United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

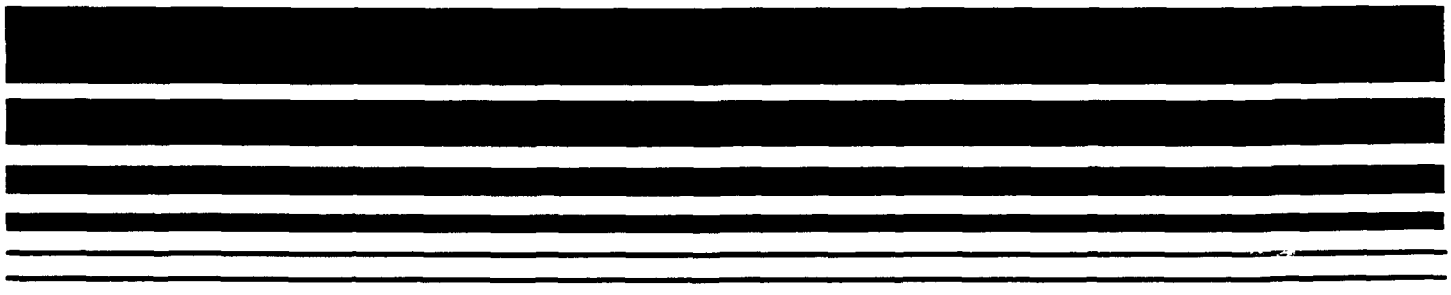
EPA-453/R-96-006b
July 1996

Air

EPA

Hazardous Air Pollutant Emissions from Process Units in the Elastomer Manufacturing Industry--

Basis and Purpose Document for Final Standards, Summary of Public Comments and Responses



NESHAP

EPA-453/R-96-006b

Hazardous Air Pollutant Emissions From Process Units in the Elastomers Manufacturing Industry--

Basis and Purpose Document for Final Standards, Summary of Public Comments and Responses

Emission Standards Division

U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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ENVIRONMENTAL PROTECTION AGENCY

Hazardous Air Pollutant Emissions from Process Units in the Elastomers Manufacturing Industry -- Basis and Purpose Background Information for Final Standards

1. The standards regulate organic hazardous air pollutant (HAP) emissions from the production of butyl rubber (including halobutyl rubber), epichlorohydrin elastomers, ethylene propylene rubber, Hypalon™, neoprene, nitrile butadiene rubber (including nitrile butadiene latex), polybutadiene rubber (including polybutadiene latex), polysulfide rubber, and styrene butadiene rubber (including styrene butadiene latex). Only those elastomer product process units that are part of major sources under section 112(d) of the Clean Air Act (Act) will be regulated.

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3. Paper copies of this document may obtained from:

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ACRONYM AND ABBREVIATION LIST

ACRONYM	TERM
ABS	acrylonitrile butadiene styrene
ACT	Alternative Control Technology
ASTM	American Society for Testing Materials
BR	butyl rubber
CAAA	Clean Air Act Amendments
CAS	Chemical Abstracts Service
CBI	confidential business information
CEM	continuous emissions monitoring
CFR	Code of Federal Regulations
COD	chemical oxygen demand
CTG	Control Technology Guidance
DOD	Department of Defense
EPI	epichlorohydrin rubber
EPPU	elastomer product process unit
EPR	ethylene-propylene rubber
FR	FEDERAL REGISTER
HAP	hazardous air pollutant
HBR	halobutyl rubber
HON	hazardous organic NESHAP
HYP	Hypalon™
IISRP	International Institute of Synthetic Rubber Producers
LDAR	leak detection and repair
MACT	maximum achievable control technology
NBL	nitrile butadiene latex
NBR	nitrile butadiene rubber
NEO	neoprene
NESHAP	national emission standards for hazardous air pollutants
NSPS	new source performance standards
PBR/SBRS	polybutadiene rubber and styrene butadiene rubber by solution
pH	hydrogen-ion concentration
PSR	polysulfide rubber
RACT	reasonably available control technology
RCRA	Resource Conservation and Recovery Act
RCT	reference control technology
SBL	styrene butadiene latex
SBRE	styrene butadiene rubber by emulsion
SID	supplementary information document
SOCMI	synthetic organic chemical manufacturing industry
SPI	Society of the Plastics Industry, Inc.
SSM	startup, shutdown, and malfunction
SSP	solid state polymerization
TOC	total organic compound
TRE	total resource effectiveness
TRI	Toxic Release Inventory

ACRONYM AND ABBREVIATION LIST
(Continued)

ACRONYM	TERM
TRIS	Toxic Release Inventory System
TTN	Technology Transfer Network
VOC	volatile organic compound
VOHAP	volatile organic hazardous air pollutant
WTU	wastewater treatment unit

ABBREVIATION	UNIT OF MEASURE
Btu/hr	British thermal units per hour
°C	degrees Celsius
cfm	cubic feet per minute
°F	degrees Fahrenheit
gpm	gallons per minute
kg/yr	kilograms per year
kPa	kilopascals
mmHg	millimeters of mercury
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
psia	pounds per square inch, absolute
tons/yr	tons per year

1.0 SUMMARY

1.1 INTRODUCTION

On June 12, 1995, the U.S. EPA proposed a NESHAP for HAP emissions from the production of butyl rubber (including halobutyl rubber), epichlorohydrin elastomers, ethylene propylene rubber, Hypalon™, neoprene, nitrile butadiene rubber (including nitrile butadiene latex), polybutadiene rubber (including polybutadiene latex), polysulfide rubber, and styrene butadiene rubber (including styrene butadiene latex) under Section 112(d) of the Act. These nine polymer types are generally referred to as "elastomers." Due to the similarities in these polymers and the processes used to produce them, the EPA studied and regulated them together, under the title "Polymers and Resins I." Throughout this document the terms "elastomers" and "Polymers and Resins I" will be used to collectively refer to the polymer types listed above.

Public comments were requested on the proposed standard and comment letters were received from industry representatives and governmental entities. A total of 29 comment letters were received. Table 1-1 presents a listing of all persons submitting written comments, their affiliation, and their docket item number. A public hearing was not requested.

The written comments that were submitted on the proposed rule have been summarized and responses to the comments are included in the following sections. This summary of comments and responses serves as the basis

TABLE 1-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Air Docket A-92-44 Item Number	Commenter and affiliation
IV-D-01	Roger D. Randolph, State of Missouri Department of Natural Resources Division of Environmental Quality
IV-D-02	Frank Kennedy American Synthetic Rubber Corporation
IV-D-03	Jennifer Keane Baker & Botts, L.L.P. [on behalf of Firestone Synthetic Rubber & Latex Company]
IV-D-04	Thomas R. Herman, P.E. Zeon Chemicals Incorporated
IV-D-05	D.G. Berkebile The Goodyear Tire & Rubber Company
IV-D-06	D.G. Berkebile The Goodyear Tire & Rubber Company
IV-D-07	Dale L. McKinnon Manufacturers of Emission Controls Association
IV-D-08	Robert J. Fensterheim Styrene Butadiene Latex Manufacturers Council, Incorporated
IV-D-09	Michael J. Wax Institute of Clean Air Companies
IV-D-10	Gary E. Marchant Kirkland & Ellis [on behalf of the International Institute of Synthetic Rubber Producers, Incorporated]
IV-D-11	Lloyd J. Tabary II, Esq. DSM Copolymer
IV-D-12	Lloyd J. Tabary II, Esq. DSM Copolymer
IV-D-13	Lloyd J. Tabary II, Esq. DSM Copolymer

TABLE 1-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Air Docket A-92-44 Item Number	Commenter and affiliation
IV-D-14	Matthew O. Tanzer/Bernadine D. Flood General Electric Plastics
IV-D-15	Ajay Gupta Hampshire Chemical Corporation
IV-D-16	Reginaldo A. Montague Uniroyal Chemical Company, Incorporated
IV-D-17	Brian L. Taranto Exxon Chemical Americas
IV-D-18	David W Gustafson/Toby A. Threet Env. Health & Regulatory Affairs Legal Department Dow Chemical Company
IV-D-19	J.F. Finn Continental General Tire, Incorporated
IV-D-20	J.C. Moorad Shell Chemical Company
IV-D-21	J.C. Hovious Union Carbide Corporation
IV-D-22	B.J. Price Phillips Petroleum Company
IV-D-23	Jeffrey A. Saitas Texas Natural Resource Conservation Commission
IV-D-24	Charles W. Keffer, Jr. Monsanto Company
IV-D-25	R.H. Colby, D.F. Theiler State and Territorial Air Pollution Program Administration/Association of Local Air Pollution Control Officers
IV-D-26	John A Dege Jr. DuPont SHE Excellence Center
IV-D-27	Frank Kennedy American Synthetic Rubber Corporation

TABLE 1-1. LIST OF COMMENTERS ON PROPOSED NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Air Docket A-92-44 Item Number	Commenter and affiliation
IV-G-1[a]	Jennifer Keane Baker & Botts, L.L.P. [on behalf of Firestone Synthetic Rubber & Latex Company]
IV-G-2[a]	William O'Sullivan State of New Jersey Department of Environmental Protection

[a] Other items found in category IV-G of the docket are not addressed as they are primarily either follow-up correspondence related to the original public comment letters and the issues contained therein, or are follow-up correspondence related to meetings held with industry in order to discuss those issues.

for revisions made to the NESHAP between proposal and promulgation.

1.2 SIGNIFICANT COMMENTS AND CHANGES SINCE PROPOSAL

In response to comments received on the proposed standards, several changes have been made to the final rule. While several of these changes are clarifications designed to make the EPA's intent clearer, a number of them are significant changes to the requirements of the proposed standards. A summary of the substantive comments and/or changes made since the proposal are described in the following sections. Additional information on the final rule is contained in the docket for this rule (Docket A-92-44).

National Emission Standards for Hazardous Air Pollutant Emissions from the Production of Acrylonitrile Butadiene Styrene (ABS) Resin, Styrene Acrylonitrile (SAN) Resin, Methyl Methacrylate Acrylonitrile Butadiene Styrene (MABS) Resin, Methyl Methacrylate Butadiene Styrene (MBS) Resin, Polystyrene Resin, Poly(ethylene terephthalate) (PET) Resin, and Nitrile Resin (Group IV Polymers and Resins) (40 CFR 63, subpart V), were developed concurrently with subpart U. Many of the basic requirements of the two rules are alike, and in some cases they are identical. Subpart V was proposed on March 29, 1995, and comments from the public were received. In many instances, similar comments were received on analogous sections of subparts U and V. In these instances, the project teams on the two standards worked together to address the comments and make appropriate rule changes. However, in some instances, comments were received on subpart V, and not on subpart U, that were applicable to provisions of subpart U. A summary of these

comments can be found in the "Hazardous Air Pollutant Emissions from Process Units in the Thermoplastics Manufacturing Industry-- Basis and Purpose Document for Final Standards, Summary of Public Comments and Responses," (EPA-453/R-96-001b, May 1996; Docket Number A-92-45, Item Number V-C-1). In a few cases, the EPA decided that a change to subpart U based on these comments was appropriate. These changes did not result in a change in the stringency of the subpart U provisions, but were typically changes to improve the clarity of the rule. The one area where a subpart V comment resulted in a tangible change to subpart U was in the batch vent applicability determination, as an affected source is allowed to determine the group status of a batch front-end process vent based on its primary product.

1.2.1 Applicability Provisions and Definitions

1.2.1.1 Designation of Affected Source and the Definition of Elastomer Product Process Unit

Commenters expressed confusion about the definitions of "affected source" and "elastomer product process unit" (EPPU) in the proposed rule. The EPA reviewed both definitions and agreed the definitions needed clarification. In response, the EPA has revised the language describing affected source and EPPU in the final rule.

In the final rule, the existing affected source is defined as each group of one or more EPPUs that manufacture the same elastomer product as their primary product, and (1)

are located at a major source plant site, (2) are not exempt, and (3) are not part of a new affected source. This means that each plant site will have only one existing affected source in any given subcategory.

If a plant site with an existing affected source producing elastomer A as its primary product constructs a new EPPU also producing elastomer A as it primary product, the new EPPU is a new affected source if the new EPPU has the potential to emit more than 10 tons per year of a single HAP, or 25 tons per year of all HAP. In this situation, the plant site would have an existing affected source producing elastomer A, and a new affected source producing elastomer A. Each subsequent new EPPU with potential HAP emissions above the levels cited above would be a separate new affected source.

New affected sources are also created when an EPPU is constructed at a major source plant site where the elastomer product was not previously produced, with no regard to the potential HAP emissions from the EPPU. Another instance where a new affected source is created is if a new EPPU is constructed at a new plant site (i.e., green field site) that will be a major source. The final manner in which a new affected source is created is when an existing affected source undergoes reconstruction, thus making the previously existing source subject to new source standards. This

approach to defining new affected source was selected in order to make subpart U more consistent with the HON.

The definition of EPPU was revised to include a list of the collection of equipment that comprises an EPPU. Because wastewater operations are ancillary equipment and are often used by more than one EPPU and may be used by more than one affected source, they are not included as part of the EPPU.

1.2.1.2 Definition of Organic HAP

Numerous commenters recommended that the EPA restrict the list of organic HAP in the final rule to those that are used or are present in significant quantities at EPPUs or those that are listed in the HON, subpart F, table 2. The EPA agreed with the commenters that a table providing a listing of the specific organic HAP to be regulated for each subcategory covered by the rule should be included in the final rule. Therefore, the definition of organic HAP was revised to specify those organic HAP known to be used or present in significant quantities for each subcategory. This list is provided in table 7 of the final rule.

This revised definition was developed using available process description information received from industry and gathered from available literature. Because there may be additional organic HAP present at an affected source, the final rule requires owners or operators to notify the EPA of the presence of any additional organic HAP based on the following criteria: (1) organic HAP is knowingly introduced

into the manufacturing process, or has been or will be reported under any Federal or State program, such as TRIS or Title V; and (2) the organic HAP is presented in Table 2 of subpart F.

1.2.1.3 *Determining New Source Status*

The EPA received comments regarding the process for determining if new or existing source requirements would apply to a particular EPPU. In response to those comments, the EPA has revised the provisions in the final standards. Under the final standards, a newly constructed EPPU that manufactures an elastomer product previously produced at the plant site must also have the potential to emit major quantities (10 tons per year of any HAP or 25 tons per year of any combination of HAP) in order to be subject to new source requirements. A newly constructed EPPU that manufactures an elastomer product not previously produced at the plant site is considered a new affected source and is subject to new source requirements regardless of whether the new EPPU has the potential to emit major quantities of HAP or not.

This approach to defining a new affected source was selected in order to make subpart U more consistent with the HON. This standard differs from the HON, however, in that it applies to multiple source categories. Thus, unlike the HON, a newly added EPPU at a facility is covered by this rule even if that EPPU is in a different source category

form the existing EPPUs at the facility. It is the EPA's position that the addition of a process unit in a different source category is a new source and must meet the requirements for new sources even though the EPPU may have the potential to emit less than 10 tons per year of a single HAP or 25 tons per year of all HAP. Indeed, if a source covered by another MACT standard (i.e., a different source category) were built at a HON facility, that source would be subject to the new source requirements under that MACT standard.

1.2.1.4 Flexible Operation Units

The final rule has retained the HON concept of flexible operation units, but the language in the final rule has been significantly modified to more adequately address polymer production facilities. The final provisions require flexible operation units with an elastomer as the primary product to commit to complying with the elastomers rule at all times, regardless of what product they are producing at any particular time. The primary product for a flexible operation unit is determined based on projected production for the next 5 years.

1.2.2 Storage Vessel Provisions

As discussed in more detail in Section 3.0 of this document, in comments received on the storage tank provisions the EPA noted a common misinterpretation of the proposed regulation related to the distinction between a

"storage vessel" and a "surge control vessel". The EPA determined that many of the comments received on "storage vessels" were in fact referring to vessels that fall under the definition of surge control vessel. The EPA suggests that owners and operators of facilities subject to subpart U pay careful attention to these definitions.

1.2.2.1 Applicability requirements

Several comments were received requesting that the EPA consider the exemption of vessels storing specific HAP or products. In fact, one commenter indicated that the EPA should conduct a full floor analysis for new and existing storage vessels, considering each chemical separately and the various sizes of tanks for each subcategory. Other commenters supported the exemption of stripped latex storage tanks from control requirements, but also declared that high conversion SBR or polybutadiene latex storage tanks should also be exempt. Another commenter stated that tanks downstream of EPR stripping operations should be exempt from storage vessel requirements, just as those containing latex downstream of stripping operations are exempt.

The EPA does not believe that the floor analyses for each HAP stored at elastomer production facilities are required to be conducted under the Clean Air Act (Act), nor should they be conducted. The Act requires the EPA to set emission standards for HAP on a source category (or subcategory) basis; it does not compel the EPA to establish

separate control measures for each HAP emitted by a source in the category. As suggested by the commenter, this approach could result in an incomplete standard, since it would not include a standard for a listed HAP that may be used in the future by elastomer facilities. Further, consideration of individual HAP storage vessel controls would not be representative of facility-wide storage vessel control levels.

However, the EPA believes that it is reasonable to exempt a storage vessel from the final regulation when it is clear that the vessel would never be a Group 1 storage vessel. The EPA determined that the following HAP used in the elastomer industry have low enough vapor pressures that vessels storing these HAP would never be included in Group 1: acrylamide, epichlorohydrin, and styrene. Therefore, the final rule exempts storage vessels containing these HAP at existing sources. This exemption is also extended to surge control vessels and bottoms receivers at existing sources.

In addition, the EPA is convinced that a SBL storage vessel (high conversion or otherwise) would never contain sufficient HAP to exceed the vapor pressure cutoff for Group 1 storage vessels. This is primarily due to the low vapor pressure of styrene. Therefore, the final rule exempts all SBL storage vessels, surge control vessels, and

bottoms receivers from the requirements of sections 63.484 and 63.502.

