.

Comment: The proposal preamble stated that EPA estimates that only one of the two small business companies in the glass mat industry will have to install an add-on control device at its plant (65 FR 34289). As stated in the preamble, EPA estimates that the annual control cost for this one small business would not exceed 1 percent of total sales of the company. A representative of the facility in question disagreed with EPA's estimate and stated that if this facility is required to install a thermal oxidizer, the cost-to-sales ratio would be greater than 1 percent of sales. The comment letter and included test report for this glass mat facility indicated that total HAP emissions from the wet-formed fiberglass mat production line at the plant are less than 10 tons per year.

Response: We estimated the annualized cost of a thermal oxidizer for the facility in question based on the volumetric flow rate from the drying and curing oven submitted by the facility in response to the EPA survey. We had no other site-specific information that would have resulted in a more accurate cost estimate. The survey response from the facility reported a volumetric flow rate from the glass mat line stack of 747 standard cubic feet per minute (scfm). Based on this flow rate, we estimated that the total annual cost would be 0.344 percent of annual sales for the company. However, the flow rate reported in the test report submitted with the comment letter was 2,520 scfm. We revised the estimated annual add-on control costs using this higher flow rate, but the revised annual cost is still less than the threshold (1.0 percent of sales) used as an indicator in considering whether the rule has a significant economic impact on small businesses.

Since the estimated cost as a percentage of sales is relatively minimal, it is anticipated that the final rule will not have a significant impact on this company's profitability. Nonetheless, EPA has tried to reduce the impact of this rule on small entities by providing flexibility by offering a choice of compliance and monitoring options. Compliance options include mass emission limits or percent reduction standards. Compliance with the standards can be achieved through the use of a thermal oxidizer, other control devices, or process modifications that meet the standards. Finally, if the facility in question, after considering all operations present at the source, is not a major source of HAP emissions, it would not be subject to the NESHAP and would have no compliance costs as a result of the standards.

VI. Administrative Requirements

A. Executive Order 12866—Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), EPA must determine whether the regulatory action is ''significant'' and, therefore, subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Executive 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 obligations 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, it has been determined that this rule is not a significant regulatory action under the terms of Executive Order 12866 and is therefore not subject to OMB review.

B. Executive Order 13132—Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the rule. The EPA also may not issue a regulation that has federalism implications and that preempts State law unless the EPA consults with State and local officials early in the process of developing the rule.

If EPA complies by consulting, Executive Order 13132 requires EPA to provide to OMB, in a separately identified section of the preamble to the rule, a federalism summary impact statement (FSIS). The FSIS must include a description of the extent of EPA's prior consultation with State and local officials, a summary of the nature of their concerns and the EPA's position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met. Also, when EPA transmits a final rule with federalism implications to OMB for review pursuant to Executive Order 12866, EPA must include a certification from its federalism official stating that EPA has met the requirements of Executive Order 13132 in a meaningful and timely manner.

Today's rule will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This is because today's rule applies to affected sources in the wet-formed fiberglass mat industry, not to State or local governments. Nor will State law be preempted, or any mandates be imposed on State or local government. Thus, the requirements of section 6 of the Executive Order do not apply to today's final rule. The EPA notes, however, that although not required to do so by this Executive Order (or otherwise), EPA did consult with State and local officials during development of today's final rule.

C. Executive Order 13175—Consultation and Coordination with Indian Tribal Governments

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' ''Policies that have tribal implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.''

This final rule does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. No known wet-formed fiberglass mat production facility is located within the jurisdiction of any tribal government. Thus, Executive Order 13175 does not apply to this rule.

D. Executive Order 13045—Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns the environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, EPA must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by EPA.

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5–501 of the Executive Order has the potential to influence the regulation. This rule is not subject to Executive Order 13045 because it establishes an environmental standard based on available technology rather than reduction of health risk. No children's risk analysis was performed because no alternative technologies exist that would provide greater stringency at a reasonable cost. Furthermore, today's final rule has been determined not to be a economically significant regulatory action as defined by Executive Order 12866.

E. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 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, 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 by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires 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 EPA establishes any regulatory requirements that may significantly or uniquely affect small 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 this final rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. The EPA has also determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments since it contains no requirements that apply to such governments or that impose obligations upon them. The total nationwide capital cost for the standard is estimated at $5.3 million; the annualized nationwide cost is estimated at $2.4 million. Thus, today's final rule is not subject to the requirements of the UMRA.

F. Regulatory Flexibility Act (RFA), as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601, et seq.

The RFA generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business that has less than 750 employees; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of the final rule on small entities, we have determined that only two of the nine companies producing wet-formed fiberglass mat are small businesses. One of these small businesses is not anticipated to incur emission control costs because it already has controls in place which should achieve the MACT emission levels. Therefore, only one small firm in the wet-formed fiberglass mat production industry is likely to incur emission control costs as a result of the rule. After the proposed rule was published, the company submitted information indicating that HAP emissions from the facility's glass mat line are less than 10 tons per year and, thus, it is not a major source. However, this particular glass mat line is collocated with an asphalt roofing manufacturing facility and emissions from all collocated sources, in aggregate, must be considered in determining whether a source is a major source. The company also stated in their letter that if this facility is required to install a thermal oxidizer as a result of the rule, their cost-to-sales ratio would be greater than 1 percent. As a result, EPA revised the estimated annual add-on control costs for this facility using the higher flow rate of 2,520 scfm as reported in the comment from this facility. However, the revised annual cost-to-

sales ratio is still less than the threshold (1.0 percent of sales) used as an indicator in considering whether the rule has a significant economic impact on small businesses. As a result of the increased costs of emission controls, this small entity in the affected industry will likely either increase the price of its product in response to a market change in price, will absorb the cost increase with no price increase, or will respond with a combination of these responses. Since the estimated costs as a percentage of sales are relatively minimal, it is anticipated that the rule will not have a significant impact on this company's profitability if, indeed, it is a major source and subject to the NESHAP.

Although this rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of the rule on small entities by providing flexibility by offering a choice of compliance and monitoring options. Compliance options include mass emission limits or percent reduction standards. Compliance with the final standards can be achieved through the use of a thermal oxidizer or other control device. Pollution prevention practices, such as process modifications, are also included in the rule.

G. Paperwork Reduction Act

The information collection requirements in this final rule have been submitted for approval to OMB under the requirements of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An Information Collection Request (ICR) document has been prepared by EPA (ICR No. 1964.01), and a copy may be obtained from Sandy Farmer, U.S. Environmental Protection Agency, Office of Environmental Information, Collection Strategies Division (2822), 1200 Pennsylvania Avenue, NW., Washington, DC 20460, or by calling (202) 260–2740. A copy may also be downloaded off the Internet at *http://www.epa.gov/icr.* The information requirements are not effective until OMB approves them.

The information requirements contained in the NESHAP are necessary to determine initial and continuous compliance with the emission standards. The information requirements include the notification, recordkeeping, and reporting requirements of the NESHAP general provisions, authorized under section 114 of the CAA (42 U.S.C. 7414), which are mandatory for all owners or operators subject to national emission standards. All information submitted to EPA for which a claim of confidentiality is made is safeguarded according to Agency policies in 40 CFR part 2, subpart B. The rule does not require any notifications or reports beyond the minimum required by the general provisions. Subpart HHHH requires additional records of information specific to the wet-formed fiberglass mat production industry which are needed to determine compliance with the rule.

