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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD-FRL 2484-8]

Standards of Performance for New Stationary Sources; Synthetic Fiber Production Facilities

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Standards of performance for synthetic fiber production facilities were proposed in the Federal Register on November 23, 1982 (47 FR 52932). This action promulgates standards of performance for synthetic fiber production facilities. These standards implement Section 111 of the Clean Air Act and are based on the Administrator's determination that synthetic fiber production facilities cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare. The intended effect of these standards is to require all new and reconstructed synthetic fiber production facilities to control emissions to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, nonair quality health and environmental impacts, and energy requirements.

EFFECTIVE DATE: April 5, 1984. Under Section 307(b)(1) of the Clean Air Act, judicial review of this new source performance standard is available only by the filing of a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under Section 307(b)(2) of the Clean Air Act, the requirements that are the subject of today's notice may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: *Background Information Document.* The background information document (BID) for the promulgated standards may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Synthetic Fiber Production Facilities—Background Information for Promulgated Standards" (EPA-450/3-82-011b). The BID contains (1) a summary of all the public comments made on the proposed standards and the Administrator's response to the comments, (2) a summary of the changes made to the standards since proposal, and (3) the final Environmental Impact Statement which summarizes the impacts of the standards.

Docket. A docket, number A-80-7, containing information considered by EPA in development of the promulgated standards, is available for public inspection between 8:00 a.m. and 4:00 p.m., Monday through Friday, at EPA's Central Docket Section LE-131, West Tower Lobby, Gallery 1, 401 M Street, SW., Washington, D.C. 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. Robert L. Ajax, Standards Development Branch, Emission Standards and Engineering Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone (919) 541-5578.

SUPPLEMENTARY INFORMATION:

The Standards

Standards of performance for new sources established under Section 111 of the Clean Air Act reflect:

> * * * application of the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated (Section 111(a)(1)).

For convenience, this will be referred to as "best demonstrated technology," or "BDT."

The standards limit emissions of volatile organic compounds (VOC) from new and reconstructed synthetic fiber production facilities that utilize an organic solvent in manufacturing the formed fiber. This includes the production of such fiber types as acrylic, modacrylic, cellulose acetate, and spandex. The standards do not apply to modified facilities.

The affected facility to which the standards apply is each solvent-spun synthetic fiber process that produces more than 500 megagrams of fiber per year. The standards require that VOC emissions from each affected facility that produces acrylic fibers or both acrylic and nonacrylic fibers be limited to 10 kilograms (kg) per megagram (Mg) solvent fed to the spinning solution preparation area or precipitation bath.[*] The standards also limit VOC emissions from each affected facility producing only fiber types other than acrylic to 17 kg per Mg solvent fed to the spinning solution preparation area or precipitation bath.

To determine compliance with the standards, the owner or operator of an affected facility is required to measure the amount of makeup solvent introduced to the affected facility and to determine the amount of total solvent used within the affected facility by direct measure or through use of plant process records. Records must be maintained in a form suitable for inspection for at least 2 years. In addition, the owner or operator of the affected facility must submit semiannual reports of instances in which the VOC emissions exceed the standards.

BDT for this industry is broadly described as a system of improved solvent recovery that results in reduced solvent VOC emissions. For most segments of the industry, this system involves the use of hoods and enclosures around the process steps that typically emit the largest portion of solvent emissions. For other segments of the industry, the system identified as BDT involves the use of air management, in which a portion of room air is withdrawn to a control device and solvent vapor collected. To achieve emission reductions beyond baseline control conditions and to meet the NSPS limits, however, specific equipment is not mandated. The emission reduction techniques noted above are not exclusive, and an affected facility may determine that another technique would be more feasible for emission reductions for a given fiber type or production process.

Summary of Environmental, Energy, and Economic Impacts

Environmental Impacts

The standards will reduce projected 1987 nationwide VOC emissions from new and reconstructed solvent-spun synthetic fiber production facilities by as much as 8.5 gigagrams (Gg) (9.4 thousand tons) per year. Nationwide emissions will be reduced by as much as 63 percent of the amount that would occur in the absence of this regulation. Emission reductions will range from about 1.1 Gg (1,200 tons) per year for a dry-spinning acrylic fiber plant to about

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[*] In the proposed standards (47 FR 52945), § 60.602(a) contained a typographical error that may have created some question as to the proposed standard for affected facilities that produce both acrylic and nonacrylic fiber types. However, the preamble to the proposed standards (see 47 FR 52940, cols. II and III) should have made clear that the proposed standard for these facilities was identical to the proposed standard for affected facilities producing only acrylic fibers—10 kg VOC per megagram solvent feed. (EPA received no comment suggesting any confusion on this point.) As stated in the text above, the numerical standard promulgated today for affected facilities that produce both acrylic and nonacrylic fibers remains 10 kg VOC per megagram solvent feed.

