ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 61

[AD-FRL-3044-5]

National Emission Standards for Hazardous Air Pollutants: Vinyl Chloride; Equipment Leaks of Volatile Hazardous Air Pollutants

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The EPA proposed administrative and clarifying revisions to the national emission standard for vinyl chloride (VC) on January 9, 1985, (50 FR 1182). Certain revisions to the standard are being promulgated in Subpart F through this action and, to a minor extent, in Subpart V of 40 CFR Part 61. Finally, through this action the Agency is denying the petition of the Natural Resources Defense Council (NRDC) and the Environmental Defense Fund (EDF) which sought reconsideration of the EPA's withdrawal of the amendments to the VC standard which were proposed in 1977.

EFFECTIVE DATE: September 30, 1986. Under section 307(b)(1) of the Clean Air Act, judicial review of the actions taken by this notice is available *only* by filing of a petition for review in the United States 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 for today's notice may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

Incorporation by Reference

The incorporation by reference of certain publications in these standards is approved by the Director of the Office of the Federal Register as of September 30, 1986.

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 "Vinyl Chloride Standard: Responses to Comments on January 1985 Proposed Revisions," EPA-450/3-86-004. The BID contains: (1) A summary of all public comments on the proposed revisions and the Administrator's response to the comments, and (2) a summary of the changes made to the revised standard since proposal.

Dockets. A docket, number A-81-21, containing information considered by EPA in developing of the promulgated revisions to the standard for VC, 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, DC 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For further information concerning the enforcement aspects of the promulgated revisions, contact Mr. Richard Biondi, Compliance Monitoring Branch, Stationary Source Compliance Division, (EN-341), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20469, telephone number (202) 382-2826. For further information concerning the background technical information supporting the promulgated revisions, contact Mr. Robert E. Rosensteel, Chemicals and Petroleum Branch, Emission Standards and Engineering Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5671. For other information on the regulation of VC and the promulgated revisions, contact Mr. Fred Dimmick, Standards Development Branch, Emission Standards and Engineering Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5578.

SUPPLEMENTARY INFORMATION:

Summary of Revisions to the Standard

The VC standard was promulgated on October 21, 1976 (41 FR 46560) and applies to plants producing ethylene dichloride (EDC) via oxychlorination, plant producing VC, and plants producing polyvinyl chloride (PVC) or other polymers containing VC. These plants are subject to a combination of performance, equipment and work practice requirements at numerous points in the manufacturing processes. Based on its review of the technological basis and administrative aspects of the original standard, EPA proposed several administrative and clarifying revisions to the standard on January 9, 1985 (50 FR 1182). The comments received and actions taken on these proposed revisions are discussed below.

Requirements for Leak Detection and Repair Programs

As proposed in January 1985, VC is being added to the list of substances covered by 40 CFR Part 61 Subpart V, which contains regulations for leaks from certain equipment in volatile hazardous air pollutant (VHAP) service. Previously, plant owners subject to the VC standard were required to prepare leak detection and repair plans for each VC and PVC manufacturing facility and to submit these plans to EPA for review. An analysis of the plans submitted revealed that these plans varied widely from plant to plant. Further, some plans were considered to be inadequate and ineffective approaches to the control of VC leaks.

The incorporation of Subpart V by the standard for VC emissions establishes standardized procedures for identifying leaks of VC and for taking steps to minimize emissions and repair leaks. Further, the incorporation of Subpart V will also accomplish a standardization of the definition of what constitutes a leak for routine leak detection. However, to avoid unnecessary changes to existing plans which are effective in detecting and repairing VC leaks, the standard contains provisions whereby any facility may demonstrate through annual (or more frequent, if requested by the Administrator) performance tests that the percentage of leaking valves remains at 2 percent as an alternative to following the Subpart V procedures. An owner may continue to follow the existing leak detection and elimination program for that facility for the purpose of achieving the 2 percent performance limit. However, existing plans are no longer required, nor do they necessarily meet the promulgated requirements.

Compliance Test Procedure and Specific Opening Loss Limit for PVC Reactors Used as Strippers

The **Federal Register** notice that promulgated the current VC standard stated that VC escaping from PVC resin that has been stripped in the reactor is not intended to be included as part of the VC emissions measured under the reactor opening loss requirements. For nonbulk PVC reactors which are used as strippers, however, no method was specified to determine what part of the VC in the vapor space of the reactor had escaped after the stripping was completed. Consequently, a method was proposed for determining the reactor opening loss that accounts for stripping in the PVC reactor for use by all nonbulk resin producers. After considering the comments on this proposed revision, EPA decided to promulgate the revision.

Another proposed change in the standard affecting PVC reactors used as strippers applied to the production of bulk PVC resins. Two separate vessels are used in bulk resin production, a "prepolymerization" vessel and a "post-polymerization" vessel. Under the standard promulgated in 1976, both of these vessels were subject to the reactor

opening loss requirements. However, an analysis of the operation of prepolymerization vessels revealed that these reactors are opened less frequently than other types of reactors, and that the determination of gross product (required for the calculation of reactor opening loss) is impractical. In January 1985, EPA proposed to apply the equipment opening loss requirements, rather than the reactor opening loss requirements, to these PVC reactors. The equipment opening loss requirements are more appropriate for the operating characteristics of the prepolymerization reactor vessels and do not change the overall VC emission control stringency applicable prepolymerization reactors. After considering the comments on this proposed revision, EPA decided to promulgate the revision.

Clarification of Definitions and Standards

Based on the EPA's experience with administering the VC standard, several provisions of the standard are being revised to reduce any ambiguity in their implementation. For example, specific definitions of "leak," "exhaust gas," and "relief valve discharge" are being added to clarify the applicability of the provisions of the standard to each of these types of emissions. Similarly, to eliminate misunderstandings about the application of the standard to purification equipment following EDC and VC formation, the definitions of "EDC purification" and "VC purification" are being revised to more clearly indicate which equipment is subject to the standard.

Another revision being incorporated into the standard makes it clear that the 10 ppmv standard is a 3-hour average emission limit, rather than an instantaneous limit. The performance test provision in § 61.67(g)(1) has also been clarified to specify that test results should reflect as close to a 3-hour average as practicable. Further, the 10 ppmv standard regulation is being revised to specify that all exhaust gas streams are covered by this requirement, including control device bypass streams. In order to implement this clarification, provisions are also being incorporated into the standard for calculating the VC content in bypassed emissions. A final revision to the 10 ppmv requirement is intended to prohibit plants from diluting a VC exhaust gas stream with other exhaust gases in order to meet the 10 ppmv limit. Under the revised standard, combining an exhaust stream containing more than 10 ppmv VC with another gas stream is only allowed when the combined stream is ducted to a control device.

The inprocess wastewater requirements for gasholder seals are also being revised to exclude the exposed water seal of gasholders. Experience with the VC standard indicates that water contained in the exposed water seal of a gasholder may exceed the 10 ppmv limit during normal operation and that compliance with the atmospheric exposure limit is not practicable for this source. The inprocess wastewater stripping requirements, however, will continue to apply to wastewater after removal from the gasholder seal.