The annual public reporting and recordkeeping burden for this collection is estimated at 2,983 labor hours per year at an annual cost of $98,183. This estimate includes an initial performance test and report (with repeat tests where needed); one-time preparation of a startup, shutdown, and malfunction plan with semiannual reports of any event in which the procedures in the plan were not followed; semiannual deviation reports; notifications; the OMM plan; and recordkeeping. The annualized capital cost associated with monitoring requirements is estimated at $2,300.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purpose of collecting, validating, verifying, processing, maintaining, disclosing, and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to respond to a collection of information; search existing data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

H. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA), Public Law 104–113, directs all Federal Agencies to use voluntary consensus standards in regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards (VCS) are technical standards (such as materials specifications, test methods, sampling procedures, and business practices) developed or adopted by voluntary consensus standard bodies. The NTTAA requires Federal agencies to provide Congress, through annual reports to OMB, with explanations when an agency does not use available and applicable voluntary consensus standards.

Consistent with the NTTAA, the EPA conducted searches to identify voluntary consensus standards for the EPA's emissions sampling and analysis reference methods and industry recommended materials analysis procedures cited in this rule. Candidate voluntary consensus standards for materials analysis were identified for product loss-on-ignition and free-formaldehyde content. Consensus comments provided by industry experts were that the candidate standards did not meet industry materials analysis requirements. Therefore, EPA has determined that these VCS were impractical for the wet-formed fiberglass mat production NESHAP. The EPA, in consultation with TAPPI, has formulated industry-specific materials analysis consensus standards which were proposed along with the proposed rule and are published with the final rule as appendix A and appendix B.

The EPA search to identify VCS for the EPA's emissions sampling and analysis reference methods cited in this rule identified six candidate standards that appeared to have possible use in lieu of EPA standard reference methods. However, after reviewing available standards, EPA determined that four of the candidate consensus standards identified for measuring emissions of the HAP or surrogates subject to emission limits in the rule would not be practical due to lack of equivalency, documentation, and validation data. Two of the remaining candidate consensus standards are new standards under development that EPA plans to follow, review and consider adopting at a later date.

Section 63.2993 of subpart HHHH lists the EPA testing methods. These testing methods have been used by States and industry for more than 10 years.

I. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801, *et seq.*, as added by the SBREFA, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. Therefore, we will submit a report containing this final rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal**

Register. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This final rule is not a ''major rule'' as defined by 5 U.S.C. 804(2), and therefore will be effective April 11, 2002.

J. Executive Order 13211—Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This rule is not a ''significant energy action'' as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The EPA has determined that this rule will not affect in a material way productivity, competition, or prices in the energy sector. The rule will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency regarding energy. In addition, it will not raise novel legal or policy issues related to energy arising out of legal mandates, the President's priorities, or the principles set forth in Executive Orders 12866 and 13211.

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous substances, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: March 19, 2002.

Christine Todd Whitman,

Administrator.

For the reasons set out in the preamble, title 40, chapter I, part 63 of the Code of Federal Regulations is amended as follows:

PART 63—[AMENDED]

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

Authority: 42 U.S.C. 7401 *et seq.*

2. Part 63 is amended by adding subpart HHHH to read as follows:

Subpart HHHH—National Emission Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production

Sec.

Subpart HHHH—National Emissions Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production

What This Subpart Covers

§ 63.2980 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for emissions from facilities that produce wet-formed fiberglass mat. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.2981 Does this subpart apply to me?

You must comply with this subpart if you meet the criteria in paragraphs (a) and (b) of this section:

(a) You own or operate a drying and curing oven at a wet-formed fiberglass mat production facility.

(b) Your drying and curing oven or the facility at which your drying and curing oven is located is a major source of hazardous air pollutants (HAP). A major source is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or can potentially emit, considering controls, in the aggregate, 9.07 megagrams (10 tons) or more per year of a single HAP or 22.68 megagrams (25 tons) or more per year of any combination of HAP.

§ 63.2982 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source. The affected source (the portion of your plant covered by this subpart) is each wet-formed fiberglass mat drying and curing oven.

(b) An affected source is a new affected source if you commenced construction of the affected source after May 26, 2000, and you meet the applicability criteria in § 63.2981 at start-up.

(c) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(d) An affected source is existing if it is not new or reconstructed.

Emission Limitations

§ 63.2983 What emission limits must I meet?

(a) You must limit the formaldehyde emissions from each drying and curing oven by either:

(1) Limiting emissions of formaldehyde to 0.03 kilograms or less per megagram (0.05 pounds per ton) of fiberglass mat produced; or

(2) Reducing uncontrolled formaldehyde emissions by 96 percent or more.

(b) [Reserved]

§ 63.2984 What operating limits must I meet?

(a) You must maintain operating parameters within established limits or ranges specified in your operation, maintenance, and monitoring (OMM) plan described in § 63.2987. If there is a deviation of any of the specified parameters from the limit or range specified in the OMM plan, you must address the deviation according to paragraph (b) of this section. You must comply with the operating limits specified in paragraphs (a)(1) through (4) of this section:

(1) You must operate the thermal oxidizer so that the average operating temperature in any 3-hour block period does not fall below the temperature established during your performance test and specified in your OMM plan.

(2) You must not use a resin with a free-formaldehyde content greater than that of the resin used during your performance test and specified in your OMM plan.

(3) You must operate the wet-formed fiberglass mat production process so that the average urea formaldehyde resin solids application rate in any 3-hour block period does not exceed the average application rate achieved during your performance test and specified in your OMM plan.

(4) If you use an add-on control device other than a thermal oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you must obtain approval for the alternative monitoring under § 63.8(f). You must include the approved alternative monitoring and operating limits in the OMM plan specified in § 63.2987.

(b) When during a period of normal operations you detect that an operating parameter deviates from the limit or range established in paragraph (a) of this section, you must initiate corrective actions within 1 hour according to the provisions of your OMM plan. During periods of start up, shut down, or malfunction you must follow your start up, shut down and malfunction plan (SSMP). The corrective action actions must be completed in an expeditious manner as specified in the OMM plan or SSMP.

(c) You must maintain and inspect control devices according to the procedures specified in the OMM plan.

(d) You must include the operating limits specified in paragraphs (a)(1) through (4) of this section and their allowable ranges or levels in your OMM plan. Your 40 CFR part 70 operating permit for the drying and curing oven must contain a requirement that you develop and operate according to an OMM plan at all times.

(e) If you use a thermal oxidizer or other control device to achieve the emission limits in § 63.2983, you must capture and convey the formaldehyde emissions from each drying and curing oven according to the procedures in chapters 3 and 5 of ''Industrial Ventilation: A Manual of Recommended Practice'' (23rd Edition). This publication is incorporated by reference in § 63.3003.

§ 63.2985 When do I have to comply with these standards?

(a) Existing drying and curing ovens must be in compliance with this subpart no later than April 11, 2005.

(b) New or reconstructed drying and curing ovens must be in compliance with this subpart at startup or by April 11, 2002, whichever is later.

(c) If your facility is an area source that increases its emissions or its potential to emit such that it becomes a major source of hazardous air pollutants, the following apply:

(1) Any portion of the existing facility that is a new affected source or a new reconstructed affected source must be in compliance upon startup.

(2) All other parts of the source must be in compliance with this subpart 1 year after becoming a major source or by April 11, 2005, whichever is later.

§ 63.2986 How do I comply with the standards?