1.7 Gg (1,900 tons) per year for an acetate filtration tow plant.

The fifth-year water pollution and solid waste impacts of the standards each represent less than a 1 percent increase over the impacts that would result in the absence of standards of performance.

Energy Impacts

The incremental energy increase necessary to operate the additional control equipment required to meet the standards will range from 2 to 3 percent of the total energy required to operate the types of fiber production plants covered by the standards. The total nationwide energy impact of the standards is estimated to be as much as 430 terajoules (403 billion Btu) per year in 1987.

Economic Impacts

The cumulative industry-wide capital costs will be as much as $27.8 million by 1987, an 8 percent increase in costs for new facilities. Capital costs for implementing the standards at individual plants will range from $4.2 to $5.5 million. Economic analysis indicated that the annualized costs to individual solvent-spun fiber plants will range from about $1.2 million to $1.3 million. However, there will also be a credit for recovered solvent in the range of $1.0 to $1.1 million. Net annualized costs, therefore, will be about $0.2 million for an individual plant. The annualized cost to the entire industry by 1987 will be as much as $7.4 million; however, a corresponding $6.2 million credit for additional solvent recovery will nearly offset these costs, resulting in net annualized cost to the industry of $1.2 million by 1987. Analysis indicates the cost of emission control required by the standards is not expected to prevent or hinder expansion or continued production by the solvent-spun synthetic fibers industry. These costs (savings) do not include lost opportunity costs (i.e., the profit or return on investment which could be derived by investing in other than air pollution control equipment).

The environmental, energy, and economic impacts are discussed in detail in the background information document for the proposed standards, "Synthetic Fiber Production Facilities—Background Information for Proposed Standards" (EPA-450/3-82-011a).

Public Participation

Prior to proposal of the standards, interested parties were advised by public notice in the Federal Register (46 FR 42910, August 25, 1981) of a meeting of the National Air Pollution Control Techniques Advisory Committee to discuss the synthetic fiber production facilities standards recommended for proposal. This meeting was held on September 22, 1981. The meeting was open to the public and each attendee was given an opportunity to comment on the standards recommended for proposal. The standards were proposed in the Federal Register on November 23, 1982 (47 FR 52932). The preamble to the proposed standards discussed the availability of the background information document (BID), EPA-450/3-82-011a, which described in detail the regulatory alternatives considered and the impacts of those alternatives. Public comments were solicited at the time of proposal and, when requested, copies of the BID were distributed to interested parties. To provide interested persons the opportunity for oral presentation of data, views, or arguments concerning the proposed standards, a public hearing was scheduled for January 11, 1983, at Research Triangle Park, North Carolina, but was not held because no one requested that a hearing be conducted. The public comment period was from November 23, 1982, to February 11, 1983.

Six comment letters were received concerning issues relative to the proposed standards of performance for synthetic fiber production facilities. The comments have been carefully considered, and, where determined to be appropriate by the Administrator, changes have been made to the standards.

Significant Comments and Changes to the Standards

Comments on the proposed standards were received from industry and trade association representatives, and one State air pollution control agency. Most of the comment letters contained multiple comments. A detailed discussion of all the comments and responses can be found in the background information document (BID), which is referred to in the ADDRESSES section of this preamble. A discussion of the three major issues raised by the commenters is contained in the following paragraphs.

One of the major issues concerned the expected growth within the synthetic fiber industry, and whether or not EPA should establish an NSPS for this industry, given the differing EPA and industry growth forecasts. The second major issue raised by several industry representatives concerned the capture efficiency of enclosures on which the emission limits are based. Several commenters questioned whether this efficiency (90 percent) is achievable and suggested that lower values would be more realistic. The third major issue raised by the commenters was whether the enclosures as envisioned by EPA for use at synthetic fiber plants would create unsafe operating conditions, primarily from an explosive potential.

Growth Within the Synthetic Fibers Industry

Several commenters questioned the need for an NSPS for the synthetic fibers industry. They claimed that there will be no new or reconstructed facilities in the next 5 years and that EPA has therefore overestimated the growth rate. The reasons they gave for no growth were that (1) existing production supplying the export market could be used to satisfy any increase in domestic demand for acrylic fibers, (2) existing cellulose acetate filament yarn facilities could be converted to produce cigarette filter tow if the demand necessitates more tow capacity, and (3) new filter tow facilities would cost too much to build and would result in an increase in fiber prices that would not be competitive with fiber produced in other countries.