Finally, the EPA agrees that storage vessels, surge control vessels, and bottoms receivers downstream of stripping operations at ethylene-propylene rubber facilities that are in compliance with the provisions of section 63.494 [old section 63.487-1] of the final rule through the use of stripping technology should be exempt from the storage vessel, surge control vessel, and bottoms receiver requirements. Further, the EPA believes that these exemptions should also extend to the other subcategories required to comply with the residual organic HAP limitations in section 63.494 [old section 63.487-1] (a)(1)-(3). However, since the residual organic HAP content of rubber leaving the stripping operations at ethylene propylene rubber and polybutadiene/ styrene-butadiene rubber by solution facilities complying with these provisions through the use of add-on control is not restricted, these exemptions are not available to these facilities.

1.2.2.2 *Emission limits*

Commenters requested that the regulation allow the use of alternative storage vessel/surge control vessel control techniques. Two commenters described specific control systems present at their facilities, and asked that the EPA include allowances for these systems in the rule. They stressed that such allowances should consider the overall

effectiveness of the control system, and not just the efficiency of the control or recovery device.

The EPA agrees that it is reasonable to consider the overall effectiveness of a control "system" in determining compliance with the rule, and that such systems that have been demonstrated to be equivalent to the reference control technology should be allowed. While the EPA believes the system described by the commenter could be demonstrated to be equivalent to the reference control technology for surge control vessels, the commenter did not provide sufficient documentation to allow a complete evaluation of equivalence.

However, the EPA maintains that subpart U, as proposed, already provides the opportunity for the commenter, as well as other elastomer production facilities, to demonstrate equivalency of alternative control techniques. For storage vessels, section 63.121 of subpart G addresses the procedures to obtain approval of alternative means of emission limitations. For surge control vessels and bottoms receivers, these procedures are contained in section 63.177 of subpart H. In summary, these sections specify that the owner or operator must submit documentation of the equivalency determination to the Administrator.

1.2.3 Continuous Front-end Process Vent Provisions

1.2.3.1 Applicability requirements

Several commenters stated that the exemption from halide controls for butyl/halobutyl production should be

extended to all rubber manufacturers, since halogen-containing compounds or by-products have historically been routed to flares. Another commenter agreed with the exemptions for butyl and halobutyl production facilities, but pointed out that this exemption should only be applicable to existing sources.

Only one existing facility was identified in each the halobutyl and the butyl rubber subcategories. At both of these facilities, halogenated vent streams were vented to a flare and/or boiler. Since both of these subcategories were single-facility subcategories, the MACT floor was determined to be the existing level of control. The EPA examined the impacts of requiring halogenated vent streams at the halobutyl and butyl rubber facilities to comply with the proposed requirements for all other elastomer subcategories (i.e, the HON-level of control). The EPA concluded that the costs associated with this level of control were not reasonable, given the associated emission reduction. Therefore, the proposed regulation allowed halogenated streams at halobutyl and butyl rubber facilities that were routed to a flare or boiler prior to proposal to continue to be controlled with these combustion devices, without additional control for the resulting halides.

Prior to proposal, the EPA was aware of one EPR facility that also routed a halogenated vent stream to a boiler. However, since only one of five EPR facilities

reported this situation, the EPA concluded that this level of control was not the MACT floor for EPR. Other EPR producers claimed that they also had halogenated streams at their facilities, but none offered any information to quantify the amount of halogens in the stream to determine if the streams could be classified as halogenated.

After proposal, the EPA learned that the chlorinated organic compounds are present in streams at all of the EPR facilities. These compounds are a by-product of the polymerization reaction, resulting from a chlorinated catalyst. At all four of the facilities contacted, the streams containing the chlorinated compounds are routed to either a flare or boiler. Due to the widely varying concentration in the stream, all facilities indicated that it was difficult, if not impossible, to accurately determine the halogen atom concentration in the vent stream. However, all expressed confidence that at times, the halide threshold in the incoming stream was exceeded.

Therefore, the EPA concluded that four of the five EPR facilities have halogenated streams that are routed to either a boiler or flare. For this reason, the EPA determined that the floor for EPR is the existing level of control for these halogenated vent streams. In addition, as with halobutyl and butyl rubber, the EPA does not believe that it would be cost-effective to require new incinerators and scrubbers to be installed at these facilities, when the

only net emission reduction would be the reduction of the hydrochloric acid, since the reduction of the halogenated organic compound in the incinerator would be the same as was already being achieved in the boiler or flare. However, as noted above, sufficient stream-specific information was not available to conduct this analysis. Therefore, the final rule has been changed to extend the exemption for existing halogenated streams routed to a boiler or flare to EPR producers. Further, the final rule specifies that this exemption does not apply to new sources.

1.2.3.1 *Emission Limits*

Based on a commenter's request, the final rule exempts a vent stream routed to an internal combustion engine as primary fuel from source testing requirements. The final rule also requires that the on/off status of internal combustion be monitored as a means of demonstrating compliance with these control requirements.

1.2.4 Batch Front-end Process Vent Provisions

Commenters believed that batch front-end process vent provisions were inappropriate and unnecessarily burdensome. Several commenters disagreed with the EPA's reliance on the Batch Processes ACT document in the development of the batch vent provisions, claiming that it was not appropriate to the elastomer manufacturing industry.

The EPA believes that the potential for HAP emissions from batch operations at elastomer production facilities

warrant control. While the EPA disagrees with the statement that the provisions are inappropriate, the EPA certainly appreciates comments regarding the complexity of the proposed batch vent provisions. In the final rule, these provisions have been simplified. Many of these changes are discussed below.

1.2.3.1 Applicability requirements

In response to comments on the batch front-end process vent applicability provisions, the volatility class concept has been eliminated. The Batch Processes ACT developed an annual threshold emission level for each of three volatility classes. The EPA initially judged that selection of a single annual threshold emission level would not be appropriate and included all three levels in the proposed standards. However, upon further review, the EPA found no adverse impact would result from the use of a single annual threshold emission level and, therefore, the final standards have been significantly simplified. Besides removing the requirement to determine the volatility class, the final standards contain only one equation for determining the cutoff flow rate [new section 63.488(f)], which is the last step in the group determination process.

A commenter on the proposed Polymers and Resins IV (40 CFR 62, subpart V) regulation suggested changing the batch vent group determination provisions to only utilize emissions data from an EPPU's primary product. The EPA

agreed that to base the group determination on a single product could, if appropriately applied, provide acceptable results from an environmental perspective, while simplifying the compliance requirements for and improving the enforceability of the batch front-end process vent standards. Therefore, the final standards contain provisions allowing the owner or operator of an affected source to perform the group determination for batch front-end process vents based on annualized production of a single batch product. However, the EPA does not consider it to be appropriate from an environmental perspective to allow anything other than the worst-case HAP emitting batch product to be considered when basing applicability on a single product. Therefore, the final standards specify that the worst-case HAP emitting batch product be used when an owner or operator chooses to annualize a single product for purposes of determining applicability. The final standards define the worst-case HAP emitting product and describe how emissions are to be annualized to represent full-time production, where full-time production does not necessarily mean operating at maximum production rate. Since the proposed batch vent provisions were similar between subpart U and V, the EPA decided that this change was also appropriate for this final regulation, subpart U.

Several commenters stated that the proposed provisions for the methods allowed for the calculation of batch front-

end process vent emissions were overly restrictive. The proposed rule required that emissions be calculated using either the emission estimation equations or source testing. If the owner or operator could demonstrate that both the equations and source testing were inappropriate, then they were allowed to use engineering assessment to calculate HAP emissions. The commenters believed that an affected source should be allowed to use engineering assessments without having to demonstrate that source testing was inappropriate.

The EPA maintains that it is imperative that a consistent technique for the estimation of batch front-end process vent emissions be used, which is provided through the emission estimation equations. The EPA believes the data required to use the batch front-end process vent emissions estimation equations should be obtainable with reasonable effort. The final standards continue to require use of the emissions estimation equations, unless the owner or operator can demonstrate that these equations are inappropriate.

However, the EPA has concluded that direct measurement of emissions through testing may prove to be difficult and may or may not provide an increased assurance of accuracy over the use of engineering assessment. Therefore, if an owner or operator can demonstrate that the emissions estimation equations are not appropriate, the final standards allow the selection of either direct measurement

or engineering assessment. Further, criteria for demonstrating that the emissions estimation equations are not appropriate to a specific batch emissions episode have been added to the final standards. These criteria require either: 1) the availability of test data that demonstrate a greater than 20 percent discrepancy between the test value and the estimated value, or 2) that the owner or operator demonstrate to the Administrator that the emissions estimation equations are not appropriate for a given batch emissions episode.

1.2.5 Back-end Process Operation Provisions

The back-end process operation provisions received the majority of the comments on the proposed rule. Significant comments were received on practically every aspect of these provisions. Following is a summary of the comments that resulted in notable changes to the back-end process operation requirements.

1.2.5.1 Averaging period

Several commenters declared that compliance based on a weekly average HAP limitation was unreasonable, and that compliance should be demonstrated on the basis of a monthly (or 30-day) rolling average instead. These commenters claimed that requiring compliance based on a weekly average fails to provide adequate operational flexibility for manufacturers to produce different grades of polymers in accordance with customer demands.

Upon investigation of this issue, the EPA concluded that a monthly averaging period for the residual HAP limitations was more appropriate, and the final rule has been revised to reflect this change. Changing to a monthly averaging period will provide more operational flexibility to elastomer producers, while maintaining the same annual emission reduction.

1.2.5.2 Residual organic HAP limitations

Commenters objected to numerous aspects of the residual organic HAP limitations. Most of these comments were directed towards the methods used to determine the back-end MACT floors. Discussed below are comments on definitions, test methods, and other areas that affect the determination of the residual organic HAP limitations. The EPA addressed these comments and re-assessed the MACT floors.

Definition of crumb rubber dry weight. Comments stated that, for solution processes, the definition of "crumb rubber dry weight" should not exclude extender oils and carbon black for compliance purposes, because these are an integral part of the polymer. The EPA agrees with these comments, and revised the definition of crumb rubber dry weight to reflect this opinion.

Residual organic HAP test methods: Concurrent with the proposal of subpart U, the EPA proposed three residual HAP test methods - one each for SBRE, PBR/SBRS, and EPR. Several commenters stated that no single analytical method

will produce consistent results for all polymers, and consequently, each company should be allowed to demonstrate compliance using a company-specific method that is comparable to the EPA test method.

The EPA agrees with the commenters and has undergone an extensive effort to accommodate their request. The EPA concluded that it was appropriate to allow every interested company to validate their own test method using a modified version of 40 CFR 63, Appendix A, Method 301.

A total of nine test methods were submitted (three for EPR, three for SBRE, and three for PBR/SBRS). Upon review of the methods and validation data, the EPA approved all nine methods. Therefore, there will be nine accepted residual HAP methods that will be referenced in section 63.495 [old section 63.487-2] (e) of the final rule.

MACT floor determination. Commenters indicated that the selection of a MACT floor "somewhere between the mean, median, and mode" did not represent central tendency. They maintained that a mean is the correct approach for establishing the MACT floor. The EPA agreed that one measure of central tendency should be used, and decided that the mean was the most appropriate measure for the residual organic HAP limitations floor determinations. In some situations, the use of the mean can result in a floor level of control that is not represented by any available control technology. However, this did not apply to this situation,

where the emissions used to determine the floor were a result of process-specific stripping techniques, and not specific add-on control technologies.

For EPR and PBR/SBRS, commenters stated that combining data received from different companies using different sampling and analytical methods, without establishing whether the methods achieve comparable results, was not an appropriate way to establish residual HAP limits. The commenters stated that if production figures and dryer stack testing results were used to establish these limits, these results cannot be equated to those from crumb sampling at the EPA's designated sampling point, because there are numerous potential emission sources between the proposed sampling point and the stack testing locations. In addition, commenters indicated that the proposed limitation did not recognize the fact that residual HAP may remain in the polymer after finishing. Finally, the commenters also said that using annual emissions and limited weekly data to establish weekly limits is inherently uncertain, and may have resulted in an inappropriate standard.

In the original MACT floor analyses, the EPA presumed that the back-end emission factor calculated from the reported emissions and production was equivalent to the residual HAP levels in the crumb leaving the stripping operations. Inherent in this analysis was the assumption that the companies reported total HAP emissions from all

back-end emission sources, rather than only a portion of these sources.

Upon receipt of these comments, the EPA again contacted each EPR and PBR/SBRS production facility to (1) verify the emissions numbers used to determine the back-end emission factor, (2) discuss the correlation of the methods used to estimate the original emission estimates and the residual organic HAP test methods undergoing validation, (3) determine the appropriate production, including oil extender weight, to use in determining the emission factor, (4) obtain information related to residual HAP remaining in the product after finishing, and (5) obtain short-term residual HAP information to be used in the adjustment of annual emissions to monthly.

After obtaining this information, the EPA recalculated the MACT floors for each subcategory. It should be noted that only one facility indicated that the original emission estimates were calculated in a manner that was inconsistent with the residual organic HAP test methods. Two PBR/SBRS companies and one EPR company provided detailed short-term residual HAP data to allow the conversion of the annual data to a monthly limit. The resulting monthly limits were 8 kg/Mg for EPR and 10 kg/Mg for PBR/SBRS.

While no comments were received criticizing the MACT floor analysis for SBRE, the change to a monthly average limit resulted in a change in the SBRE limit. In the

determination of the original SBRE back-end MACT floor, residual HAP data were used from three of the four facilities. The fourth facility provided residual HAP data, but it was in a monthly average format and could not be used in the determination of a weekly limit. However, the change to a monthly limit meant that the data from this facility could also be used, resulting in a monthly limit of 0.4 kg styrene per Mg latex for existing SBRE sources.

1.2.5.3 Monitoring requirements

Several comments were received regarding the proposed crumb and latex sampling requirements. In both instances, the EPA decided that the changes suggested by the commenters were technically appropriate, and they did not result in any detrimental environmental impact.

Specifically, commenters found the requirement to sample "before any opportunity for emissions to the atmosphere" to be either unfeasible or unsafe for PBR/SBRS and EPR and suggested modifications to the proposed sampling provisions. In response to these comments, the final rule states that PBR/SBRS or EPR crumb samples must be taken "as soon as safe and feasible after the stripping operation, but no later than the entry point for the first unit operation following the stripper (e.g., the dewatering screen)."

For SBRE, commenters pointed out that a more logical sampling location for determining the initial HAP concentration in the SBL is the mixed latex in the storage

tank feeding the coagulator (rather than directly after the stripper). The EPA agrees with these comments, and the final rule states that the SBL sampling location must be prior to any coagulation operations.

Comments were also received opposing the proposed crumb or latex sampling frequency provisions. Commenters believed that it is impractical to take a rubber sample each operating day for every grade of elastomer produced, because of the time required to reach representative operating conditions and to run an accurate analytical test. Suggested alternatives included one test per day, one test per "campaign," daily sampling that is reduced to weekly sampling upon demonstration of daily compliance, and daily sampling with the exception of grades produced for less than 4 hours in a day. Since the variability of the residual HAP contents between elastomer grades is relatively small, and since production schedules typically produce very similar grades of polymer for extended periods of time, the EPA concluded that reducing the sampling frequency to once per day for continuous processes would greatly simplify the rule, while still ensuring that all grades of elastomer produced are represented. This change is reflected in the final rule.

Some commenters were concerned that compliance would be based on one sample per day, and requested that an owner or operator be allowed to sample crumb or latex more

frequently, and include the residual organic HAP results of these samples in the average. While the EPA believes that the proposed rule did not preclude a company from using more than one sample per day in determining the (weekly) average, the language in the rule has been revised to make this provision clearer.

Several commenters stated that the rule should provide an allowance for missed or invalid crumb or latex samples. The proposed rule designated the failure to collect any single sample an excursion. These commenters suggested that the EPA should require 75 percent of samples to be collected.

The EPA recognizes that a number of circumstances could occur that cause a sample not to be analyzed in accordance with the rule. These may be in the form of sampling system malfunctions, mis-analysis, or other problems. The EPA realizes that there are unique challenges associated with the sampling of solid polymer, and agrees that problems could occur that would cause a sample to be missed. The EPA also recognizes that some of the test methods being validated to analyze the residual organic HAP in the crumb take long periods of time to perform, meaning that the opportunity to obtain a second sample may not be available if a mis-analysis in the laboratory occurs. While the EPA expects that sound company procedures could eliminate most of these and other problems, the EPA agrees that it is

unreasonable to expect that no problems would ever occur that result in a missed sample. Therefore, an excursion for back-end process operations is defined in the final rule as when either (1) the monthly weighted average is above the applicable limit, or (2) when less than 75 percent of the required samples are taken, analyzed, and included in the monthly average.

At proposal, the EPA specifically requested comments on the feasibility of the use of computer predictive modeling, as an alternative to the daily crumb or latex sampling, or the stripper parametric monitoring compliance alternatives. Numerous commenters supported the allowance of such systems, while others expressed reservations. While the EPA believes that computer predictive modeling may be an attractive alternative to the periodic sampling and stripper parametric monitoring compliance options, the EPA is convinced that the use of computer predictive modeling is so site-specific that it is not possible to include general requirements for the use of such a system in subpart U. Nevertheless, the EPA believes that facilities should have the opportunity to utilize techniques that are equivalent to the two options of compliance provided in the proposed rule for facilities using stripping technology. Therefore, the EPA has included a third option that provides the opportunity for the site-specific approval of alternative means of compliance through the submittal of an alternative compliance plan.

1.2.6 Wastewater Operations Provisions

Several commenters pointed out that the wastewater provisions of subpart G that are referenced in section 63.488 of subpart U are the subject of litigation brought by the Chemical Manufacturers' Association against the EPA. Consequently, sources subject to these provisions cannot know what the final wastewater provisions, proposed to be incorporated into subpart U, will be. These commenters believed that the EPA should "reserve" the provisions of section 63.488 of the final rule, pending the outcome of the litigation.