(a) You must install, maintain, and operate a thermal oxidizer or other control device or implement a process modification that reduces formaldehyde emissions from each drying and curing oven to the emission limits specified in § 63.2983.

(b) You must comply with the operating limits specified in § 63.2984. The operating limits prescribe the requirements for demonstrating continuous compliance based on the OMM plan. You must begin complying with the operating limits on the date by which you must complete the initial performance test.

(c) You must conduct a performance test according to §§ 63.2991, 63.2992, and 63.2993 to demonstrate compliance for each drying and curing oven subject to the emission limits in § 63.2983, and to establish or modify the operating limits or ranges for process or control device parameters that will be monitored to demonstrate continuous compliance.

(d) You must install, calibrate, maintain, and operate devices that monitor the parameters specified in your OMM plan at the frequency specified in the plan. All continuous parameter monitoring systems must be installed and operating no later than the applicable compliance date specified in § 63.2985.

(e) You must prepare and follow a written OMM plan as specified in § 63.2987.

(f) You must comply with the monitoring, recordkeeping, notification, and reporting requirements of this subpart as required by §§ 63.2996 through 63.3000.

(g) You must comply with the requirements in paragraphs (g)(1) through (3) of this section.

(1) You must be in compliance with the emission limits in § 63.2983 and the operating limits in § 63.2984 at all times, except during periods of startup, shutdown, or malfunction.

(2) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1).

(3) You must develop and implement a written SSMP according to the provisions in § 63.6(e)(3). The SSMP must address the startup, shutdown, and corrective actions taken for malfunctioning process and air pollution control equipment.

Operation, Maintenance, and Monitoring Plan

§ 63.2987 What must my operation, maintenance, and monitoring (OMM) plan include?

(a) You must prescribe the monitoring that will be performed to ensure compliance with these emission limitations. Minimum monitoring requirements are listed in table 1 of this subpart. Your plan must specify the items listed in paragraphs (a)(1) through (3) of this section:

(1) Each process and control device to be monitored, the type of monitoring device that will be used, and the operating parameters that will be monitored.

(2) A monitoring schedule that specifies the frequency that the parameter values will be determined and recorded.

(3) The operating limits or ranges for each parameter that represent continuous compliance with the emission limits in § 63.2983. Operating limits and ranges must be based on values of the monitored parameters recorded during performance tests.

(b) You must establish routine and long-term maintenance and inspection

schedules for each control device. You must incorporate in the schedules the control device manufacturer's recommendations for maintenance and inspections or equivalent procedures. If you use a thermal oxidizer, the maintenance schedule must include procedures for annual or more frequent inspection of the thermal oxidizer to ensure that the structural and design integrity of the combustion chamber is maintained. At a minimum, you must meet the requirements of paragraphs (b)(1) through (10) of this section:

(1) Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation. Clean pilot sensor if necessary.

(2) Ensure proper adjustment of combustion air and adjust if necessary.

(3) Inspect, when possible, all internal structures (such as baffles) to ensure structural integrity per the design specifications.

(4) Inspect dampers, fans, and blowers for proper operation.

(5) Inspect motors for proper operation.

(6) Inspect, when possible, combustion chamber refractory lining. Clean and repair or replace lining if necessary.

(7) Inspect the thermal oxidizer shell for proper sealing, corrosion, and hot spots.

(8) For the burn cycle that follows the inspection, document that the thermal oxidizer is operating properly and make any necessary adjustments.

(9) Generally observe whether the equipment is maintained in good operating condition.

(10) Complete all necessary repairs as soon as practicable.

(c) You must establish procedures for responding to operating parameter deviations. At a minimum, the procedures must include the information in paragraphs (c)(1) through (3) of this section.

(1) Procedures for determining the cause of the operating parameter deviation.

(2) Actions for correcting the deviation and returning the operating parameters to the allowable ranges or limits.

(3) Procedures for recording the date and time that the deviation began and ended, and the times corrective actions were initiated and completed.

(d) Your plan must specify the recordkeeping procedures to document compliance with the emissions and operating limits. Table 1 of this subpart establishes the minimum recordkeeping requirements.

§ 63.2988 [Reserved]

§ 63.2989 How do I change my OMM plan?

Changes to the operating limits or ranges in your OMM plan require a new performance test.

(a) In order to revise the ranges or levels established for your operating limits in § 63.2984, you must meet the requirements in paragraphs (a)(1) and (2) of this section:

(1) Submit a notification of performance test to the Administrator as specified in § 63.7(b) to revise your operating ranges or limits.

(2) After completing the performance test to demonstrate that compliance with the emissions limits can be achieved at the revised levels of the operating limits, you must submit the performance test results and the revised operating limits as part of the notification of compliance status required under § 63.9(h).

(b) If you are revising the inspection and maintenance procedures in your plan that are specified in § 63.2987(b), you do not need to conduct a new performance test.

(c) If you plan to operate your process or control device under alternative operating conditions and do not wish to revise your OMM plan when you change operating conditions, you can perform a separate compliance test to establish operating limits for each condition. You can then include the operating limits for each condition in your OMM plan. After completing the performance tests, you must record the date and time when you change operations from one condition to another, the condition under which you are operating, and the operating limits that apply under that condition. If you can perform a single performance test that establishes the most stringent operating limits that cover all alternative operating conditions, then you do not need to comply with the provisions of this paragraph.

§ 63.2990 Can I conduct short-term experimental production runs that cause parameters to deviate from operating limits?

With the approval of the Administrator, you may conduct short-term experimental production runs during which your operating parameters deviate from the operating limits. Experimental runs may include, but are not limited to, runs using resin with a higher free-formaldehyde content than specified in the OMM plan, or using experimental pollution prevention techniques. To conduct a short-term experimental production run, you must complete the requirements in paragraphs (a) and (b) of this section.

(a) Prepare an application to the Administrator for approval to conduct the experimental production runs. Your application must include the items listed in paragraphs (a)(1) through (6) of this section.

(1) The purpose of the experimental production run.

(2) Identification of the affected line.

(3) An explanation of how the operating parameters will deviate from the previously approved ranges and limits.

(4) The duration of the experimental production run.

(5) The date and time of the experimental production run.

(6) A description of any emission testing to be performed during the experimental production run.

(b) Submit the application to the Administrator for approval at least 30 days before you conduct the experimental production run.

(c) If you conduct such experimental production runs without first receiving approval from the Administrator, then you must conduct a performance test under those same experimental production run conditions to show that you were in compliance with the formaldehyde emission limits in § 63.2983.

Testing and Initial Compliance Requirements

§ 63.2991 When must I conduct performance tests?

You must conduct a performance test for each drying and curing oven subject to this subpart according to the provisions in paragraphs (a) through (c) of this section:

(a) *Initially.* You must conduct an initial performance test no later than 180 days after the applicable compliance date specified in § 63.2985. The initial performance test is used to demonstrate initial compliance and establish operating parameter limits and ranges to be used to demonstrate continuous compliance with the emission standards.

(b) *Every 5 years.* You must conduct a performance test every 5 years as part of renewing your 40 CFR part 70 operating permit.

(c) *To change your OMM plan.* You must conduct a performance test according to the requirements specified in § 63.2992 to change the limit or range for any operating limit specified in your OMM plan established during a previous compliance test.

§ 63.2992 How do I conduct a performance test?

(a) You must verify the performance of monitoring equipment as specified in § 63.2994 before performing the test.

(b) You must conduct the performance test according to the procedures in § 63.7.