EPA has evaluated the commenters' claim that there will be no capacity additions in the next 5 years and does not reach the same conclusion as the commenters regarding the need for the NSPS. The 5-year period referred to by the commenters has no special significance in the decisions as to whether or not to develop an NSPS for a given source category. It is often a reasonable indicator of growth, but such factors as cyclic growth, current economic conditions, etc., can result in situations where projected growth during the next 5-year period is not necessarily indicative of long-term trends. Since an NSPS is intended to achieve long-term benefits, it is important to project and consider potential benefits that would occur beyond the 5-year period. Even if growth is not certain, however, it is still not unreasonable to promulgate the NSPS. Early promulgation of these standards would enhance the ability of facility owners to plan for whatever future growth will be necessary. Consequently, EPA believes the NSPS will be beneficial in limiting VOC emissions from new or reconstructed synthetic fiber production facilities when they are built, regardless of whether it is within 5 years or beyond.

As mentioned above, one commenter claimed that the domestic market for acrylic fibers is more attractive to producers than the export market; therefore any new domestic demand would be met at the expense of the export share, rather than with new production capacity. EPA performed an analysis using data on domestic and export acrylic shipments to determine whether the export market is a residual market, as the commenter contended. This analysis showed that the domestic and export shipments tend to move in the same direction, increasing and decreasing together. These facts suggest that the export market is not simply a residual market for the acrylic producers that will be curtailed when domestic consumption increases.

The commenters' claim that filter tow capacity growth can be accommodated by converting filament yarn facilities is not supported by industry production and capacity utilization data. Data for the 1975–1979 period indicated a stabilization in production of filament yarn after dramatic production declines in the 1970–1975 period. By 1980, most of the excess capacity had been eliminated, resulting in capacity utilization of over 92 percent. EPA, therefore, concludes that excess filament yarn capacity will not be available in the future to augment the current filter tow capacity. Consequently, any substantial increase in the demand for production of cigarette filter tow would necessitate new plant construction.

The third reason for no growth given by the commenters was that filter tow facilities would be too expensive to build (even in the absence of an NSPS) and would not be able to compete on the international market because of the resulting high implicit price of the domestic filter tow. (Implicit price refers to the product price that reflects costs of production.) Acetate filter tow manufacturers have a legitimate concern about the international competitiveness of new facilities since foreign exports make up about 40 percent of their markets. However, to the extent that foreign producers share the conditions that have resulted in such an increase in the cost of filter tow from a new facility, the export market for domestic producers will probably remain strong.

EPA's position that price increases for cigarette filter tow will have little effect on the export market derives in part from an assumption that the price elasticity of export demand is similar to the price elasticity of domestic demand. The estimate of the price elasticity of domestic demand for cigarette filter tow was derived from the price elasticity for cigarettes themselves. Cigarette demand is generally found to be highly price inelastic, and the demand for cigarette filter tow is estimated to be even more inelastic because it is only a small part of a cigarette cost. Accordingly, an increase in cigarette filter tow price is not expected to have a major impact on domestic growth in acetate filter tow consumption.

It is recognized that the U.S. position in the world filter tow market is not what it once was. However, the bulk of the decline in U.S. market share occurred some years ago. Throughout the 1970's the United States was responsible for 54 percent of the world filter tow production. According to the most recently available data, the U.S. share appears to have been sufficiently stable over the last decade to justify an assumption of continued maintenance of its world market share.

EPA believes that the possibility of substitution in cigarette filter production has limited potential. It is believed that cigarette manufacturers experiment with alternate filter materials principally for long-term purposes, especially for incorporation in new brands. Since filter design affects the taste, and therefore, the desirability of a cigarette, manufacturers are extremely hesitant to substitute filter materials in existing brands.

On the basis of the reasons discussed above and in the BID, EPA believes that synthetic fiber production facilities subject to the NSPS will be constructed or reconstructed in the future and that the NSPS will significantly reduce VOC emissions at these facilities.

Use of Enclosures and Their Capture Efficiency

Two commenters claimed that enclosures do not meet the requirements for best demonstrated technology for the cigarette filter tow industry because they have not been demonstrated for domestic facilities. One commenter stated that enclosure technology has not been demonstrated for many acrylic fiber production areas and is not representative of technology employed by this category.