As part of the HON litigation proposal, the EPA will request comments specific to the elastomers rule. If comments specific to the elastomers rule are received they will be addressed as part of the HON rulemaking actions or in actions specific to the elastomers rule, depending on the comments. Therefore, the comment period for this rule will not specifically be reopened.

The EPA believes that the wastewater provisions and the other HON provisions should be referenced in the elastomers rule so that final resolutions of the HON litigation will be automatically included in the elastomers rule. However, changes made to the HON will be evaluated by the EPA for applicability to this rule. The "automatic" part refers to the fact that text changes will not need to be made to this rule once the EPA finds, following notice and opportunity

for comment, the HON changes to be applicable. If the EPA determines that any changes to the HON are not applicable to this rule, the elastomers rule will be revised accordingly.

1.2.6.1 Applicability requirements

Comments were received stating that the VOHAP threshold for regulation of new source wastewater streams (10 ppmw) was too restrictive, and that the EPA has not provided an economic justification regarding the achievability of the limit. Another comment was received stating that many elastomer product process wastewater streams will have VOHAP concentrations less than 50 ppmw, and monitoring and recordkeeping requirements are not needed for these streams. This comment recommended that the EPA exempt from regulation "any process stream at an affected source with an average flow rate of less than 0.02 liters per minute or an average VOHAP concentration of less than 50 ppmw."

The EPA evaluated the new source MACT floor determinations for wastewater, and determined that no facility in any subcategory reported wastewater controls equivalent to the new source levels. In fact, no facility-wide wastewater controls greater than the existing source HON limitations were reported. Therefore, the EPA believes that this comment is valid, and has changed the final rule so that the new sources are subject to the same wastewater requirements as existing sources.

In the proposed rule, the definition of wastewater stated that a stream must contain at least 5 ppmw of VOHAP and have a flow rate of 0.02 liter per minute. Given the change in the definition of a Group 1 wastewater stream for new sources, the EPA has revised the definition of wastewater in the final rule in accordance with the commenter's suggestion.

1.2.7 Equipment Leak Provisions

One commenter requested that the rule include an exclusion for reciprocating pumps that must leak small quantities of product to lubricate and cool the shaft and seal areas. The EPA agrees that an exemption for the situation described by the commenter is reasonable. The EPA reached a similar conclusion in the proposed Polymers and Resins IV regulation (subpart V). Therefore, section 63.502(f) has been added that exempts these reciprocating pump systems.

Several commenters stated that 3 years should be allowed for compliance with equipment leak provisions for compressors (instead of 6 months) under certain circumstances. The EPA agrees with the commenters, and has amended the compliance schedule for compressors in the following situations: (1) existing reciprocating compressors which would require design modifications to connect to a closed-vent or recovery system; and (2) systems where existing compressors would be replaced.

1.2.8 Emissions Averaging Provisions

Several commenters requested that batch front-end process vents be eligible to average emissions. The EPA had not allowed emissions averaging of batch front-end process vents at proposal because the EPA considered the accuracy and consistency needed for emissions averaging to be greater than that needed for applicability determinations. However, upon reconsideration, the EPA determined that the accuracy and consistency needs of emissions averaging could be met by applying a "discount" factor to calculated emissions or by requiring direct measurement of emissions. Therefore, the final rule allows emissions averaging of existing batch front-end process vents.

1.2.9 Monitoring

Many commenters requested that the proposed rule allow excused excursions in the same way that the HON rule allows excused excursions. In the final rule, the EPA decided to excuse a certain number of excursions for each reporting period. This decision was based on data and information presented during public comments on the HON and reiterated in public comments received on this rule, and during industry meetings held subsequent to proposal that indicated that a certain number of excursions could be expected even with properly operated pollution control devices. The EPA also concluded that not allowing excused excursions would impose significant additional capital and operating costs on

the affected source for only negligible corresponding reductions in air emissions. As is always the case, a State has the discretion to impose more stringent requirements than the requirements of NESHAP and other federal requirements and could choose not to allow the excused excursion provisions of this rule.

The EPA considered the number of excused excursions that would be most appropriate for this standard and determined that the number of excursions allowed in the HON would be reasonable. Therefore, the final provisions allow a maximum of 6 excused excursions for the first semiannual reporting period, decreasing by 1 excursion each semiannual reporting period. Starting with the sixth semiannual reporting period (i.e., the end of the third year of compliance) and thereafter, affected sources are allowed one excused excursion per semiannual reporting period.

1.2.10 Recordkeeping and Reporting

Several commenters stated that the recordkeeping and reporting requirements of the proposed rule were extremely burdensome and requested that the EPA reduce the burden. The EPA reexamined the recordkeeping and reporting requirements of the rule after proposal and determined that certain changes could be made without impacting the enforcement of this rule. The following changes were made to reduce the recordkeeping and reporting burden:

(1) The requirement to submit an Initial Notification has been eliminated;

(2) The requirement to submit an Implementation Plan has been eliminated;

(3) The requirement to record monitored parameters every 15 minutes has been removed. The final rule requires hourly recording of monitored parameters in place of the 15-minute records required in the proposed rule. The EPA considers the recordkeeping and reporting requirements of the final rule the minimum necessary to ensure compliance with the final standards.

2.0 APPLICABILITY

2.1 SELECTION OF SOURCE CATEGORY

2.1.1 Elastomer Production Definitions

Comment: Several comments were received regarding the use of the term "copolymer" in the definition of several elastomer products. The commenters indicated that the use of copolymer suggests the combination of two polymers, while many elastomers are produced with more than two polymers. Two commenters (IV-D-8 and IV-D-15) pointed out that this is the case for the definitions of styrene-butadiene latex and nitrile-butadiene latex. Commenter IV-D-8 suggested replacing "copolymer" in the styrene-butadiene latex definition with the term "polymers that primarily contain butadiene and styrene." Similarly, commenter IV-D-5 recommended revising the definition of styrene-butadiene rubber to say "means a polymer consisting primarily of styrene and butadiene monomer units". Three commenters (IV-D-17, IV-D-12, and IV-D-10) stated that the definition of "ethylene-propylene rubber" as proposed is too restrictive, and that it should be revised to provide for the use of alternate third monomers. The third monomers listed in the proposed definition should be used as examples. Another commenter (IV-D-17) supports the proposed definition of "butyl rubber," which also uses the term copolymer.

Response: The EPA intended that subpart U cover products that were clearly one of the listed elastomer products, but that may have used one or more additional monomers in their production. Therefore, the EPA has modified the definitions of ethylene-propylene rubber, nitrile-butadiene rubber and latex, styrene-butadiene latex,

styrene-butadiene rubber by emulsion based on these comments.

Comment: One commenter (IV-D-18) stated that the definition of "epichlorohydrin elastomer" could be misinterpreted to include epoxy resins, and in order to avoid this result, the definition should be revised.

Response: The definition of epichlorohydrin has been revised to specifically indicate that epoxy resins are not epichlorohydrin elastomers.

Comment: One commenter (IV-D-18) stated that the definition of "polysulfide rubber" should be revised so that it is based on chemical composition, and so that it does not include information on manufacturing methods, which is extraneous.

Response: The EPA agrees with the commenter that the definition of polysulfide rubber needs to be revised to reflect chemical composition rather than manufacturing methods. Therefore, the definition of polysulfide rubber has been changed to refer to polymers produced by the reaction of sodium polysulfide and chloroethyl formal.

2.1.2 Other Processes

Comment: The proposed rule did not apply to facilities producing styrene-butadiene resins and copolymers. At proposal, the EPA requested comment on specific methods to distinguish between elastomers and resins/copolymers (60 FR 30814).

Three commenters (IV-D-5, IV-D-10, and IV-D-20) responded to the EPA's request for methods to distinguish between elastomers and resins/copolymers. Two of these commenters (IV-D-5 and IV-D-10) provided suggested definitions for "elastomer" that are based on glass transition temperature and use. Commenter IV-D-10 also suggested a definition of "resin," which was based on the same criteria. A fourth commenter (IV-D-1) had no suggestions beyond those already considered by the EPA.

Another commenter (IV-D-20), whose facility uses styrene, isoprene, and/or butadiene to build thermoplastic elastomer resins/copolymers, also provided input to this issue. The commenter stated that although the EPA has indicated that the rule is not intended to apply to the facility in question, the commenter believes that the rule does inadvertently apply. The commenter provided several suggestions to distinguish between the regulated processes and the commenter's processes. The commenter proposed that the EPA provide an exclusion for facilities that meet all of the following criteria: (1) the process unit manufactures a block polymer; (2) the manufactured copolymer does not require vulcanization to make useful products; (3) the process is operated to achieve at least 99 percent monomer conversion; and (4) the process unit does not recycle unreacted monomer back to the process.

Response: The suggestions made by the commenters were all incorporated into the rule. The definitions of elastomer and resin in section 63.482 of the final rule are as follows:

> Elastomer means any polymer having a glass transition temperature lower than -10°C, or a glass transition temperature between -10°C and 25°C that is capable of undergoing deformation (stretching) of several hundred percent and recovering essentially when the stress is removed. For the purposes of this subpart, resins are not considered to be elastomers.
>
> Resin means a polymer that is not an elastomer. Following are characteristics of resins and the production of resins: (1) the polymer that is produced is a block polymer; (2) the manufactured polymer does not require vulcanization to make useful products; (3) the polymer production process is operated to achieve at least 99 percent monomer conversion; and (4) the polymer process unit does not recycle unreacted monomer back to the process.

The definition of existing affected source includes the combination of EPPUs at a plant site. Since an EPPU is defined as a process unit that produces an elastomer as its

primary product, and since the definition of elastomer now clearly does not include resins, the EPA believes that the final rule explicitly defines those sources it intends to regulate with regard to elastomers and resins.

Comment: As discussed in the previous comment and response, some commenters provided input regarding the distinction between elastomers (which were subject to the proposed subpart U) and resins/copolymers (which were not subject to the proposed subpart U). However, several commenters (IV-D-3, IV-D-5, IV-D-10, IV-D-18) commented on whether resins should be covered by subpart U. Three of these commenters believe that some or all styrene-butadiene resin production should be covered by this regulation. One of these commenters (IV-D-10) believed that styrene-butadiene and polybutadiene resins should be included in the regulation when they are produced under substantially the same conditions and in the same process equipment as styrene-butadiene and polybutadiene elastomers. Another commenter (IV-D-3) opposed any regulation that would require a company to comply with different MACT standards for the same equipment or emission points. This commenter believed that the EPA should focus on the manufacturing process to determine source categories, rather than end uses. The third commenter (IV-D-5) recommended that the production of these resins be included in the standard, but exempted from the control requirements since they are not considered to be significant sources of HAP emissions. These commenters claimed that the development of a separate standard for these resins or the application of case-by-case MACT would be unnecessary and burdensome. The fourth commenter (IV-D-18) supported the exclusion of certain resins and copolymers from the standard, because further information must be gathered to determine how these other production processes should be regulated. Still another commenter (IV-D-25) stated that the production of elastomers and

resins/copolymers should be grouped together into one source category. This commenter suggested that the regulation could be promulgated while exempting styrene butadiene resins and copolymers, and then later reviewed for possible inclusion of these compounds.

Response: The EPA agrees with the argument made by commenter IV-D-18 regarding the lack of information for resin and copolymer production processes. The initial source category list, published on July 16, 1992 (57 FR 31576), included the source categories of "styrene-butadiene rubber and latex production" and "polybutadiene rubber production." While the descriptions of these source categories in EPA's "Documentation for Developing the Initial Source Category List" (EPA-450/3-91-030) could be interpreted to include a range of polymers and copolymers, the EPA intended to address and therefore focused only on the production of "rubber" and "latex" products.

In its initial information gathering efforts, the EPA attempted to obtain data for every known styrene-butadiene and polybutadiene rubber and latex process in the United States. During these efforts, some information was obtained for processes that manufacture resins, copolymers, or other polymers that are not generally considered to be elastomer (i.e., rubber or latex) products. While the EPA recognized similarities in the processes, no effort was made to obtain information on all producers of these polymers, or to ensure that the data acquired were representative of the entire resin or copolymer industry. Since the data for the non-rubber and non-latex processes were not considered in the development of the Polymers and Resins I regulation, the EPA does not believe that it is appropriate to require resin and copolymer production to be subject to subpart U.

The EPA appreciates the concern of the commenters regarding the compliance difficulties that could arise when resins or copolymers are produced in equipment that is also

used to produce rubber or latex. The EPA maintains that the proposed regulation addressed this situation through the designation of a production unit as an elastomer product process unit (EPPU), based on the primary product of that unit. However, the EPA also recognized that the proposed provisions related to the determination of a primary product for "flexible operation units" were unclear. Therefore, portions of section 63.480 have been amended to clarify this issue. Specifically, section 63.480(f)(2) contains revised provisions for the determination of the primary product for flexible operation units. In addition, section 63.480(e) has been added to clarify the applicability of subpart U to equipment producing non-elastomer products within an EPPU that is subject to subpart U. These sections are summarized in the following paragraphs.

If a process unit produces both an elastomer and a resin/copolymer, but the primary product is an elastomer, then the unit is an EPPU and subject to the provisions of subpart U at all times. In other words, if control is required on an emission point for an EPPU that also produces resins, the control must continue to be operated when resin is being produced. The only exception to this requirement is for non-elastomer polymers that are finished in back-end process operations of an EPPU.

The back-end process operation provisions in section 63.493 [old section 63.487] of subpart U were developed based on the ability to remove residual HAP from the rubber or latex entering the back-end operations. Since the residual HAP content of resins were not included in the analysis, and since the EPA believes the ability to strip residual HAP varies between resin and elastomers, the EPA concluded that it is not appropriate for the residual HAP content of resins to be included in the monthly back-end residual HAP average. Section 63.494 [old section 63.487-1]

has been revised to clearly exempt resins from inclusion in the back-end monthly average.

The EPA also agrees with commenter IV-D-25 that a future, more detailed, analysis of emissions and emissions controls for the styrene butadiene resins and copolymer industry could result in the expansion of the applicability of subpart U. However, styrene butadiene resin and copolymer production is not currently on the EPA's list of major source categories (57 FR 31576), and there are no plans to study this industry at this time.

Comment: One commenter (IV-D-22) expressed concern that the proposed rule inadvertently covers the small liquid polybutadiene resin process at the commenter's facility. The commenter stated that the rule was intended to apply to units that produce solid material or latex, rather than liquid material, and the provisions are consequently inappropriate to this facility. The commenter stated that its primary customer is the Department of Defense (DOD), which requires extensive testing and approval of any process change. It could be infeasible for the commenter's facility to meet the requirements of the proposed rule, if DOD were to refuse permission for a process change. Finally, the commenter stated that the requirements would impose significant costs that would not be matched by corresponding environmental benefit.

Response: Subpart U was not intended to apply only to elastomer processes that produce solid materials or latexes. Whether a source is subject to subpart U is determined based on the application of several criteria, including (1) does the product meet the definition of an elastomer product?, (2) is the source located at a major source plant site?, and (3) does the source use an organic HAP? The EPA cannot determine whether the commenter's facility meets all these criteria based on the information provided, but the fact

that the product is not a solid or latex has no bearing on the affected source determination.

However, the form of the product does have a bearing on how specific sections of the rule should apply. The EPA agrees that since the final product is a liquid, the "back-end" provisions of 63.487 were not appropriate. Therefore, the final rule exempts processes producing liquid rubber products from the requirements of section 63.493 [old section 63.487]. The rule has also been modified to indicate that if both liquid and solid rubber products are produced in the same elastomer product process unit, the residual HAP content of the liquid rubber product is not to be included in the monthly weighted average residual HAP determination.

Comment: Two commenters (IV-D-24 and IV-D-14) expressed concern with the applicability of standards to facilities where nitrile butadiene rubber and latex, and styrene butadiene rubber and latex are produced as intermediates in the production of acrylonitrile butadiene styrene (ABS). One commenter (IV-D-24) noted that the intent expressed in the preamble to Polymers and Resins IV is for ABS production to be covered under Polymers & Resins IV, not Polymers & Resins I. This commenter believed this should be clearly stated in both standards to avoid confusion. To this end, the commenter recommended the inclusion in each rule of a definition of primary product, whereby the primary product of a production unit is identified as the final product leaving the unit either for sale or for further processing at a facility not regulated under a polymers and resins rule. The other commenter (IV-D-14) stated that since information submitted to the EPA by his company was not used in the development of the standard, it is unclear whether EPA intended to include the company's SBL facilities under the Polymers & Resins I standard. The commenter stated that it was unclear whether the EPA can

satisfy its statutory requirements for MACT floor development without considering the data submitted by the commenter. This commenter requested that, in resolving this confusion, the EPA develop a single NESHAP to cover collocated SBL production units and ABS production units, in order to streamline regulatory burdens. The commenter stated that, to regulate these integrally related processes under two standards, would be overly burdensome. The commenter added that because of the failure to include their information, it is difficult to fully evaluate either the effect of the standard on their facility or the methodology.

Response: The EPA agrees with the commenters that the production of NBR, NBL, and SBL as intermediates in the production of ABS should be subject to the same regulation as the ABS production, to avoid the possibility of confusion as to which rule should apply. Therefore, in subpart V, an ABS production unit was defined to include the production of elastomers as intermediates. Also, the production of these elastomers in this situation has been exempted from the requirements of subpart U. This does not change the level of control required of these processes.