(c) You must conduct the performance test under the conditions specified in paragraphs (c)(1) and (2) of this section.

(1) The resin must have the highest specified free-formaldehyde content that will be used.

(2) You must operate at the maximum feasible urea-formaldehyde resin solids application rate (pounds urea-formaldehyde resin solids applied per hour) that will be used.

(d) During the performance test, you must monitor and record the operating parameters that you will use to demonstrate continuous compliance after the test. These parameters are listed in table 1 of this subpart.

(e) You may not conduct performance tests during periods of startup, shutdown, or malfunction as specified in § 63.7(e)(1).

(f) You must conduct three separate test runs for each performance test as specified in § 63.7(e)(3), and each test run must last at least 1 hour.

§ 63.2993 What test methods must I use in conducting performance tests?

(a) Use EPA Method 1 (40 CFR part 60, appendix A) for selecting the sampling port location and the number of sampling ports.

(b) Use EPA Method 2 (40 CFR part 60, appendix A) for measuring the volumetric flow rate.

(c) Use EPA Method 316 or 318 (40 CFR part 63, appendix A) for measuring the concentration of formaldehyde.

(d) Use the method contained in appendix A of this subpart or the resin purchase specification and the vendor specification sheet for each resin lot for determining the free-formaldehyde content in the urea-formaldehyde resin.

(e) Use the method in appendix B of this subpart for determining product loss-on-ignition.

§ 63.2994 How do I verify the performance of monitoring equipment?

(a) Before conducting the performance test, you must take the steps listed in paragraphs (a)(1) and (2) of this section:

(1) Install and calibrate all process equipment, control devices, and monitoring equipment.

(2) Conduct a performance evaluation of the continuous monitoring system (CMS) according to § 63.8(e) which specifies the general requirements and requirements for notifications, the site-specific performance evaluation plan, conduct of the performance evaluation, and reporting of performance evaluation results.

(b) If you use a thermal oxidizer, the temperature monitoring device must meet the performance and equipment specifications listed in paragraphs (b)(1) through (3) of this section:

(1) The temperature monitoring device must be installed either at the exit of the combustion zone of each thermal oxidizer, or at the location specified by the manufacturer. The temperature monitoring device must also be installed in a location before any heat recovery or heat exchange equipment, and it must remain in the same location for both the performance test and the continuous monitoring of temperature.

(2) The recorder response range must include zero and 1.5 times the average temperature required in § 63.2984(a)(1).

(3) The measurement method or reference method for calibration must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or an alternate reference subject to the approval of the Administrator.

§ 63.2995 What equations must I use to determine compliance?

(a) *Percent reduction for formaldehyde.* To determine compliance with the percent reduction formaldehyde emission standard, use equation 1 of this section as follows:

$$E_f = \frac{M_i - M_o}{M_i} \times 100 \qquad \text{(Eq. 1)}$$

Where:

E_f = Formaldehyde control efficiency, percent.

M_i = Mass flow rate of formaldehyde entering the control device, kilograms (pounds) per hour.

M_o = Mass flow rate of formaldehyde exiting the control device, kilograms (pounds) per hour.

(b) *Formaldehyde mass emissions rate.* To determine compliance with the kilogram per megagram (pound per ton) formaldehyde emission standard, use equation 2 of this section as follows:

$$E = \frac{M}{P} \qquad \text{(Eq. 2)}$$

Where:

E = Formaldehyde mass emissions rate, kilograms (pounds) of formaldehyde per megagram (ton) of fiberglass mat produced.

M = Formaldehyde mass emissions rate, kilograms (pounds) per hour.

P = The wet-formed fiberglass mat production rate during the emissions sampling period, including any material trimmed from the final product, megagrams (tons) per hour.

(c) *Urea-formaldehyde (UF) resin solids application rate.* To determine the UF resin solids application rate, use equation 3 of this section as follows:

$$\frac{\text{UF Solids}}{\text{Hour}} = \text{LOI} \times \text{UFL} \times \text{MW} \times \text{SQ} \qquad \text{(Eq. 3)}$$

Where:

UF solids/hour = UF resin solids application rate (pounds per hour).

LOI = loss on ignition (weight faction), or pound of organic binder per pound of mat.

UFL = UF-to-latex ratio in the binder (mass fraction of UF resin solids in total combined resin solids for UF and latex), or pound of UF solids per pound of total resin solids (UF and latex).

MW = weight of the final mat per square (pounds per roofing square).

SQ = roofing squares produced per hour.

Monitoring Requirements

§ 63.2996 What must I monitor?

You must monitor the parameters listed in table 1 of this subpart and any other parameters specified in your OMM plan. The parameters must be monitored, at a minimum, at the corresponding frequencies listed in table 1 of this subpart.

§ 63.2997 What are the requirements for monitoring devices?

(a) If formaldehyde emissions are controlled using a thermal oxidizer, you must meet the requirements in paragraphs (a)(1) and (2) of this section:

(1) Install, calibrate, maintain, and operate a device to monitor and record continuously the thermal oxidizer temperature at the exit of the combustion zone before any substantial

heat exchange occurs or at the location consistent with the manufacturer's recommendations.

(2) Continuously monitor the thermal oxidizer temperature and determine and record the average temperature in 15-minute and 3-hour block averages. You may determine the average temperature more frequently than every 15 minutes and every 3 hours, but not less frequently.

(b) If formaldehyde emissions are controlled by process modifications or a control device other than a thermal oxidizer, you must install, calibrate, maintain, and operate devices to monitor the parameters established in your OMM plan at the frequency established in the plan.

Notifications, Reports, and Records

§ 63.2998 What records must I maintain?

You must maintain records according to the procedures of § 63.10. You must maintain the records listed in paragraphs (a) through (g) of this section.

(a) All records required by § 63.10. Table 2 of this subpart presents the applicable requirements of the general provisions.

(b) The OMM plan.

(c) Records of values of monitored parameters listed in table 1 of this subpart to show continuous compliance with each operating limit specified in table 1 of this subpart.

(d) Records of maintenance and inspections performed on the control devices.

(e) If an operating parameter deviation occurs, you must record:

(1) The date, time, and duration of the operating parameter deviation;

(2) A brief description of the cause of the operating parameter deviation;

(3) The dates and times at which corrective actions were initiated and completed;

(4) A brief description of the corrective actions taken to return the parameter to the limit or to within the range specified in the OMM plan; and

(5) A record of whether the deviation occurred during a period of startup, shutdown, or malfunction.

(f) Keep all records specified in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(g) If you operate your process or control device under alternative operating condition and have established operating limits for each condition as specified in § 63.2989(c), then you must keep records of the date and time you changed operations from one condition to another, the condition under which you are operating, and the applicable operating limits for that condition.

§ 63.2999 In what form and for how long must I maintain records?

(a) You must maintain each record required by this subpart for 5 years. You must maintain the most recent 2 years of records at the facility. The remaining 3 years of records may be retained offsite.

(b) Your records must be readily available and in a form so they can be easily inspected and reviewed. You can keep the records on paper or an alternative media, such as microfilm, computer, computer disks, magnetic tape, or on microfiche.

§ 63.3000 What notifications and reports must I submit?

(a) You must submit all notifications and reports required by the applicable general provisions and this section. Table 2 of this subpart presents the applicable requirements of the general provisions.

(b) *Notification of compliance status.* You must submit the notification of compliance status, including the performance test results, the operating limits or ranges as determined during the performance test, and other information specified in § 63.9(h), before the close of business on the 60th calendar day after you complete the performance test according to § 63.10(d)(2).