Other Administrative Revisions

Other administrative revisions to the standard include: (1) The elimination of the 30-day limit for existing sources to submit requests for the use of equivalent control measures; (2) a change from semiannual to quarterly reporting of VC emissions from resin stripping, reactor openings, and exhaust gases; and (3) allowance of reporting of periods of excess emissions instead of all emission measurements.

Summary of Impacts to the Standard

Revisions to the standard represent administrative and clarifying changes; no major revisions were proposed. Therefore, the environmental, energy and economic impacts of the original standard remain generally unchanged. A summary of the impacts of the original standard can be found in the preamble to the proposed standard revisions (50 FR 1182).

Public Participation

Prior to proposal of revisions to the standard, interested parties were advised by public notice in the Federal Register (49 FR 26807, June 29, 1984) of a meeting of the National Air Pollution Control Techniques Advisory Committee (NAPCTAC) to discuss the revisions to the VC standard recommended for proposal. This meeting was held on August 30, 1984. The meeting was open to the public and each attendee was given an opportunity to comment on the revised standard recommended for proposal.

The revised standard was proposed in the Federal Register on January 9, 1985. The public comment period was from January 9, 1985 to March 25, 1985. A total of 16 comment letters were received. Industry representatives submitted most of the comment letters. Also commenting were representatives of the U.S. Congress, a State Legislature, a State air pollution agency and an environmental group. The comments have been considered carefully and, where determined to be appropriate by EPA, changes have been made to the proposed revisions to the standard.

Significant Comments Since Proposal

Most of the comment letters contained multiple comments. In general, the comments supported the proposed administrative and clarifying revisions. A detailed discussion of the comments and responses can be found in the BID for the promulgated standard, which is referenced in the ADDRESSES section of this preamble. The comments and responses in the BID serve as the basis for the changes that have been made to the revised standard between proposal and promulgation.

Almost all commenters addressed the proposed revisions to the relief valve discharge standard. Although many of the commenters agreed with the action to reformat the standard, several commenters objected to various aspects of the discharge limits. Based on consideration of these comments, EPA decided not to promulgate the proposed revision to the relief valve discharge standard. The comments on this and other proposed revisions are addressed in detail in the BID for the promulgated standard and in summary in the next section of this preamble.

One commenter requested reconsideration of the withdrawal of the amendments to the VC standard which were proposed in 1977. This petition for reconsideration was based on objections to the Agency's use of data on costs and economic impacts in the decision to withdraw the proposed amendments, and to the Agency's determination of the technological basis of the standard. The commenters stated that the EPA's actions in withdrawing the proposed amendments were inconsistent with the requirements of section 112 of the Clean Air Act. As discussed further in this preamble, the Agency is denying the petition for reconsideration.

Proposed Revisions to Relief Valve Discharge Standard

The EPA has decided not to promulgate revisions to the relief valve discharge standard proposed in the January 9, 1985, Federal Register notice. The revisions would have established a different type of numerical limit for relief valve discharges. The decision to retain the original relief valve discharge standard was made after considering the revisions in light of public comments and other findings. Although many public comments favored the proposed revisions, others opposed the change. In

particular, several commenters expressed concern that preventable relief valve discharges would be allowed under the revised standard and that the performance allowed under the revised standard could be inconsistent with that allowed under the original standard. Other comments expressed concern that the revised standard included no mechanism for regulating very large relief valve discharges. The basis for the statement that a large Agency resource commitment is required for enforcing the relief valve discharge standard was also questioned.

As a result of these comments, EPA reviewed the basis for the recommendations that led to the decision to propose to reformat the standard. First, as discussed in the Federal Register notice proposing revisions to the relief valve discharge standard (50 FR 1187), the review of the standard conducted between 1980 and 1982 found that the existing standard resulted in a significant commitment of Agency resources to the review and evaluation of discharges of VC from relief valves. Because the existing standard allows only "emergency" discharges of VC from relief valves (i.e., the relief valve discharge could not be avoided by taking preventative measures), every discharge must be evaluated individually to determine whether the owner or operator of the facility has implemented the measures necessary to prevent that relief valve discharge. During the 4 to 5 years since the review study was conducted, the enforcement of the relief valve discharge standard has been made more efficient. This is due in large part to experience established in enforcing the standard. As a result, EPA enforcement personnel consider implementation of this standard to be much less resource and labor intensive.

A second conclusion from the 1980 to 1982 study was that industry did not have a clear understanding of what the relief valve discharge standard required and what measures they needed to implement in order to comply with the standard. During the 4 to 5 years since the review study, a number of enforcement actions have been taken against individual plants for violations of the standards. Those actions have culminated in consent decrees which incorporate requirements for remedial actions to prevent further relief valve discharges. The provisions of these consent decrees have not only reduced the number of relief valve discharges at specific plants, but they have also served as guidelines in determining the types of measures appropriate for minimizing the discharges. Because of these two developments, EPA concluded that the original findings of the review study are no longer valid and should not be the basis of a revision to the format of the relief valve discharge standard.

The decision to retain the existing relief valve discharge standard as a part of the standard for VC emissions is further supported by two additional advantages that the existing standard has over the proposed revisions. First, the existing standard provides that all preventable relief valve discharges are subject to enforcement action. Under the proposed revisions, which would have allowed a small number of discharges per year whether preventable or not, it is possible that a plant could experience preventable discharges and still be in compliance with the standard. As pointed out in public comments, it is theoretically possible that discharges resulting from gross negligence could go unpenalized under the revisions to the standard. The EPA did not intend this effect in the proposed revisions. The retention of the existing relief valve discharge standard allows EPA to continue the current enforcement approach.

Second, the existing relief valve discharge standard provides a better mechanism for regulating large relief valve discharges. The proposed revision would have allowed a certain number of relief valve discharges per year, without regard to the size or duration of the discharge. Consequently, as long as the number of releases were within the numerical limits of the proposed revisions to the standard, there were no mechanisms in the standard to enforce control of the amount of VC discharged to the atmosphere. Under the existing relief valve discharge standard, however, the duration and size of the discharge are factors in determining the severity of a violation of the standard. As a result, a plant owner or operator has a greater incentive under the current standard for taking action to reduce the quantity of a discharge.

In summary, EPA is not promulgating the revisions to the relief valve discharge standard which were proposed in the January 9, 1985, Federal Register notice. This decision was reached after consideration of public comments received on the proposal, and after a review of the basis for the decision to reformat the standard. Because this review revealed that the burden on Agency resources has diminished as experience with the implementation of the standard increased, and that understanding of the provisions of the existing standard on the part of industry should be clearer, the necessity for revising the format of the relief valve discharge standard is no longer apparent. The existing standard also has the advantages of penalizing all preventable relief valve discharges, providing better regulation of large volume relief valve discharges, and promoting continuity in the ongoing enforcement of the standard.

In some instances, it may be possible for a plant operator to contain a relief valve discharge and to vent it to a control device. Where this can be done without exceeding the exhaust gas emission limit of 10 ppmv, EPA concluded that this approach should be encouraged and, therefore, the discharge should be exempt from the relief valve discharge standard. Venting the discharge through a control device can result in a 99.9 percent reduction in the VC content of the relief valve discharge without interfering with the control of VC emissions in exhaust gases which are also vented through the control device. Although compliance with the 10 ppmv standard would exempt the discharge from the relief valve discharge standard, exceeding the 10 ppmv standard would be considered both a violation of the 10 ppmv standard and of the relief valve discharge standard.