2.2 SELECTION OF POLLUTANTS

Comment: Two commenters (IV-D-14 and IV-D-18) stated that the Polymers and Resins I NESHAP should use the HON definition for "organic hazardous air pollutant" for clarity and consistency. One commenter (IV-D-18) articulated five concerns with the proposed definition. These are: (1) if more HAP are identified, this definition will not acknowledge them; (2) because the definition relies on two tests to identify an organic HAP, there is potential for conflict between the tests; (3) confusion will result from the requirement for a substance to be "commonly considered" organic; (4) the definition should not be based merely upon whether a carbon atom is present; and (5) the proposed definition could allow the applicability of the rule to

expand to include organic HAP that exist in trace quantities, or not at all in these processes. The commenter preferred the approach taken in the HON where the organic HAP are identified in a table.

Response: In response to requests from commenters, the EPA has developed a list of known organic HAP for each subcategory that will be regulated by the elastomers rule. The list is presented in table 5 of the rule and is referred to in the revised definition of "Organic HAP" found in section 63.482.

The revised definition was developed using available process description information received from industry and gathered from available literature. Because there may be additional organic HAP present at an affected source that were not included in table 5, the final rule requires owners or operators to notify the EPA of the presence of any additional organic HAP based on the following criteria: (1) it is knowingly introduced into the manufacturing process (not including the presence of organic HAP as impurities), or has been or will be reported under any Federal or State program, such as TRIS or Title V; and (2) it is presented in table 2 of subpart F. The owner or operator is required to identify these additional organic HAP in their Notification of Compliance Status.

2.3 SELECTION OF AFFECTED SOURCE

2.3.1 Major Source Criteria

Comment: One commenter (IV-D-23) specifically requested that the EPA defer the permitting of area sources in this category as provided for under 40 CFR 70.3(b)(1) and discussed at 57 FR 32261 (preamble to permit rule). The commenter said that State agencies are already burdened with permitting major sources, and the burden of permitting area sources will not be accompanied by an air quality benefit, since these sources will be required to comply whether they have a permit or not.

Response: As stated in the preamble to the proposed rule, the EPA is not regulating area sources under this rulemaking. The final elastomers rule regulates only major sources, where the area/major source determination is made for the plant site, not for each individual EPPU at the plant site. As discussed in the next comment, some commenters believe that applicability should be based solely on emissions from the EPPU, rather than the entire plant site, in the determination of major source. The EPA suspects that this may be the point of the commenter. However, as discussed in the response to the next comment, the EPA believes that major source determinations should be made on the plant/site level.

Comment: Two commenters (IV-D-26 and IV-D-14) disagreed with the proposed approach whereby all EPPU at a major source plant site are subject to the regulation, even if the EPPU itself is not a major source. The commenters requested that the EPA set an applicability cutoff of 10 tons per year for the entire production unit in these source categories, because it is not cost-effective for small sources to comply with MACT requirements. In addition, one commenter (IV-D-14) stated that the proposed approach results in the regulation of area sources without the requisite finding under section 112(c)(3) of the Act.

Response: The EPA disagrees with the commenters' interpretation of the definition of major source in section 112(a)(1) of the Clean Air Act. In fact, on July 21, 1995, in the case of National Mining Association, et al., v. United States Environmental Protection Agency, 59 F.3d 1351, the United States Court of Appeals for the District of Columbia rejected the exact argument made by commenters, and determined that EPA's definition of major source without respect to source categories was reasonable.

2.3.2 Use of Organic HAP

Comment: Three commenters (IV-D-10, IV-D-17, and IV-D-21) state that the manufacture of some polymers uses organic HAP as diluents in the process, but not as reactants, nor are they produced as products or by-products. According to the applicability criteria in the proposed rule, these processes would not be subject to the proposed rule. Commenter IV-D-17 stated that since the processes were used in the basis for development of the rule, the EPA must have intended that they be subject. The commenter recommended that the rule be revised to include the use of an organic HAP as a diluent as a basis for applicability of subpart U. In addition, one commenter (IV-D-14) expressed support for the concept that an EPPU that does not use or create an organic HAP should not be subject to the rule.

Response: As pointed out by commenter IV-D-17, the EPA intends that elastomer processes where the reaction occurs in a HAP solvent (i.e., solution processes) be subject to the rule, even if no reactants are themselves HAP. This is evident by the inclusion of requirements in the proposed subpart U for the production of ethylene propylene rubber (EPR). HAP emissions identified from the EPR process are only a result of the use of hexane as the reaction solvent. HAP are not used as a reactant, and such facilities do not manufacture a HAP as a by-product or co-product. However, the proposed rule could be read to exclude EPR processes from subpart U. Because this was not the EPA's intention, it is clear that a change to the rule is necessary.

The first approach considered was to make the rule applicable to sources that use an organic HAP in any manner. Other approaches considered were to base applicability on a revised list of specific uses of HAP (such as suggested by the commenter), or on usage of a specified amount of HAP. The EPA rejected the list of specific uses due to the possibility of new elastomer production processes that may

use (and potentially emit) organic HAP in manners other than those that would be on the list. A prime example of this is addressed in the subsequent comment. The commenter (IV-D-21) is constructing a gas-phase, fluidized bed process to manufacture EPR. Based on the current uses of organic HAP that would be on a list (as a reactant and as a "diluent"), this facility would not be subject to the regulation. However, there is a significant potential for HAP emissions from this process, due to the use of HAP in another manner. (It should be pointed out that the facility mentioned by the commenter is planning to implement extensive emission controls).

The EPA believes that the most reasonable means to ensure the coverage of HAP emissions from major sources subject to the rule is to include the use of HAP in any manner as one of the applicability criteria. The final rule has been changed to reflect this approach.

Comment: One commenter (IV-D-21) is constructing a facility that will manufacture ethylene-propylene rubber using a gas phase, fluidized bed process technology. This proprietary gas phase technology is fundamentally different from the solution processes examined by the EPA in developing the proposed rule, and because of this, it is not clear whether, or how, the proposed rule would apply to this facility. In particular, the use of HAP in the manufacturing process is much less than in the solution process. The commenter believes that the facility should be considered an affected source under the Polymers and Resins I NESHAP, but that changes should be made in the rule to reflect the fundamental process differences, or that the manufacture of EPR by the gas phase process should be regulated under a separate subcategory.

Other than the general applicability comment discussed in the previous comment, the commenter had two major concerns specifically related to their gas phase process.

First, the commenter indicated that the control device of choice for the front-end process vents in this process is a flare, primarily due to the ability of the flare to control the small continuous streams a well as much larger streams resulting from startup, shutdown, and malfunction conditions in the gas phase, fluidized bed reactor. The commenter indicated that the stream being controlled by the flare will contain halogenated compounds, sometimes exceeding the 0.45 kb/hr threshold. The commenter said that the design of an incinerator with a scrubber system to comply with the provisions of section 63.113(c), while still managing the highly variable emissions from their process, was impractical.

The second concern was that the back-end process provisions were designed with an entirely different type of process in mind. The commenter pointed out that the gas phase process has no latex or dry crumb rubber, nor does it have a stripper. This led the commenter to the conclusion that compliance with the back-end limits was not possible, and that the gas phase fluidized bed process should be exempt for these requirements.

Response: The EPA agrees with the commenter that the uniqueness of this process should be considered in determining the final requirements for EPR producers. The EPA does not, however, believe that the creation of a separate subcategory is necessary. The majority of the applicability and control requirements in the rule are general, and the EPA believes can be applied to the commenter's facility.

The following addresses two areas where the commenter was particularly concerned. First, the commenter indicated a flare was the correct control device for this process. However, the commenter believes that the flare inlet stream may contain sufficient halogens to be classified as a halogenated vent stream, meaning that a flare could not be

used. The EPA maintains that this is no longer an issue, due to a change in the continuous process vent provisions related to halogenated vent streams at EPR facilities. As described in section 4.2, the EPA determined that routing to a flare or boiler, without additional control of the hydrogen halides created during combustion, would be the MACT floor for halogenated vent streams at existing EPR facilities.

The second concern of the commenter was related to the back-end residual organic HAP limitations. The EPA agrees that the commenter's facility does not include process operations similar to the back-end process operations at the other EPR facilities. Therefore, the EPA concludes that the gas-phased process should not be subject to these provisions, and has exempted gas-phased polymerization reactions from section 63.493.

2.3.3 Definition of Affected Source and Elastomer Product Process Unit (EPPU)

Comment: Several comments were received regarding the definitions of affected source, elastomer product process unit (EPPU), and process unit, and the relationship of these definitions to the applicability provisions in section 63.480. Two commenters (IV-D-5 and IV-D-8) expressed concern about the potential for inappropriate regulation of sources caused by misapplication of the term "affected source." One commenter (IV-D-5) is concerned about the potential for unintended regulation of latex-producing back-end equipment, which should be exempt under section 63.487. This commenter believes that this may occur when equipment other than raw material storage is shared, the primary product of the process unit is rubber, and the back-end process equipment produces latex. This commenter stated that this is a result of the interaction between definitions for "affected source" and "elastomer product process unit," and that this situation should be clarified by the EPA. The

other commenter (IV-D-8) stated that in cases where some parts of a facility are not subject to the standard (e.g., SBL back-end), the commenter suggested that the term "affected source" could be interpreted to mistakenly include parts of the facility that are not subject, and to impose burdensome requirements. In addition, this commenter was concerned that the term "affected source" could also cause confusion in cases where process equipment is used in two processes, and the equipment is subject to requirements when used for one process but not the other. This commenter suggested that where such potential for ambiguity exists, the EPA should instead use the term "source" or "source subject to this subpart."

Response: The EPA agrees with the commenter that the meaning of affected source was not clear in the proposed rule and it has been clarified in the final rule. The definition of affected source included in section 63.482 of the proposed rule has been revised to refer to section 63.480(a). The provisions in section 63.480(a), which at proposal tied applicability to the existence of one or more EPPUs, have been revised to define the applicability in terms of the affected source. Also, the provisions in proposed section 63.480(b) which described the affected source, have been removed.

In the final rule, under section 63.480(a), the existing affected source is defined as each group of one or more EPPUs that manufacture the same elastomer product as their primary product, and (1) are located at a major source plant site, (2) are not exempt, and (3) are not part of a new affected source. This means that each plant site will have only one existing affected source in any given subcategory.

If a plant site with an existing affected source producing elastomer A as its primary product constructs a new EPPU also producing elastomer A as it primary product,

the new EPPU is a new affected source if the new EPPU has the potential to emit more than 10 tons per year of a single HAP, or 25 tons per year of all HAP. In this situation, the plant site would have an existing affected source producing elastomer A, and a new affected source producing elastomer A. Each subsequent new EPPU with potential HAP emissions above the levels cited above would be a separate new affected source.

New affected sources are also created when an EPPU is constructed at a major source plant site where the elastomer product was not previously produced, with no regard to the potential HAP emissions from the EPPU. Another instance where a new affected source is created is if a new EPPU is constructed at a new plant site (i.e., green field site) that will be a major source. The final manner in which a new affected source is created is when an existing affected source undergoes reconstruction, thus making the previously existing source subject to new source standards. This approach to defining new affected source was selected in order to make subpart U more consistent with the HON.

This approach to defining a new affected source was selected in order to make subpart U more consistent with the HON. This standard differs from the HON, however, in that it applies to multiple source categories. Thus, unlike the HON, a newly added EPPU at a facility is covered by this rule even if that EPPU is in a different source category form the existing EPPUs at the facility. It is the EPA's position that the addition of a process unit in a different source category is a new source and must meet the requirements for new sources even though the EPPU may have the potential to emit less than 10 tons per year of a single HAP or 25 tons per year of all HAP. Indeed, if a source covered by another MACT standard (i.e., a different source category) were built at a HON facility, that source would be

subject to the new source requirements under that MACT standard.

One commenter requested clarification on the boundaries of the EPPU when multiple process units share equipment (i.e., beyond raw material or product storage vessels). In the proposed rule, the concept of shared equipment was discussed under the definition of affected source. It is more appropriate to discuss this issue in the definition of EPPU, and the final definitions of affected source and EPPU have been revised to reflect this decision, as discussed in later comments.

Comment: One commenter (IV-D-14) stated that the definition of "elastomer product process unit" should be significantly revised to be clearer and more specific. The commenter indicated that the revised definition should focus on establishing battery limits of the process affected by the rule. The commenter suggested that this rule should have separate definitions for source and for elastomer product process unit, as was done in the HON.

The commenter recommended that the definition of "elastomer product process unit" not reference section 63.480(b), and that it incorporate the list of equipment that makes a process unit from the HON definition of "chemical manufacturing process unit." Two other commenters (IV-D-5 and IV-D-18) also found the reference to "all equipment identified in section 63.480(b)" confusing, because the reference lists sources of emissions, and not necessarily equipment. One of the commenters stated that section 63.480(b) includes "wastewater and associated treatment residuals," and the commenter stated that it is inappropriate for wastewater to be included in the definition of equipment that makes a product.

One commenter (IV-D-14) stated that the paired definitions of "process unit" and "EPPU" within the rule are confusing. The commenter believes that it would be clearer

to have a single consolidated definition to cover the concepts of process unit and EPPU.

Response: The EPA agrees with many of the suggestions for clarification submitted by the commenters and the definition of EPPU in section 63.482 has been clarified in the final rule. The revised definition of EPPU is included below along with a discussion of the changes made to the definition.

Elastomer product process unit (EPPU) means a collection of equipment assembled and connected by pipes or ducts used to process raw materials and to manufacture an elastomer product as its primary product. This collection of equipment includes process vents; storage vessels, as determined in section 63.480(g); and the equipment (i.e., pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, surge control vessels, and bottoms receivers that are associated with the elastomer product process unit) that are subject to the equipment leak provisions as specified in section 63.502. Compounding units, spinning units, drawing units, extruding units, and other finishing steps are not part of an EPPU. In addition, a solid state polymerization unit is not part of an EPPU.

The EPA agreed with the commenter that the definition of EPPU should include a list of the collection of equipment that comprises an EPPU, rather than have the list included in section 63.480. Also, the EPA agreed with the commenters that wastewater operations should not be defined as part of the EPPU. Therefore, emissions points associated with wastewater operations were removed from the collection of equipment that was included in the revised definition of EPPU. Wastewater operations treating, storing, or otherwise handling wastewater originating at an EPPU are included in the affected source, but not in the EPPU.

In addition, the EPA has clarified the difference between the terms process unit and EPPU in the final rule. A discussion of the changes made to the definition of EPPU is presented above. At proposal, the term process unit meant equipment used to manufacture an intended elastomer

product. This definition overlapped with the definition of EPPU and did not account for equipment used to manufacture a product which may or may not be an elastomer product. Therefore, the EPA revised the definition of process unit in the final rule as follows:

> Process unit means a collection of equipment assembled and connected by pipes or ducts to process raw materials and to manufacture a product.

This definition is broad and includes EPPUs as well as process units used to manufacture nonelastomer products. As explained below, all equipment that is shared/connected, except for storage vessels, which are discussed in section 63.480(g), would be considered one process unit. The owner or operator would determine the primary product of the process unit according to the provisions in section 63.480(f), which is discussed in the next comment.

In the proposed rule, the concept of shared equipment was discussed under the definition of affected source. It is more appropriate to discuss this issue in the definition of EPPU, and the final definitions of affected source and EPPU have been revised to reflect this decision. In other words, if two process units share the same dryer, then those two process units are "connected" and are considered to be a single process unit. If two process units only share a raw material storage vessel, then each process unit is considered a separate entity. The raw material storage vessel would be assigned to one of the process units, as discussed earlier.

Comment: One commenter (IV-D-23) recommended that because the MACT floors and control levels were defined on a subcategory basis, the definition of "affected source" should be revised to reflect these subcategory determinations.

Response: The EPA agrees with the commenter that the affected source should duplicate the source definition used

in the MACT floor determinations. While the EPA maintains that the proposed rule defined affected source on a subcategory basis, it understands how the proposed affected source definition could have been misinterpreted. In the changes to the affected source and EPPU definitions discussed above, the EPA believes that the fact that the affected source is defined on a subcategory basis is clear. However, it should be pointed out that an affected source is defined based on the "elastomer product," where the 12 elastomer products defined in the rule correspond to the 12 elastomer subcategories.

Comment: One commenter (IV-D-18) supported the EPA's proposal that the primary product is the determining factor in establishing applicability of the Polymers and Resins I rule.

Response: The use of the primary product of an EPPU to determine applicability has been retained in the final rule. However, in the review of the use of primary product in establishing applicability, the EPA realized that the determination of the primary product of flexible operation units had its shortcomings. In the proposed as well as the final rule, the primary product for flexible operation units is determined based on the expected operations for the 5 years following the promulgation date for existing sources, and for the first 5 years after the initial startup for new affected sources. The purpose of these provisions is to exclude the owner or operator of the EPPU from having to redetermine their primary product as a result of a small process change. The 5-year time frame was used to be consistent with the operating permits program.

While the intent of these provisions has not changed, the EPA has revised section 63.480 of the final rule in order to improve the determination of the primary product for flexible operation units. In addition, provisions were also added to the final rule for demonstrating compliance

with the rule during those periods when a flexible operation unit is producing a product other than an elastomer product. These provisions allow the owner or operator to establish new parameter monitoring levels or demonstrate that the parameter monitoring levels established for the primary product are appropriate for those periods when products other than the primary product are being produced.

Comment: One commenter (IV-D-18) stated that the rule is not entirely clear regarding how a process unit consisting of some batch and some continuous operations will be regulated. The commenter requested confirmation that the following points were interpreted correctly: (1) it is possible to have a batch unit operation within a continuous EPPU; (2) it is possible to have a continuous unit operation within a batch EPPU; (3) within an EPPU, process units from a batch unit operation are batch process vents, and process vents from continuous unit operations within the same EPPU are continuous process vents; and (4) the determination of whether an EPPU is batch or continuous is based on the overall nature of the process unit.

Response: The commenter is mistaken on one fundamental issue. An EPPU is not designated as batch or continuous. Therefore, points 1, 2, and 4 are not relevant. Whether the continuous process vent provisions in section 63.485 or the batch vent provisions in section 63.486 apply to a particular process vent is based on the unit operation from which the vent originates. It is possible to have a combination of batch and continuous process vents in the same EPPU. In fact, this is quite common in the elastomer production industry, as the reactors are operated as batch unit operations, while the stripping, material recovery, and finishing unit operations are continuous. Therefore, the commenter's point 3 is correct.