The commenter's use of the term "best demonstrated technology" is a reference to Section 111(a)(1)(C) of the Clean Air Act, which specifies that a standard of performance "* * * reflects the degree of emission reduction achievable through the application of the best system of continuous emisson reduction which (taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated for the category of sources." EPA normally refers to this system of continuous emission reduction as "best demonstrated technology" or BDT.

The commenters have interpreted the Section 111 requirement that the system be adequately demonstrated as meaning that it be in actual use at each type of existing facility in the category of sources being regulated and that it be achieving the level of the NSPS for which it is the basis. EPA interprets the requirement more broadly. Control technology can be considered BDT if it can be shown to be the best system demonstrated for the category of sources, not necessarily on the category of sources. This means that a system used in an entirely different industry using a different process than the one being regulated can be BDT if its performance would not be affected by the differences in the sources. Similarly, a system used in some segments of the industry being regulated, or in some parts of the process, but not others, can be considered BDT for all segments or all parts of the process if it is possible to design, install, and operate it so that it achieves emission control under all the conditions in which it would applied.

EPA believes that enclosure technology as a means of capturing VOC emissions from acrylic fiber and cellulose acetate filter tow manufacturing facilities meets these criteria. EPA is unaware of any process-related or other reason that would prevent application of this technology to these types of synthetic fiber production facilities. Furthermore, enclosures are being used at one domestic acrylic fiber manufacturing plant and at a foreign cellulose acetate filter tow manufacturing plant. For these reasons, EPA believes that enclosure technology represents BDT for acrylic fiber and cellulose acetate filter tow manufacturing plants.

Two commenters stated that the 90 percent capture efficiency for enclosures that is part of the basis for the NSPS is not supported by adequate documentation or data. They also contended that since enclosures must be opened frequently to allow worker access to equipment, the 90 percent capture efficiency is not supportable. One commenter estimated that enclosures could capture no more than 86 percent of VOC emissions. He estimated that the enclosures would be open, thus reducing effectiveness, for 8 to 19 percent of the time.

As indicated in the preamble to the proposed NSPS (47 FR 52936), the 90 percent capture efficiency used by EPA to calculate achievable emission reductions was based on solvent use and emission data collected from fiber production facilities of several companies. Emission tests were conducted and solvent mass balance data collected at acrylic fiber plants that use enclosures. Although these data indicated that the tested plants were achieving about 95 percent capture with their enclosures, EPA selected 90 percent to account for the more frequent opening of enclosures to allow worker access that is necessary at filter tow facilities (estimated at 14 percent based on information provided to EPA before proposal by one company representative).

To respond to the commenter's concern that the capture efficiency would be reduced to less than 90 percent if the enclosure doors were open up to 19 percent of the time, EPA calculated the efficiency using this worst-case assumption. The detailed calculation may be found in Appendix A of the BID. It indicates that under these worst-case conditions, the lowest capture efficiency would be greater than 91 percent, not the 86 percent claimed by the commenter. Therefore, EPA continues to believe that enclosures on fiber processing facilities can consistently achieve greater than 90 percent capture.

Safety of Enclosures

Two commenters claimed that the use of enclosure technology on filter tow facilities would create a safety hazard because acetone concentrations within the enclosures could build up to explosive levels within a relatively short period (as short as 30 seconds). They acknowledged that a foreign producer uses enclosures in filter tow facilities but believed that the fundamental differences (spinning line speeds) in the foreign and domestic operations make transfer of this technology to domestic operations inappropriate. They expressed concern that the manual activation of safety systems used by the foreign producer would not be fast enough to reply on to prevent an explosion within the 30 seconds it would take for a potential explosion to occur.

As discussed in Chapter 4 of the proposal BID, EPA is aware that domestic producers would not rely solely on manual activation of safety features to avoid explosions within enclosures. The system envisioned by EPA would be designed such that the exhaust fans would be interlocked mechanically, electrically, or otherwise with the spin cell extrusion pumps. Should the exhaust fans fail, fiber would no longer be produced, additional solvent would not be released into the enclosure, and the enclosure doors would open automatically. This would allow dilution and diffusion of the solvent vapor into the room air.

EPA does believe that manually opening the enclosure doors is a reasonable and dependable backup or failsafe method of preventing the buildup of explosive vapor concentration. It should be noted that workers currently must observe the machines constantly to respond immediately to spinning machine malfunctions and "roll breaks" or "feed wheel wraps." (These terms, used by two different fiber producers, both refer to the malfunction in which fiber exiting the spin cell is wrapped around the godet roll. The wrap will become larger as more fiber is wound, and will cause more serious problems if not cut and removed quickly.) Thus, workers are always available to open the enclosure doors should the automatic opening system fail to operate when needed.