Denial of Petition For Reconsideration

The NRDC and EDF petitioned EPA to reconsider the decision to withdraw the 1977 proposed revisions to the VC standard. The criteria for granting such a petition are: (1) The petition must be based on information that was not and could not reasonably have been presented during the original rulemaking; and (2) the petition must provide substantial support for the argument that the challenged action should be changed. *See* Denial of Petition to Revise NSPS for Stationary Gas Turbines, 45 FR 81653 (December 1, 1980). As described below, this petition fails to meet either criterion, and it is therefore, denied.

Consideration of Petition

The NRDC/EDF petition for reconsideration of the withdrawal was based on four main premises. First, NRDC/EDF objected to the EPA's announcement of the withdrawal of the proposed amendments as a final action, without being preceded by a notice which proposed the withdrawal and allowed for public comment on the action. Second, NRDC/EDF objected to the influence of cost considerations in the decision to withdraw the proposed amendment, stating that the balancing of costs and benefits in the setting of the VC standard is contrary to the

requirements of Section 112 of the Clean Air Act. Third, NRDC/EDF took issue with what it took to be the EPA's assumption that Section 112 of the Clean Air Act establishes a requirement that a level of control must have been "consistently achieved" in the past in order to form the basis of the standard. Finally, NRDC/EDF stated that the EPA's decisions on specific portions of the proposed amendments were in conflict with the evidence on those issues.

In the first objection, NRDC/EDF state that the proposed amendments to the 1977 VC standard should not be withdrawn because no notice of such withdrawal had been published and there had been no opportunity for public comment on the withdrawal. During the 8 years which have elapsed since the proposal of those amendments, there has been ample opportunity afforded for public comment and input on the amendments and their withdrawal. The amendments, their protential consequences, and the decisions that the Agency might take with regard to them were all before the public. Specifically, NRDC and EDF received draft documents relating to the rulemaking distributed prior to the NAPCTAC meeting. Finally, NRDC did not give any supporting rationale for believing that further opportunity for comment would yield any relevant new information or arguments. Therefore, EPA does not believe that additional time or provision for receiving further public comments could have been either necessary or helpful for the resolution of the issues involving the proposed amendments to the VC standard.

The second issue raised by NRDC/EDF involves the inclusion of cost consideration in the EPA's rulemaking deliberations under Section 112. The NRDC/EDF maintains that the language of Section 112 which requires the standard to be set at a level which provides an "ample margin of safety" to the public precludes consideration of the costs of control. In the EPA's judgment, the VC standard protects the public health with an ample margin of safety within the meaning of Section 112, and EPA may consider cost and feasiblity in setting the standard. The EPA views were explained in the 1975–76 VC rulemaking. The NRDC/EDF provided no new information on this issue.

The NRDC/EDF's third objection was the EPA was incorrect in stating that a level of control must be "consistently achieved" in order to form the basis of the standard. Specifically, NRDC/EDF pointed to the language in the Federal Register notice that "10 ppmv represents the lowest level of control which has been consistently achieved" as indicating that EPA was applying such requirement in evaluating alternative exhaust gas requirements. However, the basis for EPA's selection of 10 ppmv as the VC standard for exhaust gas emissions is that this level of control is the lowest achievable emission limit attainable on a never-to-be-exceeded basis. Although 5 ppmv may be achieved by some systems over a limited time period, the existing data indicate the this level of control cannot be maintained over a long-term, never-to-be-exceeded basis, as required by the standards. In addition to being achievable on a consistent, long-term basis, the 10 ppmv standard was also determined by EPA to provide the public with the ample margin of safety required by section 112. Therefore, EPA beleives that the standard satisfies the requirements of section 112.

The final points raised by NRDC/EDF in support of the petition for reconsideration addressed three specific provisions of the proposed amendments which were withdrawn. The NRDC/EDF stated that the withdrawal of these provisions was in conflict with the evidence before the Agency. The first specific portion of the standard addressed in the petition is the withdrawal of the proposed 5 ppmv emission limit for exhaust gas emission in favor of the existing 10 ppmv emission limit. The NRDC/EDF stated that the evidence in the record supports a finding that the 5 ppmv limit is achievable by new sources, and by existing sources within 3 years of promulgation. The petition also pointed to the more stringent emission limit not be foregone.

The EPA decided to maintain the 10 ppmv emission limit for exhaust gas emission for three primary reasons. First, as stated above, the 10 ppmv emission limit has been determined to be consistently achievable by industry, whereas the 5 ppmv emission limit cannot be consistently achieved. Second, even though the limit on maximum emissions of VC is set at 10 ppmv, the average and most short-term emissions will be considerably lower than this level. Third, lowering the emission limit on maximum emission rates to 5 ppmv would not significantly reduce the average emissions, and therefore, adopting the lower standard was determined by the Agency not to have a significant impact on emissions of VC or, accordingly, on public health risks. The petition for reconsideration presented no new evidence relevant to the Agency's decision to withdraw the proposed 5 ppmv emission limit.

The second decision addressed by the petition for reconsideration as conflicting with the considered evidence is the withdrawal of the 5 ppmv emission limit for oxychlorination vents. The petition points to a statement in the 1977 proposal that this emission limit could be attained based on the use of oxygen as a feed material rather than air, and maintains that no discussion or evidence were presented which would justify withdrawal of this proposal.

In the Federal Register (50 FR 1185), evidence was presented by the Agency supporting the conclusion that more stringent control of emissions from oxychlorination vents was unnecessary. First, no new technological controls have been developed which are applicable to these vents. Second, the costs of incinerating oxychlorination vent streams were reevaluated and determined, as before, to be unreasonable compared to the small reduction in VC emissions. And finally, with the possible exception of one plant, no new EDC/VC plants with oxychlorination reactors are expected to be constructed, and any that may be constructed will be adequately regulated by the requirements of new source review regulations. No new information was presented in the petition for reconsideration relevant to the decision to retain the existing oxychlorination vent standard.

The third decision which was addressed in the petition for reconsideration as conflicting with the considered evidence is the withdrawal of the proposal to lower the residual VC limit for new dispersion resins from 2,000 ppmv to 500 ppmv, and the limit for other new resins from 400 ppmv to 100 ppmv. The petition states that existing facilities are currently meeting the lower limits, and that both new and existing facilities could be brought into compliance with the more stringent limits by using the equipment and procedures currently used by the leading facilities.

The EPA withdrew the proposed more stringent stripping level requirements for two main reasons. The first is that the nature of PVC production makes it difficult to distinguish "new" from "old" resins. Resin compositions are adjusted routinely, and completely "new" resins are rarely, if ever, made. Second, EPA concluded that there is no improved technology which would provide the basis for more stringent stripping requirements for all resins. The technologies which are effective for specific resins may not be effective for

other resins. The consequence of establishing a more stringent standard would be that certain hard-to-strip resins could no longer be produced. In the EPA's opinion, such a result would be an unwarranted economic impact which is unnecessary to provide an ample margin of safety for public health. No new relevant information was presented in the petition for reconsideration.

Administrative

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 throughout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to 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, except for interagency review materials, will serve as the record in case of judicial review (section 307(d)(7)(A)).