2.4 MODIFICATION AND RECONSTRUCTION

Comment: Several commenters (IV-D-10, IV-D-14, IV-D-17, and IV-D-18) stated that paragraphs 63.480(g)(1) and (g)(2), which apply new source requirements to the construction or reconstruction of any affected source, should be revised to specify that an addition or change triggers applicability of new source requirements only if it is an affected major source. According to one of the commenters (IV-D-17), these provisions are contrary to sections 112(g) and 112(i)(1) of the CAAA, as section 112(g) restricts the applicability of new source requirements to the construction or reconstruction of a major source. Another commenter (IV-D-12) indicated that the determination of whether new source standards apply should be tied to a significant increase in emissions.

Response: The EPA reviewed the provisions of the proposed rule for new and existing source requirements for changes made at major plant sites subject to existing source requirements. These provisions were in section 63.480(g) and (h) of the proposed rule; they are in section 63.480(i) of the final rule.

The EPA agrees that the addition of an EPPU that manufactures an elastomer product currently produced at an existing plant site should be subject to new source requirements only when the addition has emissions above the major source levels. [Note: Major source levels refers to the potential to emit 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAP.] Such an addition would simply be a modification to an existing affected source unless it, in and of itself, is a major source. When, however, a source is added that produces an elastomer not currently produced at the facility, such source cannot be considered a modification to an existing affected source, even if it emits less than 10 tons per year

of HAP. Such a source can only be considered a new affected source.

It is important to note that the approach adopted by this rule and in subpart V is not inconsistent with the HON, but is simply the logical extension of the approach taken in the HON. Unlike the HON, in this rule and other multi-source-category rules, a subsequent facility addition subject to the standard could produce an elastomer not currently being produced at the facility (i.e., in a different source category). The analogous situation under the HON would be the addition of a process unit emitting 9 tons per year of HAP to a HON facility. Were construction on such a unit commenced after the date of proposal, the unit would be subject to the new source requirements. The final provisions for section 63.480(i)(1)(i) are as follows:

> (i) If an EPPU is added to a plant site, the addition shall be a new affected source and shall be subject to the requirements for a new affected source in this subpart upon initial startup or by [**insert promulgation date**], whichever is later, if the addition meets the criteria specified in paragraphs (i)(1)(i)(A) through (i)(1)(i)(B) and either (i)(1)(i)(C) or (i)(1)(i)(D) of this section:
>
> (A) It is an addition that meets the definition of construction in section 63.2 of subpart A;
>
> (B) Such construction commenced after June 12, 1995; and
>
> (C) The addition has the potential to emit 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAP, and the primary product of the addition is currently produced at the plant site as the primary product of an affected source; or
>
> (D) The primary product of the addition is not currently produced at the plant site as the primary product of an affected source, and the plant site meets, or after the addition is constructed will meet, the definition of major source in §63.2 of subpart A.

Comment: Two commenters (IV-D-5 and IV-D-10) suggested that a provision be added to the rule allowing the owner or operator of a new or modified source to establish a weekly weighted average limit for all back-end operations. This limit would incorporate limits for new and existing back-end

operations by prorating the different limits by the amount of latex processed or rubber produced. The overall limit would be met by all operations, rather than having separate limits for the new and existing operations. The commenters claim that this approach would not result in increased emissions, and could potentially result in decreases. Another commenter (IV-D-12) stated that since the EPA has established a single back-end standard, modifications downstream of the point of compliance should not trigger new source standards.

Response: The commenters' suggestion is not possible. The EPA recognizes that this comment is based on section 63.480(g)(2) of the proposed rule, which required changes at an existing affected source to be subject to new source requirements if certain conditions were met. In fact, this comment pointed out an error in the proposed rule. A single affected source cannot be subject to a combination of existing and new source requirements. An entire source must either be a new source or an existing source. Therefore, the provisions referenced earlier (which are in section 63.480(i) of the final rule) were modified to clarify that the new or existing source requirements apply to the entire affected source. The EPA disagrees that back-end modification should not trigger new source standards. If these modifications meet the requirements if section 63.480(i), they will trigger the new source standards.

2.5 IMPACTS

Comment: The commenter (IV-D-11) claims that assumptions made in the Basis and Purpose document do not reflect current industry operations (e.g., global demand for EPR is at an all-time high, and most facilities are near maximum capacity), and the commenter believes that the proposed standards could place EPR producers at an economic disadvantage.

Response: As discussed in the Basis and Purpose document for the proposed regulation (page 7-1), no impacts were assessed for new source regulatory alternatives because no new growth was expected in the near future. The Basis and Purpose Document referred the reader to the Supplementary Information Document for the proposed standards, which contained a memorandum discussing the potential for new sources. The factors outlined in this memorandum for the no growth assumption were that: (1) The current demand is well below capacity for most types of synthetic rubber, (2) synthetic rubber production has become a global market, and there is also a great deal of unutilized capacity in other areas of the world, and (3) new elastomers products (that would not be included in one of these nine source categories) have emerged that compete directly with existing synthetic rubber products. These factors were based on information from several chemical marketing reports and the International Institute of Synthetic Rubber Producers (IISRP). While the EPA has been made aware of plans to build a new EPR facility in the United States, the EPA does not believe that the regulation places EPR producers at an economic disadvantage.

Comment: One commenter (IV-D-4) stated that additional epichlorohydrin data is currently being developed for a title V permit application, and they would like EPA to consider any significant new information that arises from this effort (for Table 5-1, Baseline HAP Emissions).

Response: The information provided by the epichlorohydrin facility in the original information submittal was the basis for the MACT floor determination and the estimation of impacts for the selected regulatory alternative. While the commenter or any other person may submit such data to the EPA after proposal, the EPA is not obliged to use such information to redetermine the MACT floor prior to promulgation. The EPA has a statutory

obligation to promulgate MACT standards according to strict deadlines. Were the EPA to continuously recalculate the MACT floor base on each new item of data received prior to promulgation, the promulgation of final standards would be impossible. Such information may, however, be factored in to any revision of the regulation pursuant to section 112(d)(6) of the Act.

Comment: One commenter (IV-D-8) voiced concern about the economic impact of the proposed standards on styrene butadiene latex manufacturing facilities, because these are small facilities that cannot afford major capital expenditures.

Response: In connection with the proposed regulation, the EPA conducted an economic impact analysis (see docket item (II-A-5). This analysis did not predict any serious detrimental economic impacts on the styrene-butadiene latex industry. Since the commenter did not provide any specific comments on this analysis, the EPA concludes that its analysis is correct.

2.6 DEFINITIONS

Following are comments regarding general definitions. Throughout this document, other comments on definitions are discussed with the section of the regulation to which the definition pertains.

Comment: One commenter (IV-D-18) stated that one of their experts thought the EPA's definition of "suspension process" referred to a phase separation. Consequently, the commenter recommends an alternate definition to eliminate confusion.

Response: The definition of suspension process has been modified in accordance with the suggestions of the commenter. The definition in the final rule reads as follows:

> Suspension process means a process carried out with the reactants in a state of suspension, typically achieved

through the use of water and/or suspending agents (e.g., polymerization reaction).

Comment: One commenter (IV-D-10) stated that the definition of "process vent" differs between subpart F of the HON and the proposed subpart U rule, and that these should be made consistent. The commenter also stated that it is unnecessary to define "continuous front-end process vent," because each term in the phrase is already defined elsewhere.

Another commenter (IV-D-18) claimed that the definition of "process vent" should distinguish between solid, liquid, and gas streams. He also indicated that the definition is confusing with respect to whether a process vent originated before or after control or recovery devices. This commenter (IV-D-18) also states that there are differing definitions of identical terms in Part 63, for example, the terms "process vent" and "average flow rate." The commenter suggested that the same definition of a term should be used throughout part 63, and if a term needs redefining, it should be redefined in and for the specific subpart where it is needed.

Another commenter (IV-D-14) stated that the definitions should be reconstructed so that the meaning of phrases or terms are understood from the meaning of the individual words that comprise the phrases. The commenter uses the term "continuous process vent stream" as an example. The commenter added that the proposed rule does not appear to consistently address the difference between a vent and a vent stream.

Response: The EPA reviewed the definition section of the proposed rule, section 63.482, between proposal and promulgation. As a result of this review, many definitions were revised and clarified in the final rule. The EPA has referred to subpart A, F, G, and H definitions in the final rule when applicable, and has redefined terms that either do

not share the same definition as in the other subparts, or were not defined in a previous subpart. For easier reference, the organization of terms referenced in subparts A, F, G, and H was changed in the final rule; referenced terms are listed in alphabetical order with the subpart where they are defined specified in parentheses after each term.

The EPA has also reviewed and revised many definitions. For example, the EPA has revised the definition of "continuous process vent or continuous vent stream". The revised definition combines the concepts of a physical opening (i.e., the vent) and the emission stream. The revised definition of "continuous front-end process vent" is as follows:

> Continuous front-end process vent means a point of emission from a continuous unit operation within an affected source having a gaseous emission stream with a flow rate greater than or equal to 0.005 standard cubic meter per minute and with a total organic HAP concentration greater than or equal to 50 parts per million by volume. Continuous front-end process vents exclude relief valve discharges and leaks from equipment regulated under §63.502.

This definition allows the use of one term throughout the rule, which aids in clarifying the provisions.

The term "process vent" was also changed, and the new definition is as follows:

> Process vent means a point of emission from a unit operation having a gaseous emission stream. Typical process vents include condenser vents, dryer vents, vacuum pumps, steam ejectors, and atmospheric vents from reactors and other process vessels, but do not include pressure relief valves.

The revised definitions distinguish that the stream is a gas stream.

Comment: One commenter (IV-D-18) stated that the proposed rule should incorporate by reference the definition of "research and development facility" in the HON, as these

facilities are exempted from the rule in section 63.480(d)(1).

Response: The EPA intended for the HON term "research and development facility" to apply to the subpart U proposed rule, and this term has been incorporated into the final rule.

Comment: One commenter (IV-D-18) indicated that it would be more accurate in the definition of "continuous process" to state that it "approaches" steady-state.

Response: The EPA agrees with the commenter and the wording in the definition of "continuous process" has been revised for the final rule.

2.7 MISCELLANEOUS

2.7.1 Storage Vessel Assignment to EPPU

Comment: One commenter (IV-D-18) recommended that the EPA revise section 63.480(f)(2)(i)(B) to indicate how to assign storage vessels where the greatest input to/output from is attributed to an off-site process, and it is also used by two or more on-site processes.

Response: The final rule includes changes to address the commenters concerns. Situations where off-site and on-site process units use the same storage vessel are addressed by 63.480(g)(3). Situations where multiple on-site process units use the same storage vessel are addressed by section 63.480(g)(4) and (g)(5).

Comment: One commenter (IV-D-18) supported the EPA's proposal to adopt storage vessel requirements from subpart G for this rule. In addition, the commenter suggested that the EPA should state in the preamble, that if a storage vessel is already subject to another MACT standard, compliance with that standard should constitute compliance with this standard.

Response: The commenter is correct that the proposed rule did not address this situation, and the final rule has been changed to address the commenter's concern. Situations

where a storage vessel may already be subject to another MACT standard are addressed by section 63.480(g)(1), which reads as follows:

> If a storage vessel is already subject to another subpart of 40 CFR part 63 on **[promulgation date]**, that storage vessel shall belong to the process unit subject to the other subpart.

Comment: One commenter (IV-D-18) supported the EPA's proposal that storage vessels subject both to the subpart U rule and to NSPS subpart Kb must comply with subpart U and are exempt from subpart Kb.

Response: The commenter is correct that after the compliance date of the final elastomers rule, a storage vessel at an affected source that is also subject to 40 CFR part 60, subpart Kb, is only required to comply with the provisions of the final elastomers rule. This is stated in section 63.481(i) of the final rule.

2.7.2 Relationship to Other Rules

Comment: One commenter (IV-D-18) supported the inclusion of the table to describe which portions of the General Provisions apply to subpart U affected sources. However, another commenter (IV-D-17) indicated that there is significant uncertainty regarding the applicability of certain General Provisions to subpart U affected sources, primarily due to the incorporation of HON requirements, and conflicts between the HON and subpart U regarding which of the General Provisions are incorporated. The commenter made several recommendations designed to alleviate the confusion. These include clarifying the effect of Table 3 of subpart F on subpart U sources, revising Table 6 as appropriate, and/or adding a provision to specify that subpart U sources are subject only to the General Provisions requirements specified in Table 6 of subpart U. Another commenter (IV-D-10) stated that it is not clear which General Provisions apply to subpart U affected sources, because of conflicts between Table 6 of Subpart U and Table 3 of Subpart F. The

commenter recommended that Table 3 not affect subpart U, and that the requirements in Table 6 be reviewed closely.

Response: Table 6 in the proposed subpart U was reviewed and revised between proposal and promulgation to ensure consistency and clarity between the final elastomers rule and the General Provisions. As requested by the commenter, table 6 of subpart U now indicates that General Provisions paragraphs which are reserved do not apply to the elastomers rule. If these reserved paragraphs are replaced with provisions at a later date, the EPA will make a determination as to whether the provisions apply to the elastomers rule. Paragraph (f) of section 63.481 has also been revised to clarify that Table 3 of subpart F does not apply to subpart U affected sources.

Comment: One commenter (IV-D-5) requested that the EPA provide additional applicability tables, indicating which sections of the HON, subparts F, G, and H, do and do not apply to the Polymers and Resins I NESHAP.

Response: The EPA agrees that such tables would eliminate confusion among affected sources and agencies implementing the rule. Therefore, the EPA has added tables cross-referencing sections of subparts F, G, and H that are applicable to subpart U.

Comment: One commenter (IV-D-18) indicated that the word "replace," as used to identify changes to HON requirements incorporated into the Polymers and Resins I rule, may be interpreted by the Federal Register as an instruction to amend the HON. The commenter suggested that the EPA should either eliminate all use of the word "replace," or otherwise ensure that inadvertent amendment does not occur.

Response: The EPA does not intend for the HON rule to be amended in any way as a result of the wording in the elastomers rule. To reduce any chance of confusion, the EPA

has used the words "shall apply" in place of the word "replaces" when necessary in the final rule.

2.7.3 General

Comment: One commenter (IV-D-11) stated that the Agency has moved their focus from performance based standards to process issues which have no bearing on the improvement of the environment. They add that raw materials, types of catalysts, and equipment specifications are the responsibility of the regulated community in meeting the standards which protect the environment. The commenter strongly recommended that the EPA consider the performance basis in the formation of the standard for ethylene-propylene rubber because many of the assumptions made and promulgated in the HON will neither apply nor be successful in reducing emissions from these sources.

Response: The EPA strongly disagrees with the commenter's assertion that subpart U focuses on "process issues which have no bearing on the improvement of the environment." In fact, the EPA believes that this regulation provides a great deal of flexibility to affected sources in how they will comply. The only example from the rule mentioned by the commenter is a vague reference to the incorporation of the HON provisions.

All of the HON provisions incorporated directly, or by reference, into subpart U are based on general process stream characteristics. The EPA believes that this approach does not in any way intrude into the process. While reference control technologies are specified for streams meeting the Group 1 criteria, the HON approach allows flexibility in allowing the source to introduce unique process modifications to change the stream characteristics so that the stream is no longer Group 1. In no case does the HON, or subpart U, specify or suggest process changes to achieve these objectives.

The EPA presumes that in addition to the HON provisions, the commenter may be referring to the back-end process provisions. While these provisions are written as residual organic HAP limitations for the material entering the back-end of the process, subpart U provides the opportunity for affected sources to comply through process changes (increased stripping effectiveness) or the use of add-on control on selected back-end process vents. One of the options for demonstrating compliance by stripping is by monitoring the operating parameters of the stripper. While this could be construed as dictating process operating conditions, the EPA points out that this option was incorporated into the rule at the direct request of representatives of the elastomer industry.

Comment: Two commenters (IV-D-7 and IV-D-9) supported the proposed rule, agreeing with the use of performance standards, and find the standards reasonable. One commenter (IV-D-7) stated that catalytic oxidation is an available cost-effective control option that will allow sources to comply with the standards, and the other commenter stated that equipment for cost-effective control of organic HAP from elastomer manufacturing is widely available.

Response: The EPA agrees with the commenters, and has retained the provisions referred to by the commenter in the final rule.

Comment: Commenter IV-D-18 stated that section 63.480(g)(3)(ii)(B) should be revised to remove a redundant phrase referring to "the Administrator's designee," because the General Provisions already provides for delegation. In addition, the commenter suggested a revision to clarify which date applies, when referring to "upon initial startup" or by 3 years after the compliance date. The commenter suggested that the applicable date should be whichever comes later.

Response: The EPA agrees with the commenter and has removed the phrase "or Administrator's designee, hereafter referred to as Administrator," from the final rule. The definition of "Administrator" as defined under subpart A is applicable to this rule. The EPA also agrees with the commenter's suggestion with regard to the compliance date and has revised this paragraph accordingly.

Comment: One commenter (IV-D-8) stated that the SBL source category should include only major sources, and consequently only major sources should be used to calculate the MACT floor. The commenter indicated that several facilities assigned to the SBL source category and used to calculate MACT floors may be area sources. The commenter stated that the MACT floor should be modified if this is the case.