EPA believes that due to the automatic safety features that would be designed into an enclosure system, the occurrence of an exhaust fan shutdown with the simultaneous continued release of solvent into a closed enclosure is very unlikely. Should such a situation occur, however, EPA agrees with the commenters that workers would need enough time to respond to avoid an explosion. The commenters suggest that the workers may have no more than 30 seconds to manually open the enclosure doors, but do not provide any supporting data.

To evaluate this claim, EPA calculated the amount of time required for solvent concentrations to reach the lower explosive limit (LEL) within an enclosure under worst case conditions. Two situations were evaluated: one is a pilot enclosure system designed by one company and the other is a system for a hypothetical 50 million pound per year plant. For both situations, it was assumed that fiber spinning continues after the exhaust fan stops suddenly and the enclosure doors remain closed. EPA's calculations indicated that it would take 2.4 minutes to reach the LEL at the pilot system and 5.1 minutes to reach the LEL at the hypothetical plant. There would be an adquate amount of time in either situation for a worker tending the machines to manually open the enclosure doors if the automatic door opener failed. Thus, EPA believes that the enclosure systems that represent BDT for the proposed NSPS do not pose any risk of explosion that cannot be alleviated by proper design and operation.

One commenter claimed that the use of enclosures on spinning machines would negate current fire protection measures. He claimed that "enclosure systems connected to a control device would have unlimited oxygen supply and ready ignition sources." Another commenter noted that the spinning cabinets in use at domestic filter tow plants are isolated from each other, and cabinet fires are prevented from flashing over to other cabinets. He claimed the tow line enclosure would provide a connection between all the cabinets along a spinning line, so that a fire in one cabinet along a spinning line could ignite all the cabinets. This commenter also noted the danger of an "unlimited supply of oxygen," where enclosures are used.

The comments that an enclosure system would create an unlimited oxygen supply, ready ignition sources, and a convenient route for fire to spread from one to several or all the spinning cabinets on a line reflect an incorrect appraisal of a properly designed and fail-safe enclosure system.

Before responding, it is first important to make clear that fire can potentially propogate in two ways in a situation such as this. In one, the flame would propogate along the surface of the fiber, the potential for which would be the same with and without enclosures. In the other, the flame would propogate through the vapor space, a phenomenon described here as flashover.

The commenters in this case appear to be referring to flashover. This can only occur when there is a limited supply of oxygen, which causes vapor concentrations to be in the "explosive range." When there is too little oxygen, the vapor concentration exceeds the upper explosive limit (UEL). When there is an excess of oxygen, the vapor concentration is below the lower explosive limit (LEL). In neither case is fire or explosion of the vapor possible.

The comments about an unlimited oxygen supply apparently refer to the continuous flow of air drawn into the enclosure by its exhaust system. The volume of air drawn into the enclosure, however, is established by the design of the enclosure and exhaust system so that the solvent vapor concentration is maintained well below the LEL during normal spinning operation. In other words, the vapor in the enclosure could neither ignite nor support a flame, and, as a consequence, a fire in one cabinet could not spread via the enclosure to other cabinets. The reference to an unlimited oxygen supply being a hazard or safety concern is, therefore, inappropriate.

The only upset condition germane to the discussion of oxygen supply or the flashover of fire from one to other spinning cabinets is the malfunction of the enclosure's primary exhaust system concurrent with continued spinning. In this situation, the air (oxygen) supply is no longer continuous nor unlimited but is fixed by the volume of the enclosure. If no other safety features alleviate the malfunction, the solvent vapor concentration might approach explosive limits. (See the response to Comment 2.2.6 and Appendix B of the BID for a determination of the time required.) However, the enclosure should be designed and equipped with secondary exhaust systems, alarms, automatically opening doors, and line shutdown interlocks with the spinning pumps. In addition to these mechanical features, operators are always standing by to correct this and other malfunctions. At worst, then, the malfunction would cause the safety mechanisms to create conditions identical to current operating conditions without an enclosure, i.e., the spun yarn and solvent would be exposed to the spinning room atmosphere.

With respect to the commenter's claim concerning an increased number of ignition sources, no further information was provided. No system designs considered to reflect BDT would affect the type or number of ignition sources already available. Note, however, that with the enclosure doors closed, worker access is prevented, and the solvent vapor is physically separated from the workers, from sparks or flames caused by tool malfunctions, and from any other ignitions sources.

EPA concludes that enclosures can be designed and installed to create an effective solvent vapor capture system while maintaining operating conditions that pose no greater risk for fires or explosions than current operating conditions without enclosures.