The effective date of these revisions is September 30, 1986. Section 112 of the Clean Air Act provides that national emission standards for hazardous air pollutants become effective upon promulgation and apply to all existing and new sources.

As prescribed by section 112, promulgation of this standard was preceded by the Administrator's listing of VC under section 112 of the Act on December 24, 1975 (40 FR 59477). In accordance with section 117 of the Act, publication of these promulgated revisions was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies.

Information collection requirements associated with this revised regulation (those included in 40 CFR Part 61, Subpart A and Subpart F) have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, and have been assigned OMB control number 0166. The revised standard is estimated to result in a paperwork burden of about 36 person-years which is roughly the same as the original standard.

Under Executive Order 12291, EPA is required to judge whether a regulation is a "major rule" and therefore subject to certain requirements of the Order. The EPA has determined that the revised regulation would result in none of the adverse economic effects set forth in Section 1 of the Order as grounds for finding a regulation to be a "major rule." The revised regulation is not major because: (1) Nationwide annual compliance costs, including capital charges resulting from the standard total less than $100 million; (2) the standard does not cause a major increase in prices or production costs; and (3) the standards do not cause significant adverse effects on domestic competition, employment, investment, productivity, innovation or competition in foreign markets. The EPA has submitted this rulemaking to OMB under Executive Order 12291.

The Regulatory Flexibility Act of 1980 requires the identification of potentially adverse impacts of Federal regulations upon small business entities. The Act specifically requires the completion of a Regulatory Flexibility Analysis in those instances where small business impacts are possible. Because this revised standard imposes no adverse economic impacts, a Regulatory Flexibility Analysis has not been conducted.

Pursuant to the provisons of 5 U.S.C. 605(b), I hereby certify that the proposed rule will not have a significant economic impact on a substantial number of small entities.

List of Subjects in 40 CFR Part 61.

Air pollution control, Asbestos, Benzene, Beryllium, Hazardous materials, Mercury, Vinyl chloride.

Dated: September 24, 1986.

Lee M. Thomas,

Administrator.

PART 61—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

For the reasons set forth in the preamble, 40 CFR Part 61 is amended as follows:

1. The authority citation for Part 61 contunues to read as follows:

Authority: Secs. 101, 112, 114, 116, 301, Clean Air Act as amended (42 U.S.C. 7401, 7412, 7414, 7416, 7601).

2. Section 61.61 is amended by revising paragraphs (j), (l), (o) and (p) and by adding paragraphs (v), (w), (x), (y), and (z) to read as follows:

§ 61.61 Definitions.

* * * * *

(j) "Inprocess wastewater" means any water which, during manufacturing or processing, comes into direct contact with vinyl chloride or polyvinyl chloride or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product containing vinyl chloride or polyvinyl chloride but which has not been discharged to a wastewater treatment process or discharged untreated as wastewater. Gasholder seal water is not inprocess wastewater until it is removed from the gasholder

new

* * * * *

(l) "In vinyl chloride service" means that a piece of equipment either contains or contacts a liquid that is a least 10 percent vinyl chloride by weight or a gas that is at least 10 percent by volume vinyl chloride as determined according to the provisions of § 61.67(h). The provisions of § 61.67(h) also specify how to determine that a piece of equipment is not in vinyl chloride service. For the purposes of this subpart, this definition must be used in place of the definition of "in VHAP service" in Subpart V of this part.

* * * * *

(o) "Ethylene dichloride purification" includes any part of the process of ethylene dichloride production which follows ethylene dichloride formation, excluding product storage following the final finishing column.

(p) "Vinyl chloride purification" incudes any part of the process of vinyl chloride production which follows vinyl chloride formation.

* * * * *

(v) "Relief valve" means each pressure relief device including pressure relief valves, rupture disks and other pressure relief systems used to protect process components from overpressure conditions. "Relief valve" does not include polymerization shortstop systems, referigerated water systems or control valves or other devices used to control flow to an incinerator or other air pollution control device.

all new

all new

(w) "Leak" means any of several events that indicate interruption of confinement of vinyl chloride within process equipment. Leaks include events regulated under Subpart V of this part such as: (1) An instrument reading of 10,000 ppm or greater measure according to Method 21 (see Appendix A of 40 CFR Part 60); (2) indications of liquid dripping; (3) a sensor detection of failure of a seal system, failure of a barrier fluid system, or both; and (4) detectable emissions as indicated by an instrument reading of greater than 500 ppm above background for equipment designated for no detectable emissions measured according to Test Method 21 (see Appendix A of 40 CFR Part 60). Leaks also include events regulated under § 61.65(b)(8)(i) for detection of ambient concentrations in excess of background

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concentration. A relief valve discharge is not a leak.

(x) "Exhaust gas" means any offgas (the constituents of which may consist of any fluids, either as a liquid and/or gas) discharged directly or ultimately to the atmosphere that was initially contained in or was in direct contact with the equipment for which exhaust gas limits are prescribed in § 61.62 (a) and (b); § 61.63(a); § 61.64 (a)(1), (a)(2), (b), (c), and (d); § 61.65(b) (1)(ii), (b)(2), (b)(5), (b)(6)(ii) and (b)(9)(ii).

(y) "Relief valve discharge" means any nonleak discharge through a relief valve. "Relief valve discharge" does not include discharges ducted to a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period), or equivalent as provided in § 61.66.

(z) "3-hour period" means any three consecutive 1-hour periods (each hour commencing on the hour).

3. Section 61.62 is amended by revising paragraphs (a) and (b) to read as follows:

§ 61.62 Emission standard for ethylene dichloride plants.

(a) *Ethylene dichloride purification.* The concentration of vinyl chloride in each exhaust gas stream from any equipment used in ethylene dichloride purification is not to exceed 10 ppm (average for 3-hour period), except as provided in § 61.65(a). This requirement does not preclude combining of exhaust gas streams provided the combined steam is ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in § 61.66. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in § 61.65(b)(6)(i) before being opened.

(b) *Oxychlorination reactor.* Except as provided in § 61.65(a), emissions of vinyl chloride to the atmosphere from each oxychlorination reactor are not to exceed 0.2 g/kg (0.0002 lb/lb) (average for 3-hour period) of the 100 percent ethylene dichloride product from the oxychlorination process.

4. Section 61.63 is revised to read as follows:

§ 61.63 Emission standard for vinyl chloride plants.

An owner or operator of a vinyl chloride plant shall comply with the requirements of this section and § 61.65.

(a) Vinyl chloride formation and purification: The concentration of vinyl chloride in each exhaust gas stream from any equipment used in vinyl chloride formation and/or purification is not to exceed 10 ppm (average for 3-hour period), except as provided in § 61.65(a). This requirement does not preclude combining of exhaust gas streams provided the combined steam is ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in § 61.66. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in § 61.65(b)(6)(i) before being opened.

5. Section 61.64 is amended by revising paragraphs (a), (b), (c) and (d) to read as follows:

§ 61.64 Emission standard for polyvinyl chloride plants.

* * * * *

(a) *Reactor.* The following requirements apply to reactors:

(1) The concentration of vinyl chloride in each exhaust gas stream from each reactor is not to exceed 10 ppm (average for 3-hour period), except as provided in paragraph (a)(2) of this section and § 61.65(a).