(c) *Semiannual compliance reports.* You must submit semiannual compliance reports according to the requirements of paragraphs (c)(1) through (5) of this section.

(1) *Dates for submitting reports.* Unless the Administrator has agreed to a different schedule for submitting reports under § 63.10(a), you must deliver or postmark each semiannual compliance report no later than 30 days following the end of each semiannual reporting period. The first semiannual reporting period begins on the compliance date for your affected source and ends on June 30 or December 31, whichever date immediately follows your compliance date. Each subsequent semiannual reporting period for which you must submit a semiannual compliance report begins on July 1 or January 1 and ends 6 calendar months later. As required by § 63.10(e)(3), you must begin submitting quarterly compliance reports if you deviate from the emission limits in § 63.2983 or the operating limits in § 63.2984.

(2) *Inclusion with title V report.* For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and for which the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 71.6 (a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraph (c)(1) of this section.

(3) *Contents of reports.* The semiannual compliance report must contain the information in paragraphs (c)(3)(i) through (vi) of this section:

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period.

(iv) A summary of the total duration of continuous parameter monitoring system downtime during the semiannual reporting period and the total duration of continuous parameter monitoring system downtime as a percent of the total source operating time during that semiannual reporting period.

(v) The date of the latest continuous parameter monitoring system certification or audit.

(vi) A description of any changes in the wet-formed fiberglass mat manufacturing process, continuous parameter monitoring system, or add-on control device since the last semiannual reporting period.

(4) *No deviations.* If there were no deviations from the emission limit in § 63.2983 or the operating limits in § 63.2984, the semiannual compliance report must include a statement to that effect. If there were no periods during which the continuous parameter monitoring systems were out-of-control as specified in § 63.8(c)(7), the semiannual compliance report must include a statement to that effect.

(5) *Deviations.* If there was a deviation from the emission limit in § 63.2983 or an operating limit in § 63.2984, the semiannual compliance report must contain the information in paragraphs (c)(5)(i) through (ix) of this section:

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each continuous parameter monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time, and duration that each continuous parameter monitoring system was out-of-control, including the information in § 63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during

a period of startup, shutdown, or malfunction or during another period.

(v) The date and time that corrective actions were taken, a description of the cause of the deviation, and a description of the corrective actions taken.

(vi) A summary of the total duration of each deviation during the semiannual reporting period and the total duration as a percent of the total source operating time during that semiannual reporting period.

(vii) A breakdown of the total duration of the deviations during the semiannual reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(viii) A brief description of the process units.

(ix) A brief description of the continuous parameter monitoring system.

(d) *Performance test reports.* You must submit reports of performance test results for add-on control devices no later than 60 days after completing the tests as specified in § 63.10(d)(2). You must include in the performance test reports the values measured during the performance test for the parameters listed in table 1 of this subpart and the operating limits or ranges to be included in your OMM plan. For the thermal oxidizer temperature, you must include 15-minute averages and the average for the three 1-hour test runs.

(e) *Startup, shutdown, malfunction reports.* If you have a startup, shutdown, or malfunction during the semiannual reporting period, you must submit the reports specified § 63.10(d)(5).

Other Requirements and Information

§ 63.3001 What sections of the general provisions apply to me?

You must comply with the requirements of the general provisions of 40 CFR part 63, subpart A, as specified in table 2 of this subpart.

§ 63.3002 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority, such as your State, local, or tribal agency. If the Administrator has delegated authority to your State, local, or tribal agency, then that agency is the primary enforcement authority. If the Administrator has not delegated authority to your State, only EPA enforces this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraphs (b)(1) through (4) of this section are retained by the Administrator of U.S. EPA and are not transferred to the State, local, or tribal agency.

(1) The authority under § 63.6(g) to approve alternatives to the emission limits in § 63.2983 and operating limits in § 63.2984 is not delegated.

(2) The authority under § 63.7(e)(2)(ii) and (f) to approve of major alternatives (as defined in § 63.90) to the test methods in § 63.2993 is not delegated.

(3) The authority under § 63.8(f) to approve major alternatives (as defined in § 63.90) to the monitoring requirements in §§ 63.2996 and 63.2997 is not delegated.

(4) The authority under § 63.10(f) to approve major alternatives (as defined in § 63.90) to recordkeeping, notification, and reporting requirements in §§ 63.2998 through 63.3000 is not delegated.

§ 63.3003 Incorporation by reference.

(a) The following material is incorporated by reference and referred to at § 63.2984: chapters 3 and 5 of ''Industrial Ventilation: A Manual of Recommended Practice,'' American Conference of Governmental Industrial Hygienists, (23rd edition, 1998). The incorporation by reference of this material is approved by the Director of the Office of the Federal Register as of the date of publication of the final rule according to 5 U.S.C. 552(a) and 1 CFR part 51. This material is incorporated as it exists on the date of approval and notice of any change in the material will be published in the **Federal Register**.

(b) The materials referenced in this section are incorporated by reference and are available for inspection at the Office of the Federal Register, 800 North Capitol Street NW, Suite 700, 7th Floor, Washington, DC; and at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M Street SW, Washington, DC. The material is also available for purchase from the following address: Customer Service Department, American Conference of Governmental Industrial Hygienists (ACGIH), 1330 Kemper Meadow Drive, Cincinnati, OH 45240, telephone number (513) 742–2020.

§ 63.3004 What definitions apply to this subpart?

Terms used in this subpart are defined the Clean Air Act, in § 63.2, and in this section as follows:

Administrator means the Administrator of the United States Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of this part).

Binder application vacuum exhaust means the exhaust from the vacuum system used to remove excess resin solution from the wet-formed fiberglass mat before it enters the drying and curing oven.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limit, or operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, or operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Drying and curing oven means the process section that evaporates excess moisture from a fiberglass mat and cures the resin that binds the fibers.

Emission limitation means an emission limit, operating limit, or work practice standard.

Fiberglass mat production rate means the weight of finished fiberglass mat produced per hour of production including any trim removed after the binder is applied and before final packaging.

Loss-on-ignition means the percentage decrease in weight of fiberglass mat measured before and after it has been ignited to burn off the applied binder. The loss-on-ignition is used to monitor the weight percent of binder in fiberglass mat.

Nonwoven wet-formed fiberglass mat manufacturing means the production of a fiberglass mat by bonding glass fibers to each other using a resin solution. Nonwoven wet-formed fiberglass mat manufacturing is also referred to as wet-formed fiberglass mat manufacturing.

Roofing square means the amount of finished product needed to cover an area 10 feet by 10 feet (100 square feet) of finished roof.

Thermal oxidizer means an air pollution control device that uses controlled flame combustion inside a combustion chamber to convert

combustible materials to noncombustible gases.

Urea-formaldehyde content in binder formulation means the mass-based percent of urea-formaldehyde resin in the total binder mix as it is applied to the glass fibers to form the mat.

§§ 63.3005–63.3079 [Reserved].