Information Requirements Impacts

Two types of reports are required by the General Provisions of 40 CFR Part 60. First, there are notification requirements that enable the Agency to keep abreast of facilities subject to the standards. Second, there would be reporting of the results of the initial performance test that would be conducted to determine compliance with the standards. In addition, the standards require the owner or operator of an affected facility to record the results of each performance test and to submit semiannual reports to the Agency of instances in which the VOC emissions exceed the standards. This requirement is waived for affected facilities in States where the program has been delegated if EPA, in the course of delegation, approves reporting requirements or an alternative means of source surveillance adopted by the State. Such sources would be required to comply with the requirements adopted by the State.

Information collection requirements associated with this rule (40 CFR 60.7, 60.8, 60.15, 60.603, and 60.604) have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 U.S.C. 3501 et seq. and have been assigned OMB control number 2060-0059.

The resources needed by the industry to maintain records and to collect, prepare, and use the reports for the first 2 years would be about 0.1 person-year per year. The resources required by EPA and State and local agencies to process the reports and to maintain records for the first 2 years would be about 0.1 person-year per year.

Regulatory Flexibility Analysis

During the development of the background information document for these standards, it was determined that there were no significant impacts on small businesses, therefore no regulatory flexibility analysis was required for this source category.

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, since material is added throughtout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they can effectively participate in the rulemaking process. Along with the statement of basis and purpose of the proposed and promulgated standards and EPA responses to significant comments, the contents of the docket will serve as the record in case of judicial reiew except as noted in (Section 307(d)(7)(A)).

Miscellaneous

The effective date of this regulation is April 5, 1984. Section 111 of the Clean Air Act provides that standards of performance or revisions thereof become effective upon promulgation and apply to affected facilities, construction or reconstruction of which was commenced after the date of proposal (November 23, 1982).

As prescribed by Section 111, the promulgation of these standards was preceded by the Administrator's determination (40 CFR 60.16, 44 FR 49222, dated August 21, 1979) that these sources contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. In accordance with Section 117 of the Act, publication of these promulgated standards was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies.

This regulation will be reviewed four years from the date of promulgation as required by the Clean Air Act. This review will include as assessment of such factors as the need for integration with other programs, the existence of alternative methods, enforceability, improvements in emission control technololgy, and reporting requirements.

Section 317 of the Clean Air Act requires the Administrator to prepare an economic impact assessment for any new standard of performance promulgated under Section 111(b) of the Act. An economic impact assessment was prepared for this regulation and for other regulatory alternatives. All aspects of the assessment were considered in the formulation of the standards to insure that cost was carefully considered in determining BDT. The economic impact assessment is included in the background information document for the proposed standards.

Under Executive Order 12291, the EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not "major" because: (1) The national annualized compliance costs, including capital charges resulting from the standards, total less than $100 million; (2) the standards do not cause a major increase in prices or production costs; and (3) the standards no not cause a significant adverse effect on domestic competition, employment, investment, productivity, innovation, or competition in foreign markets. This regulation was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291.

List of Subjects in 40 CFR Part 60

Air pollution control, Aluminum, Ammonium sulfate plants, Asphalt, Cement industry, Coal copper, Electric power plants, Glass and glass products, Grains, Intergovernment relations, Iron, Lead, Metals, Metallic minerals, Motor vehicles, Nitric acid plants, Paper and paper products industry, Petroleum, Phosphate, Sewage disposal, Steel sulfuric acid plants, Waste treatment and disposal, Zinc, Tires, Incorporation by reference, Can surface coating, Sulfuric acid plants, Industrial organic chemicals, Organic solvent cleaners, Fossil fuel-fired steam generators, Synthetic fibers.

Dated: March 30, 1984.
William D. Ruckelshaus,
Administrator.

PART 60—[AMENDED]

40 CFR Part 60 is amended by adding a new subpart as follows:

Subpart HHH—Standards of Performance for Synthetic Fiber Production Facilities

Sec.
60.600 Applicability and designation of affected facility.
60.601 Definitions.
60.602 Standard for volatile organic compounds.
60.603 Performance test and compliance provisions.
60.604 Reporting requirements.

Authority: Sec. 111 and 301(a) of the Clean Air Act, as amended, (42 U.S.C. 7411, 7601(a)), and additional authority as noted below.

Subpart HHH—Standards of Performance for Synthetic Fiber Production Facilities

§ 60.600 Applicability and designation of affected facility.

(a) Except as provided in paragraph (b) of this section, the affected facility to which the provisions of this subpart apply is each solvent-spun synthetic fiber process that produces more than 500 megagrams of fiber per year.