(2) The reactor opening loss from each reactor is not to exceed 0.02 g vinyl chloride/kg (0.00002 lb vinyl chloride/lb) of polyvinyl chloride product, except as provided in paragraphs (f)(1) and (f)(2) of this section, with the product determined on a dry solids basis. This requirement does not apply to prepolymerization reactors in the bulk process. This requirement does apply to postpolymerization reactors in the bulk process, where the product means the gross product of prepolymerization and postpolymerization.

(3) Manual vent valve discharge. Except for an emergency manual vent valve discharge, there is to be no discharge to the atmosphere from any manual vent valve on a polyvinyl chloride reactor in vinyl chloride service. An emergency manual vent valve discharge means a discharge to the atmosphere which could not have been avoided by taking measures to prevent the discharge. Within 10 days of any discharge to the atmosphere from any manual vent valve, the owner or operator of the source from which the discharge occurs shall submit to the Administrator a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss (the calculation of the vinyl chloride loss), the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

(b) *Stripper.* The concentration of vinly chloride in each exhaust gas stream from each stripper is not to exceed 10 ppm (average for 3-hour period), except as provided in § 61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in § 61.65(b)(6)(i) before being opened.

(c) *Mixing, weighing, and holding containers.* The concentration of vinyl chloride in each exhaust gas stream from each mixing, weighing, or holding container in vinyl chloride service which precedes the stripper (or the reactor if the plant has no stripper) in the plant process flow is not to exceed 10 ppm (average for 3-hour period), except as provided in § 61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in § 61.65(b)(6)(i) before being opened.

(d) *Monomer recovery system.* The concentration of vinyl chloride in each exhaust gas stream from each monomer recovery system is not to exceed 10 ppm (average for 3-hour period), except as provided in § 61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in § 61.65(b)(6)(i) before being opened.

* * * * *

6. By revising paragraph (e) introductory text, and adding paragraphs (e)(3) and (f) to § 61.64 to read as follows:

§ 61.64 Emission standard for polyvinyl chloride plants.

* * * * *

(e) *Sources following the stripper(s).* The following requirements apply to emissions of vinyl chloride to the atmosphere from the combination of all sources following the stripper(s) (or the reactor(s) if the plant has no stripper(s)) in the plant process flow including but not limited to, centrifuges, concentrators, blend tanks, filters, dryers, conveyor air discharges, baggers, storage containers, and inprocess wastewater, except as provided in paragraph (f) of this section:

(1) * * *

(2) * * *

(3) The provisions of this paragraph apply at all times including when off-specification or other types of resins are made.

(f) Reactor used as stripper. When a nonbulk resin reactor is used as a stripper this paragraph may be applied in lieu of § 61.64 (a)(2) and (e)(1):

(1) The weighted average emissions of vinyl chloride from reactor opening loss and all sources following the reactor used as a stripper from all grades of polyvinyl chloride resin stripped in the reactor on each calendar day may not exceed:

(i) 2.22 g/kg (0.00202 lb/lb) of polyvinyl chloride product for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solids basis.

(ii) 0.42 g/kg (0.00042 lb/lb) of polyvinyl chloride product for all other polyvinyl chloride resins, including latex resins, with the product determined on a dry solids basis.

7. Section 61.65 is amended by revising paragraphs (a), (b)(1)(ii) and (b)(2) to read as follows:

§ 61.65 Emission standard for ethylene dichloride, vinyl chloride, and polyvinyl chloride plants.

(a) *Relief valve discharge.* Except for an emergency relief discharge, there is to be no discharge to the atmosphere from any relief valve on any equipment in vinyl chloride service. An emergency relief discharge means a discharge which could not have been avoided by taking measures to prevent the discharge. Within 10 days of any relief valve discharge, the owner or operator of the source from which the relief valve discharge occurs shall submit to the Administrator a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss (the calculation of the vinyl chloride loss), the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

(b) * * *

(1) * * *

(i) * * *

(ii) Any vinyl chloride removed from a loading or unloading line in accordance with paragraph (b)(1)(i) of this section is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period), or equivalent as provided in § 61.66.

(2) *Slip gauges.* During loading or unloading operations, the vinyl chloride emissions from each slip gauge in vinyl chloride service are to be minimized by ducting any vinyl chloride discharged from the slip gauge through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period), or equivalent as provided in § 61.65.

* * * * *

8. By revising paragraphs (b)(3), (b)(4), (b)(5), (b)(6), (b)(7), (b)(8), (b)(9)(ii), and (c) to § 61.65 as follows:

§ 61.65 Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants.

An owner or operator of an ethylene dichloride, vinyl chloride, and/or polyvinyl chloride plant shall comply with the requirements of this section.

(a) * * *

(b) * * *

(1) * * *

(2) * * *

(3) Leakage from pump, compressor, and agitator seals:

(i) *Rotating pumps.* Vinyl chloride emissions from seals on all rotating pumps in vinyl chloride service are to be minimized by installing sealless pumps, pumps with double mechanical seals or equivalent as provided in § 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66. Compliance with the provisions of 40 CFR Part 61 Subpart V demonstrates compliance with the provisions of this paragraph. new

(ii) *Reciprocating pumps.* Vinyl chloride emissions from seals on all reciprocating pumps in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in §61.66. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in §61.66. Compliance with the provisions of 40 CFR Part 61 Subpart V demonstrates compliance with the provisions of this paragraph.

(iii) *Rotating compressor.* Vinyl chloride emissions from seals on all rotating compressors in vinyl chloride service are to be minimized by installing compressors with double mechanical seals, or equivalent as provided in §61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in §61.66. Compliance with the provisions of 40 CFR Part 61 Subpart V demonstrates compliance with the provisions of this paragraph. new

(iv) *Reciprocating compressors.* Vinyl chloride emissions from seals on all reciprocating compressors in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in § 61.66. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66. Compliance with the provisions of 40 CFR Part 61 Subpart V demonstrates compliance with the provisions of this paragraph. new

(v) *Agitator.* Vinyl chloride emissions from seals on all agitators in vinyl chloride service are to be minimized by installing agitators with double mechanical seals, or equivalent as provided in § 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66. new

(4) *Leaks from relief valves.* Vinyl chloride emissions due to leaks from each relief valve on equipment in vinyl chloride service shall comply with § 61.242-4 of Subpart V of this part.

(5) *Manual venting of gases.* Except as provided in § 61.64(a)(3), all gases which are manually vented from equipment in vinly chloride service are to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period); or equivalent as provided in § 61.66.

(6) *Opening of equipment.* Vinyl chloride emissions from opening of equipment (including prepolymerization reactors used in the manufacture of bulk

resins and loading or unloading lines that are not opened to the atmosphere after each loading or unloading operation) are to be minimized as follows:

(i) Before opening any equipment for any reason, the quantity of vinyl chloride which is contained therein is to be reduced to an amount which occupies a volume of no more than 2.0 percent of the equipment's containment volume or 0.0950 cubic meters (25 gallons), whichever is larger, at standard temperature and pressure.

(ii) Any vinyl chloride removed from the equipment in accordance with paragraph (b)(6)(i) of this section is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period); or equivalent as provided in § 61.66.