Response: The determination of whether or not a facility is a major source is a multi-stepped task. The first step is to examine baseline emissions. The initial baseline emission estimates for the styrene-butadiene latex source category showed only three facilities with total HAP emissions less than 25 tons per year (see docket item III-B-2 or II-B-22). Therefore, these three provide the only opportunity for area sources. The second step is to determine if the facilities are located at plant sites that are major sources. The EPA then retrieved actual emissions data from the Toxic Release Inventory (TRI) for the entire plant sites where styrene butadiene latex operations are located (see docket item IV-B-1). When the EPA reviewed this data, it determined that each of the three facilities with estimated HAP emissions less than 25 tons per year were located at plant site with reported emissions of HAP in TRI greater than 25 tons per year. Therefore, the EPA concluded that all styrene-butadiene latex facilities were major sources, or were located at major source plant sites. Due to this conclusion, the EPA maintains that the MACT floor

for SBL was properly determined. The EPA would point out that each facility had the opportunity to review and comment on their baseline emissions in late 1993.

3.0 STORAGE VESSELS

Several comments were received on the storage tank provisions. The EPA noted a misinterpretation of the proposed regulation that occurred several times in the comments related to the distinction between a storage vessel and a surge control vessel. The definition of surge control vessel is as follows:

> Surge control vessel means feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within an elastomer product process unit when in-process storage, mixing, or management of flow rates or volumes is needed on a recurring or ongoing basis to assist in production of a product.

The definition of storage vessel states that a surge control vessel is not a storage vessel.

Storage vessels are subject to the provisions of sections 63.119 through 63.123 of subpart G by reference in section 63.484 of subpart U. Surge control vessels are subject to section 63.170 of subpart H by reference in section 63.502 of subpart U. While the criteria to determine whether controls are required are identical for storage vessels and surge control vessels, there are differences in the available reference control technologies. Storage vessels may be controlled using internal or external floating roofs or closed vent systems and control devices achieving 95 percent emission reduction. The only acceptable control technology for surge control vessels is a closed vent system and control device.

The EPA determined that many of the comments received on "storage vessels" were in fact referring to vessels that fall under the definition of surge control vessel. One example is vessels following the reactor that contain

intermediate latex or other elastomer product. The EPA suggests that owners and operators of facilities subject to subpart U pay careful attention to these definitions.

3.1 APPLICABILITY REQUIREMENTS

Comment: One commenter (IV-D-26) stated that the EPA should conduct a full floor analysis for new and existing storage vessels, considering each chemical and the various sizes of tanks for each subcategory.

Response: The commenter seems to be suggesting that the EPA conduct floor analyses for each HAP stored at elastomer production facilities, and set HAP-specific requirements based on the results of these analyses. The EPA rejects such an approach for two basic reasons. First, consideration of individual HAP storage vessel controls would not be representative of facility-wide storage vessel control levels. Second, owners and operators of elastomer production facilities would need a test method to determine the compliance requirements for new HAP that may be used in the future.

However, the EPA believes that it is reasonable to exempt a storage vessels from the regulation when it is clear that the vessel would never be a Group 1 vessel. Therefore, this comment did result in an analysis by the EPA to determine specific HAP used in the elastomer industry with low enough vapor pressures that vessels storing these HAP would never be Group 1. Three such HAP were identified: acrylamide, epichlorohydrin, and styrene. Therefore, in paragraph (b) of section 63.484, the final rule exempts storage vessels containing these HAP at existing sources. This exemption is also extended to surge control vessels and bottoms receivers at existing sources.

Comment: One commenter (IV-D-14) agreed with the proposal that storage vessels containing organic HAP only as impurities should not be considered emission points at the affected source. However, the commenter indicated that this

concept should be expanded to apply to vessels whether the materials they store are liquid or not, and where HAP is present at undetectable levels. Two other commenters (IV-D-10 and IV-D-16) stated that the EPA should define a specific percentage of organic HAP content below which storage vessels would be exempt from regulation, rather than using the term "impurities." The commenters suggested that a value of 5 percent would be appropriate for consistency with the HON, and that section 63.480(c)(5) should be revised accordingly.

Response: The EPA believes that the commenter's requests are reasonable and has expanded the provisions contained in proposed section 63.480(c), which may be found in section 63.480(c)(5) of the final rule, and in the definition of storage vessel in section 63.482, according to the commenters' suggestions. The provisions now read as follows:

> Vessels and equipment storing and/or handling material that contains no organic HAP, no detectable organic HAP, and/or organic HAP as impurities only.

However, the EPA does not believe that a cutoff value of 5 percent is appropriate to determine applicability of the storage vessel provisions, because it does not take into account the volatility of the HAP being stored. The EPA also would point out that the storage vessel provisions in subpart U are based on the HON, and remain basically consistent with the HON provisions.

Comment: Four commenters (IV-D-5, IV-D-8, IV-D-10, and IV-D-18) supported the exemption of stripped latex storage tanks from control requirements. However, three of these commenters (IV-D-5, IV-D-8, and IV-D-10) stated that high conversion SBR or polybutadiene latex storage tanks should also be exempt. Specifically, they recommended that storage tanks used for latex containing less than 5 percent organic HAP should be exempted. The commenters based this

statement on the following reasons: (1) control of high conversion latex tanks does not represent the MACT floor; (2) emissions from these tanks are insignificant (the commenter provides data on page 5, indicating less than 2.5% styrene); (3) control would require conversion of all atmospheric tanks to pressurized tanks and installation of a vent header and control device; (4) the cost per ton of control would be uneconomical; and (5) a cutoff at 5% HAP would be consistent with subpart H requirements.

Response: The rationale provided by the commenters for including a 5 percent organic HAP cutoff for latex storage vessels is quite flawed. First, the proposed rule did not require that high conversion latex storage vessels be controlled, but rather that the group determination be made for the storage vessel, and that Group 1 storage vessels be controlled. Based on the information on styrene concentration in latex provided by the commenters, it was determined that a high conversion latex storage vessel would never exceed the vapor pressure cutoff for a Group 1 storage vessel. Therefore, the proposed storage tank provisions (i.e., the HON level of control) would not require any control for these vessels. The EPA believes that a demonstration of the concentration of HAP in the storage vessel would not be considerably less burdensome than the determination of organic HAP vapor pressure.

While the EPA does not agree with the argument raised by the commenter, the analysis of this issue led the EPA to other conclusions. The EPA is convinced that an SBL storage vessel (high conversion or otherwise) would never contain sufficient HAP to exceed the vapor pressure cutoff for Group 1 storage vessels. This is primarily due to the low vapor pressure of styrene. Therefore, to avoid unnecessary recordkeeping and reporting costs, the EPA concluded that it was reasonable to exempt all SBL storage vessels from the requirements of section 63.484. In addition, the EPA

believes the same criteria applies to surge control vessels and bottoms receivers containing SBL. Therefore, similar exceptions were added to section 63.502.

Comment: One commenter (IV-D-18) stated that based on Table 7 of the preamble, the proposed rule will achieve no reductions in HAP emissions from storage vessels in styrene-butadiene latex process units. However, this differs from the Basis & Purpose Document, which indicates that 6 of 15 facilities are below the floor, which is the HON level of control. If this is the case, the rule would be expected to achieve emission reductions. If not, the commenter recommended that these storage vessels be exempted from the regulations in order to eliminate the reporting and monitoring burden.

Response: The EPA recognizes the inconsistencies that existed in the descriptions of the MACT floor and impacts analyses. Of the two analyses, the impacts analysis was correct. The six facilities that were reported to be controlled at a level less than the HON in the MACT floor analysis were so classified because a HAP with a vapor pressure greater than the Group 1 cutoff was stored in fixed roof uncontrolled tanks at these facilities. However, upon further investigation, it was determined that these storage vessels did not meet the Group 1 capacity requirements. This discovery was not reflected in the MACT floor analysis. However, the EPA maintains that this would not change the determination of the MACT floor.

The EPA disagrees with the suggestion that storage vessels at SBL facilities should be exempted simply based on the fact that no impacts were predicted for the subcategory. As noted above, there were HAP used at SBL facilities with vapor pressures high enough to be considered Group 1 storage vessels, meaning that it is not possible to exempt SBL facilities from all storage requirements. However, as discussed elsewhere in this section, the EPA did determine

that certain storage (and surge control) vessel exemptions were warranted.

Comment: One commenter (IV-D-12) stated that tanks downstream of EPR stripping operations should be exempt from storage vessel requirements, just as those containing latex downstream of stripping operations are exempt. The commenter stated that in EPR manufacturing, tanks holding a crumb rubber slurry are downstream of the sampling point (point of compliance). Therefore, if the emission standard has been met, these downstream tanks should be exempt from regulation.

Response: The EPA agrees with the commenter that storage vessels downstream of stripping operations at ethylene-propylene rubber facilities that are in compliance with the provisions of section 63.494 [old section 63.487-1] through the use of stripping technology should be exempt from the storage vessel requirements. The EPA also believes that surge control vessels and bottoms receivers (the vessels referred to by the commenter are actually surge control vessels and not storage vessels) located downstream of the stripping operations should also be exempt from the provisions of section 63.502. Further, the EPA believes that these exemptions should also extend to the other subcategories required to comply with the residual organic HAP limitations in section 63.494 [old section 63.487-1] (a)(1)-(3). However, since the residual organic HAP content of rubber leaving the stripping operations at ethylene propylene rubber and polybutadiene/ styrene-butadiene rubber by solution facilities complying with these provisions through the use of add-on control is not restricted, these exemptions are not available to these facilities.

3.2 SELECTION OF EMISSION LIMITS

Comment: One commenter (IV-D-4) stated that the proposed regulation may require the installation of a floating roof or control device on their tanks containing

unstripped nitrile butadiene latex. The commenter stated that floating roofs would not be feasible for most of these tanks, and installing a new control device would be a significant investment for relatively small emission reductions.

Response: The EPA rejects the argument that the regulation should exempt unstripped nitrile butadiene latex based on the assertions that floating roofs are not feasible and that installing a new control device would be a significant investment. First, the vessels described by the commenter are surge control vessels, and not storage vessels. Therefore, floating roofs are not a control option. Second, the EPA believes that if the surge control vessel meets the requirements for control in Tables 3 and 4 of subpart H, which are based on the emission potential of the vessel, then controls are cost-effective.

Comment: One commenter (IV-D-17) stated that the prescribed control efficiency calculation procedure does not accurately reflect the efficiency of the closed vent to control device system, which may include control components in series. The commenter used the fixed roof and closed vent to a control device control option in conjunction with vapor balancing between vessels upstream of the control device to enhance overall system efficiency. He indicated that the calculation in section 63.120(d)(1) accounts only for the end of pipe control efficiency, not that of the entire control system. The commenter requested that a new provision be added to section 63.484, as paragraph (o), in which the control efficiency of a closed vent system using vapor balancing would be calculated based on the "overall efficiency of the vapor balance system and control device."

Response: It should first be pointed out that the vessels described by commenter IV-D-17 are, by definition, surge control vessels, and not storage vessels. Therefore, these vessels are not subject to the requirements in section

63.119 through section 63.123, but are subject to the provisions in section 63.170. The EPA assumes that the vessels meet the criteria in table 2 of subpart H. Therefore, according to section 63.170, these vessels "shall be equipped with a closed vent system that routes the organic vapors vented from the vessel back to the process or to a control device that complies with the requirements in section 63.172 of this subpart, except as provided in section 63.162(b) of this subpart."

The EPA agrees that it is reasonable to consider the overall effectiveness of a control "system" in determining compliance with the rule, and that such systems that have been demonstrated to be equivalent to the reference control technology should be allowed. While the EPA believes that the system described by the commenter could be demonstrated to be equivalent to the reference control technology for surge control vessels, the commenter did not provide sufficient documentation to allow a complete evaluation of equivalence.

The EPA believes that facilities should have the opportunity to utilize control techniques that are equivalent to the reference control technologies, provided that the owner or operator demonstrates the equivalency to the Administrator. The EPA maintains that subpart U, as proposed, already provided the opportunity for the commenter, as well as other elastomer production facilities, to demonstrate equivalency of alternative control techniques.

Section 63.177 of subpart H addresses the procedures to obtain approval of alternative means of emission limitations. In summary, this section specifies that the owner or operator must submit documentation of the equivalency determination to the Administrator.

Comment: One commenter (IV-D-12) suggested that provisions be included in the standard to allow alternative

control strategies, by stressing performance rather than particular equipment. The commenter's EPR solvent storage tanks employ alternative emission control methods, which have been demonstrated to reduce emissions. The commenter has submitted confidential material outlining their control strategy, which meets Group 1 standards. They requested that the EPA review this strategy and allow alternative control strategies.

Response: This commenter is referring to a vessel that is a storage vessel by definition. While the previous response addressed alternative controls for surge control vessels, the same basic logic applies here as well. The EPA agrees that a facility should have the opportunity to use control systems that are equivalent to the reference control technologies for storage vessels in section 63.119 of subpart G. The EPA also believes that the mechanism for obtaining approval to use alternative storage tank controls is provided in section 63.121.

3.3 ASSOCIATED DEFINITIONS

Comment: Two commenters (IV-D-5 and IV-D-8) stated that a definition for "high conversion latex" should be added to the rule. The commenters recommended that a high conversion latex be defined as one where monomers are reacted to at least 95 percent conversion.

Response: As discussed above, the EPA has decided that the exemption of storage vessels, surge control vessels, and bottoms receivers containing high-conversion styrene-butadiene and nitrile-butadiene latex is appropriate. Therefore, a definition of high-conversion latex is needed. The EPA used the suggestion of the commenters to define high-conversion latex as latex where the monomers are reacted to at least 95 percent conversion.

3.4 MISCELLANEOUS

Comment: One commenter (IV-D-26) stated that the EPA should re-evaluate cost-effectiveness for floating roofs and refrigerated condensers. The commenter stated that the EPA erred in costing floating roofs. Vendor information and graphs of capital costs for storage vessels were attached to the comment. Another commenter (IV-D-10) claimed that the EPA has not demonstrated that the storage vessel vapor pressure applicability thresholds are cost-effective. The commenter stated that the HON storage vessels provisions incorporated into subpart U relied on floating roof technology that is considered to be unsafe for elastomer product processes. The commenter stated that most storage vessels containing HAP are controlled by routing emissions to condensers, and these systems reduce emissions through vapor balancing by maintaining a constant level in the tanks during operations. According to the commenter, floating roof technology appropriate for upstream elastomer storage costs twice as much as that required in the HON. The commenter also suggested that section 63.484 should refer to "storage vessel systems" when referencing subpart G.

Response: Commenters challenged the validity of the costs for internal floating roofs used for the HON storage vessel analysis. They stated that the costs used for the HON were low, and that current modern roofs cost about twice as much to install. However, cost data for internal floating roofs were not provided by the commenter to support these claims. Data available to the EPA showed that the HON costs for internal floating roofs were higher than costs included in the recent Alternative Control Technology (ACT) document entitled "Alternative Control Technology Document: Volatile Organic Liquid Storage in Floating and Fixed Roof Tanks" (EPA-453/R-94-001; January 1994) prepared by the EPA. For installation of a 40,000 gallon capacity storage vessel, capital costs were approximately the same, and for larger

storage vessels, costs based on the HON procedures were higher than costs based on the ACT procedures. This comparison is available in the docket as part of a memorandum entitled "HON/CTG Cost Comparison for Internal and External Floating Roof Tanks," which is contained in subcategory IV-B of Docket No. A-92-45.

The commenter (IV-D-26) provided the results of a cost-effectiveness analysis for control of one 40,000 gallon capacity storage vessel using a refrigerated condenser. Based on this one analysis, the commenter felt that the vapor pressure applicability criteria for large storage vessels should be 13.0 psia. The EPA selected the vapor pressure applicability criteria for the HON to be representative of the average cost effectiveness for controlling all storage vessels within the greater than 40,000 gallon capacity size range. In general, it is more cost effective to control larger storage vessels also covered by this applicability criteria. Therefore, the EPA has not changed the vapor pressure applicability for large storage vessels.

In addition, the commenters that were concerned about being required to install floating roofs should be aware that the storage vessel provisions of the final rule do not specify the controls that are to be applied (i.e., internal floating roofs are not required) when control is required. The Reference Control Technology (RCT) for storage vessels is any of the options listed in the storage vessel provisions (section 63.119).

4.0 CONTINUOUS FRONT-END PROCESS VENTS

4.1 APPLICABILITY REQUIREMENTS

Comment: Several commenters (IV-D-10, IV-D-12, IV-D-16, IV-D-17) stated that the exemption from halide controls for butyl/halobutyl production should be extended to all rubber manufacturers, since halogen-containing compounds or by-products have historically been routed to flares. One commenter (IV-D-17) supported the exemption for butyl and halobutyl rubber, and claimed that to control hydrogen halides and halogen emissions with combustion with a scrubber is above the MACT floor and not cost-effective. This commenter noted that the current combustion control without scrubbing is MACT for existing sources and that no additional control is required. One commenter (IV-D-16) stated simply that the exemption in section 63.485(m) for butyl/halobutyl rubber halogenated process vents should be extended to EPR manufacturers, if the vent stream was controlled by a combustion device prior to June 12, 1995.

Response: Only one existing facility was identified in each the halobutyl and the butyl rubber subcategories. At both of these facilities, halogenated vent streams were vented to a flare and/or boiler. Since both of these subcategories were single-facility subcategories, the MACT floor was determined to be the existing level of control. The EPA examined the impacts of requiring halogenated vent streams at the halobutyl and butyl rubber facilities to comply with the proposed requirements for all other elastomer subcategories (i.e, the HON-level of control). The EPA concluded that the costs associated with this level of control were not reasonable, given the associated emission reduction. Therefore, the proposed regulation

allowed halogenated streams at halobutyl and butyl rubber facilities that were routed to a flare or boiler prior to proposal to continued to be controlled with these combustion devices, without additional control for the resulting halides.

Prior to proposal, the EPA was aware of one EPR facility - Exxon in Baton Rouge, Louisiana - that also routed a halogenated vent stream to a boiler. However, since only one of five EPR facilities reported this situation, the EPA concluded that this level of control was not the MACT floor for EPR. Other EPR producers claimed that they also had halogenated streams at their facilities, but none offered any information to quantify the amount of halogens in the stream to determine if the streams could be classified as halogenated.