Tables to Subpart HHHH of Part 63

TABLE 1 TO SUBPART HHHH.—MINIMUM REQUIREMENTS FOR MONITORING AND RECORDKEEPING

[As stated in § 63.2998(c), you must comply with the minimum requirements for monitoring and recordkeeping in the following table]

You must monitor these parameters:	At this frequency:	And record for the monitored perameter:
1. Thermal oxidizer temperature [a]	Continuously	15-minute and 3-hour block averages.
2. Other process or control device parameters specified in your OMM [b] plan.	As specified in your OMM plan	As specified in your OMM plan.
3. Urea-formaldehyde resin solids application rate.	On each operating day, calculate the average lb/hr application rate for each product manufactured during that day.	The average lb/hr value for each product manufactured during the day.
4. Resin free-formaldehyde content	For each lot of resin purchased	The value for each lot used during the operating day.
5. Loss-on-ignition [c]	Measured at least once per day, for each product manufactured during that day.	The value for each product manufactured during the operating day.
6. UF-to-latex ratio in the binder [c]	For each batch of binder prepared the operating day.	The value for each batch of binder prepared during the operating day.
7. Weight of the final mat product per square (lb/roofing square)[c].	Each product manufactured during the operating day.	The value for each product manufactured during the operating day.
8. Average nonwoven wet-formed fiberglass mat production rate (roofing squares per the hour) [c].	For each product manufactured during the operating day.	The average value for each product manufactured during operating day.

[a] Required if a thermal oxidizer is used to control formaldehyde emissions.
[b] Required if process modifications or a control device other than a thermal oxidizer is used to control emissions.
[c] These parameters must be monitored and values recorded, but no operating limits apply.

TABLE 2 TO SUBPART HHHH.—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART HHHH

[As stated in § 63.3001, you must comply with the applicable General Provisions requirements according to the following table]

Citation	Requirement	Applies to subpart HHHH	Explanation
§ 63.1(a)(1)–(4)	General Applicability	Yes	
§ 63.1(a)(5)		No	[Reserved].
§ 63.1(a)(6)–(8)		Yes	
§ 63.1(a)(9)		No	[Reserved].
§ 63.1(a)(10)–(14)		Yes	
§ 63.1(b)	Initial Applicability Determination	Yes	
§ 63.1(c)(1)	Applicability After Standard Established	Yes	
§ 63.1(c)(2)		Yes	Some plants may be area sources.
§ 63.1(c)(3)		No	[Reserved].
§ 63.1(c)(4)–(5)		Yes	
§ 63.1(d)		No	[Reserved].
§ 63.1(e)	Applicability of Permit Program	Yes	
§ 63.2	Definitions	Yes	Additional definitions in § 63.3004.
§ 63.3	Units and Abbreviations	Yes	
§ 63.4(a)(1)–(3)	Prohibited Activities	Yes	
§ 63.4(a)(4)		No	[Reserved].
§ 63.4(a)(5)		Yes	
§ 63.4(b)–(c)	Circumvention/Severability	Yes	
§ 63.5(a)	Construction/Reconstruction	Yes	
§ 63.5(b)(1)	Existing/Constructed/Reconstruction	Yes	
§ 63.5(b)(2)		No	[Reserved].
§ 63.5(b)(3)–(6)		Yes	
§ 63.5(c)		No	[Reserved].
§ 63.5(d)	Application for Approval of Construction/ Reconstruction.	Yes	
§ 63.5(e)	Approval of Construction/Reconstruction	Yes	
§ 63.5(f)	Approval of Construction/Reconstruction Based on State Review.	Yes	
§ 63.6(a)	Compliance with Standards and Maintenance—Applicability.	Yes	
§ 63.6(b)(1)–(5)	New and Reconstructed Sources-Dates	Yes	
§ 63.6(b)(6)		No	[Reserved].
§ 63.6(b)(7)		Yes	
§ 63.6(c)(1)–(2)	Existing Sources Dates	Yes	§ 63.2985 specifies dates.
§ 63.6(c)(3)–(4)		No	[Reserved].
§ 63.6(c)(5)		Yes	

TABLE 2 TO SUBPART HHHH.—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART HHHH—Continued

[As stated in § 63.3001, you must comply with the applicable General Provisions requirements according to the following table]

Citation	Requirement	Applies to subpart HHHH	Explanation
§ 63.6(d)	.....	No	[Reserved].
§ 63.6(e)	Operation and Maintenance Requirements.	Yes	§§ 63.2984 and 63.2987 specify additional requirements.
§ 63.6(f)	Compliance with Emission Standards ...	Yes	
§ 63.6(g)	Alternative Standard	Yes	EPA retains approval authority.
§ 63.6(h)	Compliance with Opacity/Visible Emissions Standards.	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.6(i)(1)–(14)	Extension of Compliance	Yes	
§ 63.6(i)(15)	.....	No	[Reserved].
§ 63.6(i)(16)	.....	Yes	
§ 63.6(j)	Exemption from Compliance	Yes	
§ 63.7(a)	Performance Test Requirements—Applicability and Dates.	Yes	
§ 63.7(b)	Notification of Performance Test	Yes	
§ 63.7(c)	Quality Assurance Program/Test Plan ..	Yes	
§ 63.7(d)	Testing Facilities	Yes	
§ 63.7(e)	Conduct of Tests	Yes	§ 63.2991–63.2994 specify additional requirements.
§ 63.7(f)	Alternative Test Method	Yes	EPA retains approval authority
§ 63.7(g)	Data Analysis	Yes	
§ 63.7(h)	Waiver of Tests	Yes	
§ 63.8(a)(1)–(2)	Monitoring Requirements—Applicability	Yes	
§ 63.8(a)(3)	.....	No	[Reserved].
§ 63.8(a)(4)	.....	Yes	
§ 63.8(b)	Conduct of Monitoring	Yes	
§ 63.8(c)(1)–(3)	Continuous Monitoring System (CMS) Operation and Maintenance.	Yes	
§ 63.8(c)(4)	.....	Yes	
§ 63.8(c)(5)	.....	No	Subpart HHHH does not specify opacity or visible emission standards
§ 63.8(c)(6)–(8)	.....	Yes	
§ 63.8(d)	Quality Control	Yes	
§ 63.8(e)	CMS Performance Evaluation	Yes	
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	Yes	EPA retains approval authority
§ 63.8(f)(6)	Alternative to Relative Accuracy Test	No	Subpart HHHH does not require the use of continuous emissions monitoring systems (CEMS)
§ 63.8(g)(1)	Data Reduction	Yes	
§ 63.8(g)(2)	Data Reduction	No	Subpart HHHH does not require the use of CEMS or continuous opacity monitoring systems (COMS).
§ 63.8(g)(3)–(5)	Data Reduction	Yes	
§ 63.9(a)	Notification Requirements—Applicability	Yes	
§ 63.9(b)	Initial Notifications	Yes	
§ 63.9(c)	Request for Compliance Extension	Yes	
§ 63.9(d)	New Source Notification for Special Compliance Requirements.	Yes	
§ 63.9(e)	Notification of Performance Test.	Yes	
§ 63.9(f)	Notification of Visible Emissions/Opacity Test.	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.9(g)(1)	Additional CMS Notifications	Yes	
§ 63.9(g)(2)–(3)	.....	No	Subpart HHHH does not require the use of COMS or CEMS.
§ 63.9(h)(1)–(3)	Notification of Compliance Status	Yes	§ 63.3000(b) specifies additional requirements.
§ 63.9(h)(4)	.....	No	[Reserved].
§ 63.9(h)(5)–(6)	.....	Yes	
§ 63.9(i)	Adjustment of Deadlines	Yes	
§ 63.9(j)	Change in Previous Information	Yes	
§ 63.10(a)	Recordkeeping/Reporting—Applicability	Yes	
§ 63.10(b)	General Recordkeeping Requirements	Yes	§ 63.2998 includes additional requirements.
§ 63.10(c)(1)	Additional CMS Recordkeeping	Yes	
§ 63.10(c)(2)–(4)	.....	No	[Reserved].
§ 63.10(c)(5)–(8)	.....	Yes	
§ 63.10(c)(9)	.....	No	[Reserved].
§ 63.10(c)(10)–(15)	.....	Yes	
§ 63.10(d)(1)	General Reporting Requirements	Yes	§ 63.3000 includes additional requirements.