(7) *Samples.* Unused portions of samples containing at least 10 percent by weight vinyl chloride are to be returned to the process or destroyed in a control device from which concentration of vinyl chloride in the exhaust gas does not exceed 10 ppm (average for 3-hour period) or equivalent as provided in § 61.66. Sampling techniques are to be such that sample containers in vinyl chloride service are purged into a closed process system. Compliance with the provisions of 40 CFR Part 61 Subpart V demonstrates compliance with the provisions of this paragraph.

(8) *Leak detection and elimination.* Vinyl chloride emissions due to leaks from equipment in vinyl chloride service are to be minimized as follows:

(i) A reliable and accurate vinyl chloride monitoring system shall be operated for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. The vinyl chloride monitoring system shall be operated according to a program developed by the plant owner or operator. The owner or operator shall submit a description of the program to the Administrator within 45 days of the effective date of these regulations, unless a waiver of compliance is granted under § 61.11, or the program has been approved and the Administrator does not request a review of the program. Approval of a program will be granted by the Administrator provided he finds:

(A) The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and size and physical layout of the plant.

(B) It contains a definition of leak which is acceptable when compared with the background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

(C) It contains an acceptable plan of action to be taken when a leak is detected.

(D) It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check is to be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to paragraph (b)(8)(i)(B) of this section. The calibration is to be done with either:

(*1*) A calibration gas mixture prepared from the gases specified in sections 5.2.1. and 5.2.2. of Test Method 106 and in accordance with section 7.1 of Test Method 106, or

(*2*) A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than ±5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration, and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of Test Method 106. The requirements in section 5.2.3.1. and 5.2.3.2. of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

(ii) For each process unit subject to this subpart, a formal leak detection and repair program shall be implemented consistent with Subpart V of this part, except as provided in paragraph (b)(8)(iii) of this section. This program is to be implemented within 90 days of the effective date of these regulations, unless a waiver of compliance is granted under §61.11. Except as provided in paragraph (b)(8)(ii)(E) of this section, an owner or operator shall be exempt from § 61.242-1(d), § 61.242-7 (a), (b), and (c), § 61.246, and § 61.247 of Subpart V of this part for any process unit in which the percentage of leaking valves is demonstrated to be less than 2.0 percent, as determined in accordance with the following:

(A) A performance test as specified in paragraph (b)(8)(ii)(B) of this section shall be conducted initially within 90 days of the effective date of these regulations, annually, and at times requested by the Administrator.

(B) For each performance test, a minimum of 200 or 90 percent, whichever is less, of the total valves in VOC service (as defined in § 60.481 of Subpart VV of Part 60) within the process unit shall be randomly selected and monitored within 1 week by the methods specified in § 61.245(b) of this part. If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. The leak percentage shall be determined by dividing the number of valves in VOC service for which leaks are detected by the number of tested valves in VOC service.

(C) If a leak is detected, it shall be repaired in accordance with § 61.242-7 (d) and (e) of Subpart V of this part.

(D) The results of the performance test shall be submitted in writing to the Administrator in the first quarterly report following the performance test as part of the reporting requirements of § 61.70.

(E) Any process unit in which the percentage of leaking valves is found to be greater than 2.0 percent according to the performance test prescribed in paragraph (b)(8)(ii)(B) of this section must comply with all provisions of Subpart V of this part within 90 days.

(iii) Open-ended valves or lines located on multiple service process lines which operate in vinyl chloride service less than 10 percent of the time are exempt from the requirements of § 61.242-6 of Subpart V, provided the open-ended valves or lines are addressed in the monitoring system required by paragraph (b)(8)(i) of this section. The Administrator may apply

this exemption to other existing open-ended valves or lines that are demonstrated to require significant retrofit cost to comply with the requirements of § 61.242-6 of Subpart V.

• • • • •

(9) • • •

(ii) Any vinyl chloride removed from the inprocess wastewater in accordance with paragraph (b)(9)(i) of this section is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period); or equivalent as provided in § 61.66.

• • • • •

(c) The requirements in paragraphs (b)(1), (b)(2), (b)(5), (b)(6), (b)(7) and (b)(8) of this section are to be incorporated into a standard operating procedure, and made available upon request for inspection by the Administrator. The standard operating procedure is to include provisions for measuring the vinyl chloride in equipment 4.75 m^3 (1,250 gal) in volume for which an emission limit is prescribed in § 61.65(b)(6)(i) after opening the equipment and using Test Method 106, a portable hydrocarbon detector, or an alternative method. The method of measurement is to meet the requirements in § 61.67(g)(5)(i)(A) or (g)(5)(i)(B).

8. Section 61.66 is revised to read as follows:

§ 61.66 Equivalent equipment and procedures.

Upon written application from an owner or operator, the Administrator may approve use of equipment or procedures which have been demonstrated to his satisfaction to be equivalent in terms of reducing vinyl chloride emissions to the atmosphere to those prescribed for compliance with a specific paragraph of this subpart.

10. By revising paragraphs (f), (g)(1)(i), (g)(2), (g)(3) introductory text, (g)(3)(i), (g)(3)(iii), (g)(5) introductory text, and by (g)(5)(ii) adding paragraphs (g)(6) and (h) in § 61.67 as follows:

§ 61.67 Emission tests.

• • • • •

(f) The owner or operator shall retain at the plant and make available, upon request, for inspection by the Administrator, for a minimum of 3 years, records of emission test results and other data needed to determine emissions.

(g) • • •

(1) • • •

(i) For each run, one sample is to be collected. The sampling site is to be at least two stack or duct diameters downstream and one half diameter upstream from any flow disturbance such as a bend, expansion, contraction, or visible flame. For a rectangular cross section an equivalent diameter is to be determined from the following equation:

$$\text{equivalent diameter} = \frac{2\,(\text{length})\,(\text{width})}{\text{length} + \text{width}}$$

The sampling point in the duct is to be at the centroid of the cross section. The sample is to be extracted at a rate proportional to the gas velocity at the sampling point. The sample is to contain a minimum volume of 50 liters corrected to standard conditions and is to be taken over a period as close to 1 hour as practicable.

• • • • •

(2) Test Method 107 or Method 601 (incorporated by reference as specified in § 61.18) is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream for which an emission limit is prescribed in § 61.65(b)(9)(i).

(3) When a stripping operation is used to attain the emission limits in § 61.64 (e) and (f), emissions are to be determined using Test Method 107 as follows:

(i) The number of strippers (or reactors used as strippers) and samples and the types and grades of resin to be sampled are to be determined by the Administrator for each individual plant at the time of the test based on the plant's operation.

(ii) • • •

(iii) The corresponding quantity of material processed by each stripper (or reactor used as a stripper) is to be determined on a dry solids basis and by a method submitted to and approved by the Administrator.

(iv) • • •

(4) • • •

(5) The reactor opening loss for which an emission limit is prescribed in § 61.64(a)(2) is to be determined. The number of reactors for which the determination is to be made is to be specified by the Administrator for each individual plant at the time of the determination based on the plant's operation.

(i) • • •

(ii) A calculation based on the number of evacuations, the vacuum involved, and the volume of gas in the reactor is hereby approved by the Administrator as an alternative method for determining reactor opening loss for postpolymerization reactors in the manufacture of bulk resins. Calculation methods based on techniques other than repeated evacuation of the reactor may be approved by the Administrator for determining reactor opening loss for postpolymerization reactors in the manufacture of bulk resins.