In response to this comment, the EPA held discussions with this producer, along with three of the four remaining EPR producers. The EPA learned from these conversations that the chlorinated organic compounds are present in streams at all of the EPR facilities. These compounds are a by-product of the polymerization reaction, resulting from a chlorinated catalyst. At all four of the facilities contacted, the streams containing the chlorinated compounds are routed to either a flare or boiler. The remaining questions were whether the streams were Group 1 and contained sufficient halide levels to be considered halogenated streams, meaning that they would have to be routed to an incinerator, followed by a scrubber. Due to the widely varying concentration in the stream, all facilities indicated that it was difficult, if not impossible, to accurately determine the halogen levels. However, all expressed confidence that at times, the 0.45 kg/hr halide threshold was exceeded.

The EPA concluded that at four of the five EPR facilities, it is reasonable to believe that halogenated

streams are routed to either a boiler or flare. Therefore, the floor for EPR is the existing level of control for these halogenated vent streams. In addition, as with halobutyl and butyl rubber, the EPA does not believe that it would be cost-effective to require new incinerators and scrubbers to be installed at these facilities, when the only net emission reduction would be the reduction of the hydrogen chloride. However, as noted above, sufficient stream-specific information was not available to conduct this analysis. Therefore, the final rule has been changed to extend the exemption for existing halogenated streams routed to a boiler or flare to EPR producers.

Comment: Commenter IV-D-23 requested that the EPA require new sources producing Butyl and Halobutyl Rubber to control hydrogen halides and halogens by installing an incinerator and scrubber system, in order to be consistent with existing State requirements. The commenter agrees that such requirements for existing sources would not be cost-effective.

Response: The EPA agrees that the exemption for butyl rubber and halobutyl rubber halogenated vent streams vented to a flare or boiler prior to June 12, 1995, should only be available to existing sources. While the EPA believes that the proposed rule would only allow this exemption at existing sources, the EPA has made a minor change to the final rule to ensure that this is clear.

4.2 SELECTION OF EMISSION LIMITS

Comment: One commenter (IV-D-19) voiced concern that section 63.485 does not include provisions for front-end vent streams controlled by an internal combustion engine. The commenter suggested that 63.485 be revised to amend 63.116(b)(2) to also exempt from performance test requirements a vent stream routed to an internal combustion engine as primary fuel. The commenter also suggested that monitoring the on/off status of the internal combustion

engine would provide a means of demonstrating compliance with these control requirements.

Response: Upon further investigation of this issue with the commenter, the EPA agrees that control of emissions by an internal combustion engine is equivalent to the other control methods provided in the rule. Therefore, section 63.485 has been changed to allow the use of internal combustion engines, and to exempt these devices from the testing requirements.

Comment: One commenter (IV-D-4) stated that the assumption, in the absence of vent stream characteristics before the flare, that the flare control level was equal to the HON/ACT, could lead to a standard higher than the existing level of performance. The commenter would like to provide more input to the EPA on this issue.

Response: The EPA believes that a flare, properly operated in accordance with the provisions of section 63.11(b) (General Provisions) achieves an emission reduction of at least 98 percent. Therefore, the EPA believes it is appropriate to consider the control level of a flare to be equal to the HON/ACT level of control.

5.0 BATCH FRONT-END PROCESS VENTS

5.1 BASIS FOR THE STANDARD

Comment: Several commenters (IV-D-5, IV-D-8, IV-D-10) disagreed with the EPA's reliance on the Batch Processes ACT document, claiming that it was not appropriate to the elastomer manufacturing industry. These commenters stated that the standards for batch process vents are inappropriate and unnecessarily burdensome. One commenter (IV-D-5) claimed that basing these standards on the Batch Processes ACT document fails to recognize that in rubber manufacturing, equipment is not opened during processing because butadiene is a gas at atmospheric pressure. Thus, all charging is done under vacuum, or under pressure, and when the reaction is complete, removal of material is done in a similar manner. This commenter requests that SBR, PBR, and NBR processes be exempted from the batch process vent requirements.

Response: The EPA strongly disagrees with the commenters regarding the use of the Batch Processes Alternative Control Techniques (Batch ACT) document in the establishment of requirements for the elastomer industry. The Batch ACT was developed by the EPA as guidance to State and local air pollution agencies in the determination of appropriate control levels for batch processes.

In the development of the batch front-end process provisions of subpart U, only one segment of the Batch ACT was used - the process vent applicability criteria. These criteria are based on generic process vent parameters (flow rate, emissions, and volatility of the organic HAP in the stream), and are applicable without regard to the type of process producing the stream. The application of these

criteria were compared to the existing levels of control in the elastomer industry, and it was determined that the floor level of control was consistent with the 90 percent level of control described in the Batch ACT. The subpart U monitoring, recordkeeping, and reporting provisions associated with batch front-end process vents were developed for the elastomers rule and were not from the Batch ACT. Therefore, the EPA did not feel it was necessary to reconsider the reliance on the Batch ACT in the development of subpart U.

The EPA appreciates the argument raised by the commenters related to butadiene. However, the EPA would point out that under the situations described by the commenters, there is unlikely to be a vent to the atmosphere that would be subject to the batch vent provisions. Further, butadiene is not the only HAP used in these processes (with the possible exception of PBR), and the most common other HAP used - styrene and acrylonitrile - are not gases at atmospheric pressure, meaning that front-end process vents downstream from the reactor may have the potential for HAP emissions. Therefore, the EPA does not agree that these processes should be exempted from the batch front-end process vent provisions.

Comment: One commenter (IV-D-10) suggested that at a minimum, the EPA should simplify and clarify the requirements of section 63.486-1. Another commenter (IV-D-18) stated that, in general, the batch process vent provisions are difficult to understand, and he recommended conducting workshops to try and develop simpler language. Another commenter (IV-D-18) supported the approach in the proposed rule that allows the applicability of batch front-end process vent requirements to be determined on an individual vent basis.

Response: The EPA maintains that HAP emissions from process vents are quite complicated to determine, and that

regulations addressing the control of these emissions will, out of necessity, be intricate. However, the EPA believes that the potential for HAP emissions from batch operations at elastomer production facilities warrant control. In response to comments, measures have been taken to simplify these provisions in the final rule. Many of these changes are discussed below. The approach that bases applicability on an individual vent basis, which was a simplifying aspect of the proposed rule, has been maintained in the final rule.

5.2 APPLICABILITY REQUIREMENTS

5.2.1 Group Determination

Comment: Several commenters (IV-D-18, IV-D-25, IV-G-2) submitted comments on the threshold levels for low, medium, and high volatility streams. Two of the commenters (IV-D-25 and IV-G-2) stated that the levels are too high, and will result in inadequate control. One commenter (IV-G-2) stated that, for example, the threshold for low volatility vents would permit an hourly HAP emission rate of 13 pounds per hour, with an annual operating schedule of 2,000 hours per year, and this is a large emission rate to be exempt from control, especially for HAP. This commenter suggested that this level should be significantly reduced to be at least as stringent as the thresholds for RACT (a process vent with an emission rate between 0.5 and 3.5 lbs/hr would require control). The commenter added that an increase in the cost of control would be justified and appropriate for an increase of control for the pollutants regulated by this rule, which are known or suspected carcinogens. The third commenter (IV-D-18) stated the kilogram threshold levels for low, moderate, and high-volatility streams are confusing because they do not follow any consistent trend. Further, the commenter stated that the numbers are so close that it would seem more appropriate for the EPA to select a single number. This commenter recommended that the EPA either pick

one of the numbers, or pick the average, and establish that as the threshold for all levels of volatility.

Response: The Batch Processes ACT developed an annual threshold emission level for each of the three volatility classes. The different values reflect the use of two different control devices (i.e., condensers and thermal incinerators) in the development of the Batch Processes ACT control level options. Given this, the EPA initially judged that selection of a single annual threshold emission level would not be appropriate and included all three levels in the proposed standards. However, upon further review, the EPA has found that no adverse impact will result from the use of a single annual threshold emission level and, indeed, the final standards have been significantly simplified. In addition to removing the requirement to determine the volatility class, the final standards contain only one equation for determining the cutoff flow rate [new section 63.488(f)] which is the last step in the group determination process. Therefore, the final standards contain a single annual threshold emission level.

Comment: A commenter on the proposed Polymers and Resins IV regulation (docket number A-92-45, item IV-D-9), suggested changing the batch vent group determination provisions to only utilize emissions data from an EPPU's primary product.

Response: This comment was received on subpart V, and the EPA determined that a change was necessary, as discussed below. Since the proposed batch vent provisions were similar between subpart U and V, the EPA decided that this change was also appropriate for subpart U.

The EPA has considered the request to perform the group determination on the primary product and agrees that this would provide acceptable results from an environmental perspective while simplifying the compliance requirements for and improving the enforceability of the batch front-end

process vent standards. The final standards contain provisions allowing the owner or operator of an affected source to perform the group determination for batch front-end process vents based on annualized production of a single batch unit operation. However, the EPA does not consider it to be appropriate from an environmental prospective to allow anything other than the worst-case HAP emitting batch unit operation to be considered when basing applicability on a single product (i.e., batch unit operation). Therefore, the final standards specify that the worst-case HAP emitting batch unit operation be used when an owner or operator chooses to annualize a single batch unit operation for purposes of determining applicability. The final standards define the worst-case HAP emitting batch unit operation and describe how emissions are to be annualized to represent full-time production; full-time production does not necessarily mean operating at maximum production rate. As described above, the EPA has modified the final standards to address the commenter's concern.

Comment: One commenter (IV-D-26) stated that the inclusion of uncontrolled emissions before a recovery device is arbitrary and capricious, and contrary to pollution prevention principles. The commenter stated that uncontrolled emissions must be calculated after any recovery device. Another commenter (IV-D-14) disagreed with paragraph 63.486-2(a)(1) which states that only three types of condensers are considered part of the unit operation and not recovery devices. The commenter noted that other types of recovery devices can operate as part of the unit operation without increasing the emissions rate to the atmosphere, and that these should be allowed. The commenter suggested adding the phrase "In addition to other equipment" to the second sentence in that paragraph.

Response: The EPA is aware that the group determination procedures for batch and continuous front-end

process vents are different. This is a direct result of the analyses that developed control requirements for batch and continuous front-end process vents. Given the differences between batch and continuous front-end process vents and the fact that control requirements were based on different analyses, the EPA does not find differences in the group determination procedures objectionable. Further, the analysis that developed control requirements for batch front-end process vents (i.e., Batch Processes ACT) was based on applying controls prior to recovery or control devices. Therefore, the EPA does believe it is necessary to revise this analysis based on the comments brought forth. The final rule retains the requirement to make group determinations for batch front-end process vents prior to recovery or control devices.

Comment: One commenter (IV-D-14) stated that the provision only allowing emissions to be estimated when test methods can be shown to be inappropriate is overly restrictive. Instead, the commenter requested that if emissions can be estimated based on engineering practices, an affected source be allowed to use emission estimates without having to demonstrate that the test methods are not appropriate.

One commenter (IV-D-18) supported the use of engineering assessments to determine values required in the regulation; however, the commenter added that it is unreasonable to require a demonstration that other methods are inappropriate before allowing these engineering assessments. Instead, the commenter recommended that the EPA follow the HON, by allowing engineering assessments as long as their basis is documented.

Response: Several commenters requested that the final standards allow the owner or operator to select among the three techniques for estimating emissions provided in the proposed standards (i.e., remove the hierarchial

organization for using the techniques included in the proposed standards). The EPA believes the data required to use the emissions estimation equations should be obtainable with reasonable effort. Further, specific comments regarding the accuracy or inappropriateness of the equations were not made. Given this, the EPA favors a more consistent estimation technique which is provided by the use of the emissions estimation equations. The final standard will continue to require the use of the emissions estimation equations, unless the owner or operator can demonstrate that these equations are inappropriate.

However, independent of the comments provided, the EPA has concluded that direct measurement of emissions may prove to be difficult and may or may not provide an increased assurance of accuracy over the use of engineering assessment. Therefore, if an owner or operator can demonstrate that the emissions estimation equations in section 63.488 [old section 63.486-2] (b)(1) through (4) are not appropriate, the final standards allow the selection of either direct measurement or engineering assessment. Further, criteria for demonstrating that the emissions estimation equations are not appropriate to a specific batch emissions episode have been added to the final standards. These criteria require either: 1) the availability of test data that demonstrate a greater than 20 percent discrepancy between the test value and the estimated value, or 2) that the owner or operator demonstrate to the Administrator through any other means that the emissions estimation equations are not appropriate for a given batch emissions episode.

Comment: One commenter (IV-D-26) supported excluding flare-controlled operations from the group determination calculation procedure in section 63.486-2.

Response: This provision has been retained in the final rule.

5.2.2 Other Applicability Issues

Comment: One commenter (IV-D-18) stated that the EPA must clarify that fugitive emissions do not disqualify batch vent streams combined with continuous vent streams from the exemption from regulation in section 63.486-1(e), which requires that there be no emissions to the atmosphere to qualify.

Response: The EPA did not intend that negligible emissions from well maintained piping or ductwork would disqualify a batch front-end process vent from this exemption. The final rule has been clarified to represent the EPA's original intention. Specifically, section 63.486-1(e)(2) has been revised, so that it no longer requires "no emissions to the atmosphere," but, rather, specifies that "the only emissions to the atmosphere from the batch front-end process vent or aggregate batch vent stream prior to being combined with the continuous front-end process vent are from equipment subject to and in compliance with section 63.502."

Comment: One commenter (IV-D-18) suggested that the wording of 63.486-2(h)(1)(i) be revised so that it does not imply that literally no halogens or hydrogen halides must be present in the entire process, for an owner or operator to determine that a batch process vent is not halogenated. The commenter stated that trace amounts of halogens or hydrogen halides may be present in portions of the process without leading to a halogenated vent stream determination.

Response: The commenter requested that EPA clarify the exemption in section 63.486-2(h)(1)(i) to account for halogens or hydrogen halides present in the process in negligible amounts. In the final rule, this paragraph [63.488(h)(1)(i)] has been added to as follows: "Halogens or hydrogen halides that are unintentionally introduced into the process shall not be considered in making a finding that a batch emission episode is nonhalogenated." The added

language does not use the phrase "as an impurity" since impurity is defined in the rule. Additionally, the added language does not quantify a de minimis amount of intentionally introduced halogens or hydrogen halides (i.e., present as an impurity in a raw material) because section 63.488 [old section 63.486-2] (h)(1)(ii), engineering assessments, can be used to accommodate these situations.

The same commenter requested that an owner or operator be allowed to use process knowledge that halogens or hydrogen halides cannot enter a specific batch process vent, even though they are present in the process, to determine that a batch emission episode is not halogenated. This type of determination falls under section 63.488 [old section 63.486-2] (h)(1)(ii), engineering assessment of the final rule and is allowed.

5.3 EMISSION LIMITS

Comment: One commenter (IV-D-10) said that the requirement for Group 2 batch front-end process vents to comply with the batch cycle limitations in paragraph 63.486-1(g) is unduly burdensome and will be very costly to implement. The commenter recommended that section 63.486-2(d)(4), which contains this requirement, be deleted from the rule.

Response: Group 2 continuous front-end process vents are required to report process changes that affect the total resource effectiveness (TRE) index such that it either becomes less than 4.0 or becomes less than 1.0 (i.e., becomes a Group 1 vent). In addition, vents with TREs between 1.0 and 4.0 are required to perform continuous monitoring to ensure that they remain Group 2. The EPA examined comparable means of ensuring that Group 2 batch front-end process vents did not become Group 1 without proper notification and subsequent control.

The batch front-end process vent provisions do include the requirement that process changes must be reported.

However, the EPA realized that one of the actions that could cause a Group 2 batch front-end process vent to become Group 1 is the processing of more batches, which would not normally be considered a process change. In addition, the EPA considered requiring continuous monitoring for those batch front-end process vents that were "nearly" Group 1, but concluded that such monitoring would be too burdensome for batch process vents. Therefore, the EPA devised the batch cycle limitation concept to track the effect of increasing production on the group status of a batch front-end process vent.

As was pointed out at proposal (60 FR 30808), "the batch cycle production limitation does not limit production to any previous production level, but is based on the number of cycles necessary to exceed one of the two batch front-end process vent applicability criteria." The rule simply requires that an owner or operator track the number of batches processed in a front-end batch unit operation. The EPA believes that such records are undoubtedly already maintained at elastomer production facilities, and that little additional burden is created by the requirement to keep such production records for comparison with the batch cycle limitation. Therefore, the EPA generally disagrees with the commenter's assertion that the batch cycle limitations are unduly burdensome.

The EPA does recognize, however, that one aspect of the proposed provisions related to batch cycle limitations might be burdensome, which is the requirement for quarterly submittal of the number of batch cycles performed. Therefore, this requirement has been deleted from the final rule, and the owner or operator is simply required to report the total number of batch cycles in every other periodic report (i.e., once per year).

Comment: One commenter (IV-D-5) requested that the EPA clarify that in paragraph 63.486-1(b) the introduction of

the vent stream into the combustion air for a boiler or a process heater is equivalent to introducing it into the flame zone.

Response: The EPA agrees that the introduction of the vent stream into the combustion air for a boiler or process heater is equivalent to introducing it into the flame zone. However, the EPA does not believe that this point needs to be clarified in the rule.

Comment: One commenter (IV-D-26) believes that the rule should provide a 20 ppm concentration alternative to the 90 percent control device efficiency requirement for batch process vents in paragraph 63.486-1(a)(2).

Response: The EPA decided not to allow the 20 ppm concentration alternative for batch front-end process vents, because the emission standard for batch front-end process vents is not an instant-in-time limit, but rather a set emission reduction for a given event (i.e., 90 percent reduction for the batch cycle).