(b) The provisions of this subpart do not apply to any facility that uses the reaction spinning process to produce spandex fiber or the viscose process to produce rayon fiber.

(c) The provisions of this subpart apply to each facility as identified in paragraph (a) of this section and that commences construction or reconstruction after November 23, 1982. The provisions of this subpart do not apply to facilities that commence modification but not reconstruction after November 23, 1982.

§ 60.601 Definitions.

(a) All terms that are used in this subpart and are not defined below are given the same meaning as in the Act and in Subpart A of this part.

"Acrylic fiber" means a manufactured synthetic fiber in which the fiber-forming substance is any long-chain synthetic polymer composed of at least 85 percent by weight of acrylonitrile units.

"Makeup solvent" means the solvent introduced into the affected facility that compensates for solvent lost from the affected facility during the manufacturing process.

"Nongaseous losses" means the solvent that is not volatilized during fiber production, and that escapes the process and is unavailable for recovery, or is in a form or concentration unsuitable for economical recovery.

"Polymer" means any of the natural or synthetic compounds of usually high molecular weight that consist of many repeated links, each link being a relatively light and simple molecule.

"Precipitation bath" means the water, solvent, or other chemical bath into which the polymer or prepolymer (partially reacted material) solution is extruded, and that causes physical or chemical changes to occur in the extruded solution to result in a semihardened polymeric fiber.

"Rayon fiber" means a manufactured fiber composed of regenerated cellulose, as well as manufactured fibers composed of regenerated cellulose in which substituents have replaced not more than 15 percent of the hydrogens of the hydroxyl groups.

"Reaction spinning process" means the fiber-forming process where a prepolymer is extruded into a fluid medium and solidification takes place by chemical reaction to form the final polymeric material.

"Recovered solvent" means the solvent captured from liquid and gaseous process streams that is concentrated in a control device and that may be purified for reuse.

"Solvent feed" means the solvent introduced into the spinning solution precipitation system or precipitation bath. This feed stream includes the combination of recovered solvent and makeup solvent.

"Solvent inventory variation" means the normal changes in the total amount of solvent contained in the affected facility.

"Solvent recovery system" means the equipment associated with capture, transportation, collection, concentration, and purification of organic solvents. It may include enclosures, hoods, ducting, piping, scrubbers, condensers, carbon adsorbers, distillation equipment, and associated storage vessels.

"Solvent-spun synthetic fiber" means any synthetic fiber produced by a process that uses an organic solvent in the spinning solution, the precipitation bath, or processing of the sun fiber.

"Solvent-spun synthetic fiber process" means the total of all equipment having a common spinning solution preparation system or a common solvent recovery system, and that is used in the manufacture of solvent-spun synthetic fiber. It includes spinning solution preparation, spinning, fiber processing and solvent recovery, but does not include the polymer production equipment.

"Spandex fiber" means a manufactured fiber in which the fiber-forming substance is a long chain synthetic polymer comprised of at least 85 percent of a segmented polyurethane.

"Spinning solution" means the mixture of polymer, prepolymer, or copolymer and additives dissolved in solvent. The solution is prepared at a viscosity and solvent-to-polymer ratio that is suitable for extrusion into fibers.

"Spinning solution preparation system" means the equipment used to prepare spinning solutions; the system includes equipment for mixing, filtering, blending, and storage of the spinning solutions.

"Synthetic fiber" means any fiber composed partially or entirely of materials made by chemical synthesis, or made partially or entirely from chemically-modified naturally-occurring materials.

"Viscose process" means the fiber forming process where cellulose and concentrated caustic soda are reacted to form soda or alkali cellulose. This reacts with carbon disulfide to form sodium cellulose xanthate, which is then dissolved in a solution of caustic soda. After ripening, the solution is spun into an acid coagulating bath. This precipitates the cellulose in the form of a regenerated cellulose filament.

§ 60.602 Standard for volatile organic compounds.

(a) On and after the date on which the initial performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause the discharge into the atmosphere from any affected facility that produces acrylic fibers, VOC emissions that exceed 10 kilograms (kg) VOC per megagram (Mg) solvent feed to the spinning solution preparation system or precipitation bath. VOC emissions from affected facilities that produce both acrylic and nonacrylic fiber types shall not exceed 10 kg VOC per Mg solvent feed. VOC emissions from affected facilities that produce only nonacrylic fiber types shall not exceed 17 kg VOC per Mg solvent feed. Compliance with the emission limitations is determined on a 6-month rolling average basis as described in § 60.603.

§ 60.603 Performance test and compliance provisions.