(6) For a reactor that is used as a stripper, the emissions of vinyl chloride from reactor opening loss and all sources following the reactor used as a stripper for which an emission limit is prescribed in § 61.64(f) are to be determined. The number of reactors for which the determination is to be made is to be specified by the Administrator for each individual plant at the time of the determination based on the plant's operation.

(i) For each batch stripped in the reactor, the following measurements are to be made:

(A) The concentration (ppm) of vinyl chloride in resin after stripping, measured according to paragraph (g)(3) of this section;

(B) The reactor vacuum (mm Hg) at end of strip from plant instrument; and

(C) The reactor temperature (°C) at end of strip from plant instrument.

(ii) For each batch stripped in the reactor, the following information is to be determined:

(A) The vapor pressure (mm Hg) of water in the reactor at end of strip from the following table:

Reactor vapor temperature (°C)	H_2O vapor pressure (mm Hg)	Reactor temperature (°C)	H_2O vapor pressure (mm Hg)	Reactor temperature (°C)	H_2O pressure (mm Hg)
40	55.3	62	188.8	84	416.8
41	58.3	63	171.4	85	433.6
42	61.5	64	179.9	86	450.9
43	64.8	65	187.5	87	468.7
44	68.3	66	196.1	88	487.1
45	71.8	67	205.0	89	506.1
46	75.6	68	214.2	90	525.8
47	79.6	69	223.7	91	546.0
48	83.7	70	233.7	92	567.0
49	88.0	71	243.9	93	588.6
50	92.5	72	254.6	94	610.9
51	97.2	73	265.7	95	633.9
52	102.1	74	277.2	96	657.6
53	107.2	75	289.1	97	682.1
54	112.5	76	301.4	98	707.3
55	118.0	77	314.1	99	733.2
56	123.8	78	327.3	100	760.0
57	129.8	79	341.0		
58	136.1	80	355.1		
59	142.8	81	369.7		
60	149.4	82	384.8		
61	156.4	83	400.8		

(B) The partial pressure (mm Hg) of vinyl chloride in reactor at end of strip from the following equation:

$$PPVC = 760 - RV - VPW$$

where:

PPVC = partial pressure of vinyl chloride, in mm Hg

760 = atmospheric pressure at 0 °C, in mm Hg

RV = absolute value of reactor vacuum, in mm Hg

VPW = vapor pressure of water, in mm Hg

(C) The reactor vapor space volume (m^3) at end of strip from the following equation:

$$RVSV = RC - WV - \frac{PVCW}{1.400}$$

where:
RVSV = reactor vapor space volume, in m^3
RC = reactor capacity, in m^3
WV = volume of water in reactor from recipe, in m^3
PVCW = dry weight of polyvinyl chloride in reactor from recipe, in kg
1.400 = typical density of polyvinyl chloride, in kg/m^3

(iii) For each batch stripped in the reactor, the combined reactor opening loss and emissions from all sources following the reactor used as a stripper is to be determined using the following equation:

$$C = (PPMVC)(10^{-6}) + \frac{(PPVC)(RVSV)(1.002)}{(PVCW)(273 + RT)}$$

where:
C = g vinyl chloride/kg polyvinyl chloride product
PPMVC = concentration of vinyl chloride in resin after stripping, in ppm
10^{-6} = conversion factor for ppm
PPVC = partial pressure of vinyl chloride determined according to paragraph (g)(6)(ii)(B) of this section, in mm Hg
RVSV = reactor vapor space volume determined according to paragraph (g)(6)(ii)(C) of this section, in m^3
1.002 = ideal gas constant in g – °K/mm Hg – m^3 for vinyl chloride
PVCW = dry weight of polyvinyl chloride in reactor from recipe, in kg
273 = conversion factor for °C to °K
RT = reactor temperature, in °C

(h)(1) Each piece of equipment within a process unit that can reasonably contain equipment in vinyl chloride service is presumed to be in vinyl chloride service unless an owner or operator demonstrates that the piece of equipment is not in vinyl chloride service. For a piece of equipment to be considered not in vinyl chloride service, it must be determined that the percent vinyl chloride content can be reasonably expected not to exceed 10 percent by weight for liquid streams or contained liquid volumes and 10 percent by volume for gas streams or contained gas volumes, which also includes gas volumes above liquid streams or contained liquid volumes. For purposes of determining the percent vinyl chloride content of the process fluid that is contained in or contacts equipment, procedures that conform to the methods described in ASTM Method D–2267 (incorporated by reference as specified in § 61.18) shall be used.

(2)(i) An owner or operator may use engineering judgment rather than the procedures in paragraph (h)(1) of this section to demonstrate that the percent vinyl chloride content does not exceed 10 percent by weight for liquid streams and 10 percent by volume for gas streams, provided that the engineering judgment demonstrates that the vinyl chloride content clearly does not exceed 10 percent. When an owner or operator and the Administrator do not agree on whether a piece of equipment is not in vinyl chloride service, however, the procedures in paragraph (h)(1) of this section shall be used to resolve the disagreement.

(ii) If an owner or operator determines that a piece of equipment is in vinyl chloride service, the determination can be revised only after following the procedures in paragraph (h)(1) of this section.

(3) Samples used in determining the percent vinyl chloride content shall be representative of the process fluid that is contained in or contacts the equipment.

11. By adding paragraphs (d), (e) and (f) to § 61.65 as follows:

§ 61.65 Emission monitoring.

* * * * *

(d) When exhaust gas(es) having emission limits that are subject to the requirement of paragraph (a) of this section, are emitted to the atmosphere without passing through the control system and required vinyl chloride monitoring system, the vinyl chloride content of the emission shall be calculated (in units of each applicable emission limit) by best practical engineering judgment based on the discharge duration and known VC concentrations in the affected equipment as determined in accordance with § 61.67(h) or other acceptable method.

(e) For each 3-hour period, the vinyl chloride content of emissions subject to the requirements of paragraphs (a) and (d) of this section shall be averaged (weighted according to the proportion of time that emissions were continuously monitored and that emissions bypassed the continuous monitor) for purposes of reporting excess emissions under § 61.70(c)(1).

(f) For each vinyl chloride emission to the atmosphere determined in accordance with paragraph (e) of this section to be in excess of the applicable emission limits, the owner or operator shall record the identity of the source(s), the date, time, and duration of the excess emission, the cause of the excess emission, and the approximate total vinyl chloride loss during the excess emission, and the method used for determining the vinyl chloride loss. This information shall be retained and made available for inspection by the Administrator as required by § 61.71(a).

12. In § 61.70 by revising the section title from "Semiannual report" to "Reporting", and by revising paragraphs (a), (c)(1), (c)(2) introductory text, (c)(2)(iii), (c)(2)(iv), (c)(2)(v), (c)(2)(vi) introductory text, and (e)(3) and also by adding (c)(4) to read as follows:

§ 61.70 Reporting.

(a)(1) The owner or operator of any source to which this subpart applies shall submit to the Administrator on March 15, June 15, September 15, and December 15 of each year a report in writing containing the information required by this section. The first report is to be submitted following the first full 3-month reporting period after the initial report is submitted.

(2) In the case of an existing source, the approved reporting schedule shall be used. In addition, quarterly reports shall be submitted exactly 3 months following the current reporting dates.