TABLE 2 TO SUBPART HHHH.—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART HHHH—Continued

[As stated in § 63.3001, you must comply with the applicable General Provisions requirements according to the following table]

Citation	Requirement	Applies to subpart HHHH	Explanation
§ 63.10(d)(2)	Performance Test Results	Yes	§ 63.3000 includes additional requirements
§ 63.10(d)(3)	Opacity or Visible Emissions Observations.	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.10(d)(4)–(5)	Progress Reports/Startup, Shutdown, and Malfunction Reports.	Yes	
§ 63.10(e)(1)	Additional CMS Reports—General	No	Subpart HHHH does not require CEMS.
§ 63.10(e)(2)	Reporting results of CMS performance evaluations.	Yes	
§ 63.10(e)(3)	Excess Emission/CMS Performance Reports.	Yes	
§ 63.10(e)(4)	COMS Data Reports	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.10(f)	Recordkeeping/Reporting Waiver	Yes	EPA retains approval authority
§ 63.11	Control Device Requirments—Applicability.	No	Facilities subject to subpart HHHH do not use flares as control devices.
§ 63.12	State Authority and Delegations	Yes	
§ 63.13	Addresses	Yes	
§ 63.14	Incorporation by Reference	No	
§ 63.15	Availability of Information/Confidentiality	Yes	

Appendices to Subpart HHHH of Part 63

Appendix A to Subpart HHHH—Method for Determining Free-Formaldehyde in Urea-Formaldehyde Resins by Sodium Sulfite (Iced & Cooled)

1.0 Scope

This procedure corresponds to the Housing and Urban Development method of determining free-formaldehyde in urea-formaldehyde resins. This method applies to samples that decompose to yield formaldehyde under the conditions of other free-formaldehyde methods. The primary use is for urea-formaldehyde resins.

2.0 Part A—Testing Resins

Formaldehyde will react with sodium sulfite to form the sulfite addition products and liberate sodium hydroxide (NaOH); however, at room temperature, the methanol groups present will also react to liberate NaOH. Titrate at 0 degrees Celsius (°C) to minimize the reaction of the methanol groups.

2.1 Apparatus Required.

2.1.1 Ice crusher.

2.1.2 One 100-milliliter (mL) graduated cylinder.

2.1.3 Three 400-mL beakers.

2.1.4 One 50-mL burette.

2.1.5 Analytical balance accurate to 0.1 milligrams (mg).

2.1.6 Magnetic stirrer.

2.1.7 Magnetic stirring bars.

2.1.8 Disposable pipettes.

2.1.9 Several 5-ounce (oz.) plastic cups.

2.1.10 Ice cube trays (small cubes).

2.2 Materials Required.

2.2.1 Ice cubes (made with distilled water).

2.2.2 A solution of 1 molar (M) sodium sulfite (Na_2SO_3) (63 grams (g) Na_2SO_3/500 mL water (H_2O) neutralized to thymolphthalein endpoint).

2.2.3 Standardized 0.1 normal (N) hydrochloric acid (HCl).

2.2.4 Thymolphthalein indicator (1.0 g thymolphthalein/199 g methanol).

2.2.5 Sodium chloride (NaCl) (reagent grade).

2.2.6 Sodium hydroxide (NaOH).

2.3 Procedure.

2.3.1 Prepare sufficient quantity of crushed ice for three determinations (two trays of cubes).

2.3.2 Put 70 cubic centimeters (cc) of 1 M Na_2SO_3 solution into a 400-mL beaker. Begin stirring and add approximately 100 g of crushed ice and 2 g of NaCl. Maintain 0 °C during test, adding ice as necessary.

2.3.3 Add 10–15 drops of thymolphthalein indicator to the chilled solution. If the solution remains clear, add 0.1 N NaOH until the solution turns blue; then add 0.1 N HCl back to the colorless endpoint. If the solution turns blue upon adding the indicator, add 0.1 N HCl to the colorless endpoint.

2.3.4 On the analytical balance, accurately weigh the amount of resin indicated under the ''*Resin Sample Size*'' chart (see below) as follows.

RESIN SAMPLE SIZE

Approximate free HCHO (percent)	Sample weight (gram(s))
<0.5	10
0.5–1.0	5
1.0–3.0	2
3.0	1

2.3.4.1 Pour about 1 inch of resin into a 5 oz. plastic cup.

2.3.4.2 Determine the gross weight of the cup, resin, and disposable pipette (with the narrow tip broken off) fitted with a small rubber bulb.

2.3.4.3 Pipette out the desired amount of resin into the stirring, chilled solution (approximately 1.5 to 2 g per pipette-full).

2.3.4.4 Quickly reweigh the cup, resin, and pipette with the bulb.

2.3.4.5 The resultant weight loss equals the grams of resin being tested.

2.3.5 Rapidly titrate the solution with 0.1 N HCl to the colorless endpoint described in Step 3 (2.3.3).

2.3.6 Repeat the test in triplicate.

2.4 Calculation.

2.4.1 The percent free-formaldehyde (%HCHO) is calculated as follows:

$$\%HCHO = \frac{(\text{mL 0.1 N HCl})\,(\text{N of Acid})\,(3.003)}{\text{Weight of Sample}}$$

2.4.2 Compute the average percent free-formaldehyde of the three tests.

(**Note:** If the results of the three tests are not within a range of ±0.5 percent or if the average of the three tests does not meet expected limits, carry out Part B and then repeat Part A.)

3.0 Part B—Standard Check

Part B ensures that test reagents used in determining percent free-formaldehyde in urea-formaldehyde resins are of proper concentration and that operator technique is correct. Should any doubts arise in either of these areas, the formaldehyde standard solution test should be carried out.

3.1 Preparation and Standardization of a 1 Percent Formalin Solution.

Prepare a solution containing approximately 1 percent formaldehyde from a stock 37 percent formalin solution. Standardize the prepared solution by titrating the hydroxyl ions resulting from the formation of the formaldehyde bisulfite complex.

3.2 Apparatus Required.

Note: All reagents must be American Chemical Society analytical reagent grade or better.

3.2.1 One 1-liter (L) volumetric flask (class A).
3.2.2 One 250-mL volumetric flask (class A).
3.2.3 One 250-mL beaker.
3.2.4 One 100-mL pipette (class A).
3.2.5 One 10-mL pipette (class A).
3.2.6 One 50-mL graduated cylinder (class A).
3.2.7 A pH meter, standardized using pH 7 and pH 10 buffers.
3.2.8 Magnetic stirrer.
3.2.9 Magnetic stirring bars.
3.2.10 Several 5-oz. plastic cups.
3.2.11 Disposal pipettes.
3.2.12 Ice cube trays (small cubes).

3.3 Materials Required.

3.3.1 A solution of 37 percent formalin.
3.3.2 Anhydrous Na_2SO_3.
3.3.3 Distilled water.
3.3.4 Standardized 0.100 N HCl.
3.3.5 Thymolphthalein indicator (1.0 g thymolphthalein/199 g methanol).