(a) Section 60.8(f) does not apply to the performance test procedures required by this subpart

(b) Each owner or operator of an affected facility shall determine compliance with the applicable standard in § 60.602(a) by determining and recording monthly the VOC emissions per Mg solvent feed from each affected facility for the current and preceding 5 consecutive calendar months and using these values to calculate the 6-month average emissions. Each calculation is considered a performance test. The owner or operator of an affected facility shall use the following procedure to determine VOC emissions for each calendar month;

(1) Install, calibrate, maintain, and operate monitoring devices that continuously measure and permanently record for each calendar month the amount of makeup solvent and solvent feed. These values shall be used in calculating VOC emissions according to paragraph (b)(2) of this section. All monitoring devices, meters, and peripheral equipment shall be calibrated and any error recorded, Total compounded error of the flow measuring and recording devices shall not exceed 1 percent accuracy over the operating range: As an alternative to measuring solvent feed, the owner or operator may:

(i) Measure the amount of recovered solvent returned to the solvent feed storage tanks, and use the following equation to determine the amount of solvent feed:

Solvent Feed=Makeup Solvent+Recovered Solvent+Change in the Amount of Solvent Contained in the Solvent Feed Holding Tank.

(ii) Measure and record the amount of polymer introduced into the affected facility and the solvent-to-polymer ratio of the spinning solutions, and use the following equation to determine the amount of solvent feed:

$$\text{Solvent Feed} = \sum_{i=1}^{n} (\text{Polymer Used})_i \times (\text{Solvent-to-Polymer Ratio})_i$$

where subscript "i" denotes each particular spinning solution used during the test period; values of "i" vary from one to the total number of spinning solutions, "n," used during the calendar month.

(2) VOC emissions shall be determined each calendar month by use of the following equations:

$$E = \frac{M_w}{S_w} - N - I \quad \text{and} \quad M_w = M_V S_P D$$

$$S_W = \frac{S_V S_P D}{1000} \qquad I = \frac{I_E - I_S}{S_W}$$

where all values are for the calendar month only and where

E=Emissions in kg per mg solvent feed;
S_v=Measured or calculated volume of solvent feed in liters;
S_W=Weight of solvent feed in mg;
M_V=Measured volume of makeup solvent in liters;
M_W=Weight of makeup in kg;
N=Allowance for nongaseous losses per mg solvent feed; (13 kg/mg);
S_p=Fraction of measured volume that is actual solvent (excludes water);
D=Density of the solvent in kg/liter;
I=Allowance for solvent inventory variation or changes in the amount of solvent contained in the affected facility per mg solvent feed (may be positive or negative);
I_S=Amount in kg of solvent contained in the affected facility at the beginning of test period, as determined by owner or operator;
I_E=Amount in kg of solvent contained in the affected facility at the close of test period, as determined by owner or operator.

(i) N, as used in the equation in paragraph (b)(2) of this section, equals 13 kg per mg solvent feed to the spinning solution preparation system and precipitation bath. This value shall be used in all cases unless an owner or operator demonstrates to the satisfaction of the Administrator that greater nongaseous losses occur at the affected facility. In this case, the greater value may be substituted in the equation.

(Approved by the Office of Management and Budget under Control Number 2060–0059.)
(Sec. 114, Clean Air Act as amended (42 U.S.C. 7414))

§ 60.604 Reporting requirements.

(a) The owner or operator of an affected facility shall submit a written report to the Administrator of the following:

(1) The results of the initial performance test; and

(2) The results of subsequent performance tests that indicate that VOC emissions exceed the standards in § 60.602. These reports shall be submitted semiannually, at six month intervals after the initial performance test.

(b) Solvent-spun synthetic fiber producing facilities exempted from these standards in § 60.600(a) (those producing less than 500 megagrams annually) shall report to the Administrator within 30 days whenever extruded fiber for the preceding 12 calendar months exceeds 500 megagrams.

(c) The requirements of this section remain in force until and unless EPA, in delegating enforcement authority to a State under Section 111(c) of the Act, approves reporting requirements or an alternate means of compliance surveillance adopted by such State. In that event, affected sources within the State will be relieved of the obligation to comply with this section, provided that they comply with the requirements established by the State.

(Approved by the Office of Management and Budget under Control Number 2060–0059.)

Note.—This regulation does not involve a "collection of information" as defined under the Paperwork Reduction Act of 1980 (Pub. L. 56–511). Therefore, the provisions of the Paperwork Reduction Act applicable to collections of information do not apply to this regulation.

(Sec. 114 of the Clean Air Act as amended (42 U.S.C. 7414))

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