* * * * *

(c) * * *

(1) The owner or operator shall include in the report a record of the vinyl chloride content of emissions for each 3-hour period during which average emissions are in excess of the emission limits in § 61.62 (a) or (b), § 61.63(a), or § 61.64 (a)(1), (b), (c), or (d), or during which average emissions are in excess of the emission limits specified for any control system to which reactor emissions are required to be ducted in § 61.64(a)(2) or to which fugitive emissions are required to be ducted in § 61.65(b)(i)(ii), (b)(2), (b)(5), (b)(6)(ii), or (b)(9)(ii). The number of 3-hour periods for which average emissions were determined during the reporting period shall be reported. If emissions in excess of the emission limits are not detected, the report shall contain a statement that no excess emissions have been detected. The emissions are to be determined in accordance with § 61.65(e).

(2) In polyvinyl chloride plants for which a stripping operation is used to attain the emission level prescribed in § 61.64(e), the owner or operator shall

include in the report a record of the vinyl chloride content in the polyvinyl chloride resin.

(i) * * *

(ii) * * *

(iii) The vinyl chloride content in each sample is to be determined by Test Method 107 as prescribed in § 61.67(g)(3).

(iv) [Reserved]

(v) The report to the Administrator by the owner or operator is to include a record of any 24-hour average resin vinyl chloride concentration, as determined in this paragraph, in excess of the limits prescribed in § 61.64(e). The vinyl chloride content found in each sample required by paragraphs (c)(2)(i) and *(c)(2)(ii) of this section shall be* averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin processed by the stripper(s) that calendar day, according to the following equation:

$$A_T = \frac{\sum_{i=1}^{n} P_{Gi} M_{Gi}}{Q_T} = \frac{P_{G1} M_{G1} + P_{G2} M_{G2} + \ldots P_{Gn} M_{Gn}}{Q_T}$$

where:

A = 24-hour average concentration of type T resin in ppm (dry weight basis)

Q = Total production of type T resin over the 24-hour period, in kg.

T = Type of resin.

M = Concentration of vinyl chloride in one sample of grade Gi resin in ppm.

P = Production of grade Gi resin represented by the sample, in kg.

Gi = Grade of resin: e.g., G1, G2, G3.

n = Total number of grades of resin produced during the 24-hour period.

The number of 24-hour average concentrations for each resin type determined during the reporting period shall be reported. If no 24-hour average resin vinyl chloride concentrations in excess of the limits prescribed in *§ 61.64(e) are measured, the report shall* state that no excess resin vinyl chloride concentrations were measured.

(vi) The owner or operator shall retain at the source and make available for inspection by the Administrator for a minimum of 3 years records of all data needed to furnish the information required by paragraph (c)(2)(v) of this section. The records are to contain the following information:

(A) * * *

(B) * * *

(3) The owner or operator shall include in the report a record of any emissions from each reactor opening in excess of the emission limits prescribed in § 61.64(a)(2). Emissions are to be determined in accordance with § 61.67(g)(5), except that emissions for each reactor are to be determined. The *number of reactor openings* during the reporting period shall be reported. If emissions in excess of the emission limits are not detected, the report shall include a statement that excess emissions have not been detected.

(4) In polyvinyl chloride plants for which stripping in the reactor is used to attain the emission level prescribed in § 61.64(f), the owner or operator shall include in the report a record of the vinyl chloride emissions from reactor opening loss and all sources following the reactor used as a stripper.

(i) One representative sample of polyvinyl chloride resin is to be taken *from each batch of each grade of resin* immediately following the completion of the stripping operation, and identified by resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

(ii) The vinyl chloride content in each sample is to be determined by Test Method 107 as prescribed in § 61.67(g)(3).

(iii) The combined emissions from reactor opening loss and all sources following the reactor used as a stripper are to be determined for each batch stripped in a reactor according to the procedure prescribed in § 61.67(g)(6).

(iv) The report to the Administrator by the owner or operator is to include a *record of any 24-hour average combined* reactor opening loss and emissions from all sources following the reactor used as a stripper as determined in this paragraph, in excess of the limits prescribed in § 61.64(f). The combined reactor opening loss and emissions from all sources following the reactor used as a stripper associated with each batch are to be averaged separately for each type of resin, over each calendar day *and weighted according to the quantity* of each grade of resin stripped in reactors that calendar day as follows:

For each type of resin (suspension, dispersion, latex, bulk, other), the following calculation is to be performed:

$$A_T = \frac{\sum_{i=1}^{n} P_{Gi} C_{Gi}}{Q_T} = \frac{P_{G1} C_{G1} + P_{G2} C_{G2} + \ldots + P_{Gn} C_{Gn}}{Q_T}$$

where:

A = 24-hour average combined reactor opening loss and emissions from all sources following the reactor used as a stripper, in g vinyl chloride/kg product (dry weight basis).

Q = Total production of resin in batches for which stripping is completed during the 24-hour period, in kg.

T = Type of resin.

C = Average combined reactor opening loss and emissions from all sources following the reactor used as a stripper of all batches of grade G_i resin for which stripping is completed during the 24-hour period, in g vinyl chloride/kg product (dry weight basis) (determined according to procedure prescribed in § 61.67(g)(6)).

P = Production of grade G_i resin in the batches for which C is determined, in kg.

G_i = Grade of resin e.g., G_1, G_2, and G_3.

n = Total number of grades of resin in batches for which stripping is completed during the 24-hour period.

The number of 24-hour average emissions determined during the reporting period shall be reported. If no 24-hour average combined reactor opening loss and emissions from all sources following the reactor used a stripper in excess of the limits prescribed in § 61.64(f) are determined, the report shall state that no excess vinyl chloride emissions were determined.

11. By revising paragraph (a) introductory text of § 61.71 as follows:

§ 61.71 Recordkeeping.

(a) The owner or operator of any source to which this subpart applies shall retain the following information at the source and make it available for inspection to the Administrator for a minimum of 3 years:

* * * * *

14. By revising paragraph (a)(4) and adding paragraph (b)(1) to § 61.18 as follows:

§ 61.18 Incorporation by Reference.

* * * * *

(a) * * *

(4) ASTM D2267–68 (reapproved 1978) Aromatics in Light Naphthas and

Aviation Gasoline by Gas Chromatography. IBR approved June 6, 1984, for § 61.245(d)(1) and IBR approved September 30, 1986 for § 61.67(h)(1).

• • • • •

(b) The following material is available from the U.S. EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

(1) Method 601, Test Method for Purgeable Halocarbons, July 1982. IBR approved September 30, 1986 for § 61.67(g)(2).

15. By revising the definition "volatile hazardous air pollutants" in § 61.241 of Subpart V to read as follows:

§ 61.241 Definitions.

• • • • •

"Volatile hazardous air pollutant" or "VHAP" means a substance regulated under this part for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene is a VHAP. Vinyl chloride is a VHAP.

16. By revising the definition of "connector" in § 61.241 of Subpart V as follows:

§ 61.241 Definitions.

• • • • •

"Connector" means flanged, screwed, welded, or other joined fittings used to connect two pipe lines or a pipe line and a piece of equipment. For the purpose of reporting and recordkeeping, connector means flanged fittings that are not covered by insulation or other materials that prevent location of the fittings.

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