3.4 Preparation of Solutions and Reagents.

3.4.1 Formaldehyde Standard Solution (approximately 1 percent). Measure, using a graduated cylinder, 27.0 mL of analytical reagent 37 percent formalin solution into a 1-L volumetric flask. Fill the flask to volume with distilled water.

(**Note:** You must standardize this solution as described in section 3.5. This solution is stable for 3 months.)

3.4.2 Sodium Sulfite Solution 1.0 M (used for standardization of Formaldehyde Standard Solution). Quantitatively transfer, using distilled water as the transfer solvent, 31.50 g of anhydrous Na_2SO_3 into a 250-mL volumetric flask. Dissolve in approximately 100 mL of distilled water and fill to volume.

(**Note:** You must prepare this solution daily, but the calibration of the Formaldehyde Standard Solution needs to be done only once.)

3.4.3 Hydrochloric Acid Standard Solution 0.100 M. This reagent should be readily available as a primary standard that only needs to be diluted.

3.5 Standardization.

3.5.1 Standardization of Formaldehyde Standard Solution.

3.5.1.1 Pipette 100.0 mL of 1 M sodium sulfite into a stirred 250-mL beaker.

3.5.1.2 Using a standardized pH meter, measure and record the pH. The pH should be around 10. It is not essential the pH be 10; however, it is essential that the value be accurately recorded.

3.5.1.3 To the stirring Na_2SO_3 solution, pipette in 10.0 mL of Formaldehyde Standard Solution. The pH should rise sharply to about 12.

3.5.1.4 Using the pH meter as a continuous monitor, titrate the solution back to the original exact pH using 0.100 N HCl. Record the milliliters of HCl used as titrant. (**Note:** Approximately 30 to 35 mL of HCl will be required.)

3.5.1.5 Calculate the concentration of the Formaldehyde Standard Solution using the equation as follows:

$$\%HCHO = \frac{(\text{mL HCl})\,(\text{N HCl})\,(3.003)}{\text{mL sample}}$$

3.6 Procedure.

3.6.1 Prepare a sufficient quantity of crushed ice for three determinations (two trays of cubes).

3.6.2 Put 70 cc of 1 M Na_2SO_3 solution into a 400-mL beaker. Begin stirring and add approximately 100 g of crushed ice and 2 g NaCl. Maintain 0 °C during the test, adding ice as necessary.

3.6.3 Add 10–15 drops of thymolphthalein indicator to the chilled solution. If the solution remains clear, add 0.1 N NaOH until the solution turns blue; then add 0.1 N HCl back to the colorless endpoint. If the solution turns blue upon adding the indicator, add 0.1 N HCl to the colorless endpoint.

3.6.4 On the analytical balance, accurately weigh a sample of Formaldehyde Standard Solution as follows.

3.6.4.1 Pour about 0.5 inches of Formaldehyde Standard Solution into a 5-oz. plastic cup.

3.6.4.2 Determine the gross weight of the cup, Formaldehyde Standard Solution, and a disposable pipette fitted with a small rubber bulb.

3.6.4.3 Pipette approximately 5 g of the Formaldehyde Standard Solution into the stirring, chilled Na_2SO_3 solution.

3.6.4.4 Quickly reweigh the cup, Formaldehyde Standard Solution, and pipette with the bulb.

3.6.4.5 The resultant weight loss equals the grams of Formaldehyde Standard Solution being tested.

3.6.5 Rapidly titrate the solution with 0.1 N HCl to the colorless endpoint in Step 3 (3.6.3).

3.6.6 Repeat the test in triplicate.

3.7 Calculation for Formaldehyde Standard Solution.

3.7.1 The percent free-formaldehyde (% HCHO) is calculated as follows:

$$\%HCHO = \frac{(\text{mL 0.1 N HCl})(\text{N Acid})(3.003)}{\text{Weight of Formaldehyde Standard Solution}}$$

3.7.2 The range of the results of three tests should be no more than ±5 percent of the actual Formaldehyde Standard Solution concentration. Report results to two decimal places.

3.8 Reference.

West Coast Adhesive Manufacturers Trade Association Test 10.1.

Appendix B to Subpart HHHH—Method for the Determination of Loss-on-Ignition

1.0 Purpose

The purpose of this test is to determine the loss-on-ignition (LOI) of wet-formed fiberglass mat.

2.0 Equipment

2.1 Scale sensitive to 0.001 gram (g).

2.2 Drying oven equipped with a means of constant temperature regulation and mechanical air convection.

2.3 Furnace designed to heat to at least 625 °C (1,157 °F) and controllable to ±25 °C (±45 °F).

2.4 Crucible, high form, 250 milliliter (mL).

2.5 Desiccator.

2.6 Pan balance (see Note 2 in 4.9)

3.0 Sample Collection Procedure

3.1 Obtain a sample of mat in accordance with Technical Association of the Pulp and Paper Industry (TAPPI) method 1007 ''Sample Location.''

3.2 Use a 5- to 10-g sample cut into pieces small enough to fit into the crucible.

3.3 Place the sample in the crucible. (**Note 1:** To test without the use of a crucible, see Note 2 after Section 4.8.)

3.4 Condition the sample in the furnace set at 105 ± 3 °C (221 ± 9 °F) for 5 minutes ± 30 seconds.

4.0 Procedure

4.1 Condition each sample by drying for 5 minutes ± 30 seconds at 105 ± 3 °C (22 ± 5 °F).

4.2 Remove the test sample from the furnace and cool in the desiccator for 30 minutes in the standard atmosphere for testing glass textiles.

4.3 Place the empty crucible in the furnace at 625 ± 25 °C (1,157 ± 45 °F). After 30 minutes, remove and cool the crucible in the standard atmosphere (TAPPI method 1008) for 30 minutes.

4.4 Identify each crucible with respect to each test sample of mat.

4.5 Weigh the empty crucible to the nearest 0.001 g. Record this weight as the tare mass, T.

4.6 Place the test sample in the crucible and weigh to the nearest 0.001 g. Record this weight as the initial mass, A.

4.7 Place the test sample and crucible in the furnace and ignite at 625 ± 25 °C (1,157 ± 45 °F).

4.8 After ignition for at least 30 minutes, remove the test sample and crucible from the furnace and cool in the desiccator for 30 minutes in the standard atmosphere (TAPPI method 1008).

4.9 Remove each crucible, and test each sample separately from the desiccator, and immediately weigh each sample to the nearest 0.001 g. Record this weight as the ignited mass, B. (**Note 2:** When it is known that no ash residue separates from the test sample during the weighing and igniting processes, you may weigh the sample separately without the crucible. When this occurs, the tare mass (T) equals zero. With appropriate care, you can dry and weigh a single piece of mat and place with tongs into the ignition oven on appropriate refractory supports. When the ignition time is over, remove the sample as an intact fragile web and weigh it directly on a pan balance.)

5.0 Calculation

5.1 Calculate the LOI for each sample as follows:

$$\% \text{ LOI} = 100 \times (A - B)/(A - T)$$

Where:

A = initial mass of crucible and sample before ignition (g);

B = mass of crucible and glass residue after ignition (g); and

T = tare mass of crucible, (g) (see Note 2).

5.2 Report the percent LOI of the glass mat to the nearest 0.1 percent.

6.0 Precision

The repeatability of this test method for measurements on adjacent specimens from the same sample of mat is better than 1 percent.

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