5.4 TEST METHODS AND MONITORING

Comment: One commenter (IV-D-26) stated that the proposed batch monitoring requirements are not cost-effective. The commenter suggests that EPA should consider more practical monitoring schemes developed in the States of New Jersey and Kentucky. Based on these systems, the commenter recommended that reading and recording should only be required when the source is venting emissions to the control device. The commenter asserted that once per hour is an excessive monitoring requirement, and that once per batch, per transfer for storage tanks and transfer racks, and per shift for other continuous operations is more reasonable.

Response: The EPA believes that the proposed rule was misinterpreted by the commenter, but acknowledges that it was potentially unclear. Based on the comments made, the EPA believes that the commenter was under the impression

that operating parameters for batch front-end process vents had to be monitored 24-hours per day; this was not the intent of the rule. In the final rule, the EPA has clarified that operating parameters for batch front-end process vents must be continuously monitored (i.e., measurements made at least every 15 minutes) during those batch emission episodes that the owner or operator has selected to control as part of meeting the requirement to reduce emissions by 90 percent for the batch cycle.

Several changes or clarifications that affect this area were made to the final rule. First, in §63.489 [old section 63.486-3] (a)(1) of the final rule, changes were made to clarify that "monitoring equipment shall be in operation at all times when batch emission episodes, or portions thereof, that the owner or operator has selected to control are vented to the control device...." Second, it was necessary to clarify §63.486-1(a)(2) to ensure consistency with and understanding of the change described above. In the proposed rule, the requirement to achieve 90 percent for the batch cycle was not expressed clearly. In the final rule, §63.486-1(a)(2) states that emissions for the batch cycles must be reduced by 90 percent and that "owners or operators may achieve compliance with this paragraph through the control of selected batch emission episodes or the control of portions of selected batch emission episodes." The EPA believes that, taken together, the two changes described above make it clear that parameter monitoring is only required when emissions selected for control by the owner or operator are vented to the control device.

A third point to be made does not involve parameter monitoring for purposes of demonstrating continuous compliance, but instead involves parameter monitoring during performance tests. In the final rule, an owner or operator must either (1) test and monitor the entire batch emission episode, or portion thereof, selected for control, or

(2) test and monitor a selected period of the batch emission episode, or portion thereof, selected for control. A selected period may be tested when the emission rate for the entire episode can be determined (i.e., when emissions are representative of the average emission rate) or when the emissions are greater than the average emission rate (i.e., at the peak of the episode). The pertinent point related to monitoring is that an owner or operator is required to gather parameter monitoring data over the entire performance test.

Comment: One commenter (IV-D-14) disagreed with the requirement in section 63.486-3(b)(1) to continuously monitor scrubbing liquid temperature and specific gravity when using an absorber as a recovery device. The commenter stated that since other controls and monitors will be located on the downstream flare, this extra burden is not justifiable. The commenter also stated that sources' options for demonstrating compliance should not be restricted by requiring that a specific gravity monitoring device be used on an absorber.

Response: The commenter raises two issues. The first is related to the viability of monitoring the specific gravity of the absorber liquid. The EPA agrees that in some situations it may not be necessary to monitor the specific gravity of the absorber liquid. However, the decision to forego monitoring the specific gravity of the absorber liquid in lieu of another parameter is best determined on a case-by-case basis in concert with the performance test. If the commenter wishes to monitor another parameter, they could pursue such an option through the provisions for obtaining alternative monitoring parameters.

The second issue is related to the combination of recovery and control devices to control batch vent emissions. The EPA recognizes that monitoring parameters for two different devices could be burdensome in some

instances. One option would be to only require monitoring of the final control or recovery device. However, the EPA is not convinced that this would guarantee that the 90 percent emission reduction requirement is continuously being achieved. In the situation described by the commenter (an absorber followed by a flare), it is reasonable to expect the flare to achieve the required emission reduction. However, if two recovery devices were used in series, the EPA believes that both devices could be needed to achieve the required emission reduction. Therefore, the EPA did not change this requirement in the final rule. In cases such as the one described by the commenter, the EPA believes that alternative monitoring should be requested in the Precompliance Report or operating permit application submitted to the permitting agency, if the owner or operator believes that the promulgated monitoring requirements are still a burden.

5.5 ASSOCIATED DEFINITIONS

Comment: Two commenters (IV-D-18 and IV-D-14) stated that the definition of "batch cycle limitation" should be revised to delete the last 2 sentences, as these provisions to establish certain types of limitations are substantive requirements that are not appropriate in the definitions section of the rule. Furthermore, one commenter (IV-D-18) contended that the additional sentences are not literally correct, as the owner or operator of a Group 2 batch front-end process vent does not always have to establish a batch cycle limitation; instead, the owner could control the vent as if it were Group 1.

Response: The definition of batch cycle limitation was revised to remove regulatory wording that did not belong in the definition. The definition now reads as follows:

> Batch cycle limitation means an enforceable restriction on the number of batch cycles that can be performed in a year for an individual batch front-end process vent.

The wording that was removed from the definition was moved to section 63.486-1 of the final rule.

5.6 MISCELLANEOUS

Comment: One commenter (IV-D-18) requested that the EPA clarify that a reevaluation of applicability status for storage vessels and batch process vents should only be required if a change is made that might reasonably change the rule applicability to a vessel or vent. The commenter stated that conducting this reevaluation for all changes is burdensome and unnecessary. The commenter added that the phrase "change in material" should be clarified to mean a change from one material to another. As currently phrased, it could mean minor variations in the material, which the commenter did not believe to be appropriate or intended.

Response: The EPA believes that the proposed standards address this concern as it relates to Group 2 batch process vents. The proposed provisions in section 63.486-2(i) address process changes to Group 2 batch process vents and the requirement to perform a new group determination. These provisions provide examples of what things are process changes and what things are not process changes. Also, these provisions state that "changes that are within the range on which the original group determination was based" are not considered process changes. This allows an owner or operator to perform the initial group determination with the minor process changes cited by the commenter in mind. The EPA believes that the proposed standards were clear that truly minor process changes (variations in operating conditions) do not require that a new group determination be performed. Addressing this concern as it relates to Group 1 batch process vents, the proposed standards do not require a redetermination of groups status for Group 1 batch process vents. Therefore, if minor process changes, as cited by the commenter, were to occur, the owner or operator would not be required to perform another group determination. The EPA

does not believe that any changes to the final rule [new section 63.488] are warranted on the basis of these comments.

Comment: Two commenters (IV-D-23 and IV-G-2) expressed concern about differences between the proposed rule and existing State requirements.

One commenter (IV-D-23) voiced concern about potential conflicts between Federal and State regulatory requirements, adding that it is important that consistency between new source MACT standards and existing new source review activities be maintained. For example, this commenter noted that under the proposed rule, Group 2 front-end process vents do not require controls, but the commenter stated that it may be appropriate, as well as economically feasible, to require controls on upstream equipment whenever cumulative emissions of Group 2 streams may result in significant combined emissions.

The other commenter (IV-G-2) stated that they currently regulate the sources covered under this proposal by RACT rules, which by definition should be less stringent than MACT requirements. However, the commenter stated that there are several areas where the MACT standard is less stringent than their RACT rules. The commenter attached relevant sections of their VOC RACT rule to illustrate this point.

Response: In developing the batch front-end process vent requirements, the EPA relied on EPA's Batch ACT document, which is EPA's guidance to State and local agencies in developing RACT for batch processes. Therefore, the EPA considers the batch vent control requirements to be approximately equivalent to RACT.

The EPA would remind the commenter that the MACT "floor" is based on the average emission limitation achieved by the best performing 12 facilities in a source category (or 5 facilities for source categories with less than 30 sources). Since all but one of the elastomer source

categories and subcategories contain less than 5 sources, the MACT floor was determined as the average emission limitation for all the sources in the category or subcategory. Therefore, it is possible that MACT could actually be less stringent than RACT in some instances.

The Batch ACT discusses a two-phased approach for determining applicability. The first step is to apply the applicability criteria to individual vent streams. The second approach is to combine batch vent streams and determine if controls are required for the combined streams. The EPA considered this combined stream approach in the development of the batch front-end process vent provisions, but rejected it because elastomer production facilities do not typically have a large number of batch process vents.

Comment: One commenter (IV-D-18) stated that section 63.486-5(a) implies that other records in addition to those listed should be kept for batch process vents because of the words "shall include." The commenter provided suggested language to eliminate this problem.

Response: To avoid any confusion, paragraph 63.491 [old section 63.486-5] (a) of the final rule has been revised to state that "Except for paragraph (a)(1) of this section, the records required to be maintained by this paragraph are limited to the information developed and used to make the group determination under section 63.488 [old section 486-2] (b) through section 63.488(g), as appropriate."

6.0 BACK-END PROCESS OPERATIONS

6.1 APPLICABILITY REQUIREMENTS

Comment: One commenter (IV-D-11) agreed with the EPA's decision to exempt nitrile latex from downstream controls after stripping. Another commenter (IV-D-4) stated that section 63.487-1 should be revised to clarify that epichlorohydrin and nitrile butadiene rubber are exempt from back-end controls, because no weekly residual organic HAP limit has been provided for these products.

Response: The back-end process provisions are primarily intended to reduce emissions of residual HAP that occur during the drying of solid elastomer products. In the introduction to section 63.493, affected sources that only produce latex products are exempt from the back-end process provisions Also, in response to comments, affected sources that produce only liquid rubber products were also considered exempt from the back-end process provisions. For both of these types of products, the final elastomer product is not a solid; therefore, no drying occurs and there is limited potential for back-end process HAP emissions. For this reason, affected sources producing only latex products or only liquid rubber products are exempt from all back-end process provisions.

As discussed in the Basis and Purpose document for the proposed standards (section 6.4), the back-end process operation MACT floors for neoprene, Hypalon™, nitrile-butadiene rubber, butyl rubber, halobutyl rubber, epichlorohydrin elastomer, and polysulfide rubber, were determined to be "no control." Therefore, paragraph 63.494 [old section 63.487-1] (a)(4) indicates that these products

are not subject to back-end residual organic HAP limitations. However, each of these elastomers are produced as solids, the process back-end operations closely resemble the operations of the elastomer products with residual organic HAP limitations, and these processes emit HAP from the process back-end (over 750 Mg/yr baseline HAP emissions). Due to these factors, the EPA does not believe that it is appropriate to exempt these products totally from the back-end process provisions in the introduction to section 63.493.

Comment: Two commenters (IV-D-8 and IV-D-18) supported the EPA's proposal in section 63.487 to exempt the back-end of styrene butadiene latex processes from additional controls. However, another commenter (IV-D-25) stated that styrene butadiene latex facilities have filtration processes after the stripping operation which could have significant HAP emissions. This commenter requested that the EPA examine emissions from these operations, and include them as affected sources in the final rule.

Response: In the development of the proposed regulation, the EPA analyzed HAP emissions from operations downstream of the stripper in styrene-butadiene latex operations and determined that these operations would never exceed the general applicability requirements of the rule. This is due to the low concentration of residual HAP in the stripped latex due to both the high styrene and butadiene conversion in the polymerization reaction, and the high stripping efficiency. The EPA does not believe that it is appropriate to impose reporting and recordkeeping requirements for these sources, when no associated emission reduction is anticipated.

6.2 EMISSION LIMITS

6.2.1 Averaging Period

Comment: Several commenters (IV-D-3, IV-D-10, IV-D-11, IV-D-16) stated that compliance based on a weekly average HAP limitation is unreasonable, and that compliance should be demonstrated on the basis of a monthly (or 30-day) rolling average instead. These commenters claimed that requiring compliance based on a weekly average fails to provide adequate operational flexibility for manufacturers to produce different grades of polymers in accordance with customer demands. A weekly averaging period does not allow sufficient time to correct for "bad batches" according to the commenters.

Response: Upon review and consideration of the comments, the EPA agrees that a monthly averaging period for the residual HAP limitations is more appropriate. Changing to a monthly averaging period will provide more operational flexibility to elastomer producers, while maintaining the same annual emission reduction. As discussed in the following section, the EPA has adjusted the back-end residual organic HAP limitations based on comments received. As part of this adjustment, the annual data will be adjusted to monthly instead of weekly.

6.2.2 Residual Organic HAP Limitations

Comment: Numerous commenters (IV-D-3, IV-D-5, IV-D-10, and IV-D-27) commented on the EPA MACT floor calculation for back-end process emissions from SBR/PBR solution plants. These commenters stated that they believed the MACT floor calculation used to establish the residual HAP limit was flawed, for a variety of reasons. First, the commenters believed that the EPA has provided no rationale for lowering the limit from 0.8 kg HAP/100 kg rubber, and that a level, "somewhere between the mean, median, and mode" does not represent central tendency. Further, commenter IV-D-3

suggested that a mean is the correct approach for establishing the MACT floor.

In addition, the commenters stated that combining data received from different companies using different sampling and analytical methods, without establishing whether the methods achieve comparable results, is not an appropriate way to establish residual HAP limits. Furthermore, they say that the rule proposes to measure compliance using a different method from the companies. The commenters further stated that if production figures and dryer stack testing results were used to establish these limits, this approach is not supportable, as this would assume no emissions between the stripper and drying operations, as well as no residual HAP in the final rubber product. The commenters also expressed concern that in establishing a weekly limit based on annual data, the EPA did not adjust for weekly variation, and did not correct to actual dry weight (some of the data provided to the EPA was an annual average that included the weight of oil for oil-extended polymers).

Response: Several issues were raised by commenters pertaining to the back-end MACT floor calculation for the SBR/PBR solution facilities. The EPA will address each issue separately.

(1) The first issue pertained to how the back-end MACT floor was calculated. The commenters stated that a number "somewhere between the mean, median and mode" does not represent a central tendency, and that the mean is the correct approach for establishing the MACT floor.

Originally, the EPA did not use a traditional measure of central tendency when calculating the floor in the proposed rule, because in the EPA's judgment, there were problems with the selection of either the mode, median, or mean as the MACT floor. The factors considered in this decision were the relationship of the floor to the actual performance by all facilities, the number of facilities that

would be required to install controls to meet the floor, and the perceived ability of facilities above the floor to reduce emissions to the floor level. The EPA reevaluated this rationale and decided that the factors considered in selecting a MACT floor "somewhere between the mean, median, and mode" were not as supportable as the arguments made by the commenters. The EPA decided that one measure of central tendency should be used, and decided that the mean was the most appropriate measure for the residual organic HAP limitation floor determinations. In some situations, the use of the mean can result in a floor level of control that is not represented by any available control technology. However, this did not apply to this situation, where the emissions used to determine the floor were a result of process-specific stripping techniques, and not specific add-on control technologies. Therefore, the EPA redetermined the MACT floor back-end residual HAP limitation using the mean value of the emission factors from the four PBR/SBRS facilities.

(2) The second issue was that combining data from different companies using different sampling and analytical methods was an inappropriate way to establish the residual HAP limits. More specifically, the commenters indicated that the use of production figures and dryer stack testing results to establish back-end limits was not supportable, as this would assume no emissions between the stripper and drying operations, as well as no residual HAP in the final rubber product.

The EPA would like to point out that the back-end emission limit is actually an emission factor limit, which was calculated by calculating an emission factor for each facility, then selecting the mean emission factor as the MACT floor (see previous discussion of issue number 1). For each company, the emission factor was calculated by dividing the total reported back-end emissions by the amount of

rubber produced in the same year. Compliance with this limit is measured by testing for the residual HAP concentration in the intermediate product immediately after it leaves the stripper.

This analysis, and the subsequent regulatory limits, made three major assumptions. First, it assumed that each facility reported total back-end HAP emissions, including emissions between the stripper and drying operations (i.e., fugitive emissions). Second, it assumed that the methods used by the companies to estimate these emissions were equivalent. Finally, it assumed that all residual organic HAP in the polymer leaving the stripper was emitted during the drying and other finishing operations (i.e., that there was no residual HAP in the product leaving the facility).

The comments caused the EPA to question these assumptions. Therefore, the EPA held meetings or teleconferences with all the SBR/PBR solution producers to obtain information related to these three assumptions. The EPA wanted to learn (1) if back-end emissions were reported for dryer stacks only, or if fugitive emissions were taken into account when the facilities reported back-end emissions; (2) if the methods used to estimate these emissions were consistent with the residual HAP test methods being validated in the industry (see section 6.3.1); and (3) if there was significant residual HAP remaining in the product leaving the facility.

During these meetings and conferences (Docket Number A-92-44, Item Nos. IV-E-16, IV-E-18, and IV-E-23), all facilities indicated that they did include fugitive emissions in their original emission estimates, and that the original method of estimation correlated favorably with the test methods being validated. Therefore, the EPA concluded that adjustments to the emission estimates to remedy inconsistencies were not necessary. It should be noted that several minor corrections were made as a result of these

telephone conferences, primarily related to the addition or removal of small emission points from the back-end total due to their location in the process.

With regard to the third assumption, the EPA was informed by one producer that residual HAP does remain in the final product. As discussed in a later comment, adjustments were made to correct for this residual HAP.

(3) The third issue expressed by the commenters was the concern that the EPA did not adjust for weekly variations when setting the weekly limit based on annual data. The EPA agrees with this comment that the adjustment from annual to weekly data was not conducted adequately, due to the very limited data available to the EPA prior to proposal. Since proposal, the EPA changed from a weekly limit to a monthly limit (see section 6.2.1). In addition, the EPA obtained daily residual HAP data from two of the four PBR/SBRS facilities. Using this data, the EPA calculated the ratio of the monthly average residual HAP content to the annual average residual HAP content. The EPA then selected the largest ratio, representing the widest variation of HAP residual concentrations from annual to monthly. This maximum ratio was then applied to the annual MACT floor residual HAP level to obtain the monthly residual organic HAP limitation in the final rule, 10 kg total organic HAP/Mg rubber.

(5) Finally, commenters were concerned that the EPA did not express the production data from all facilities in terms of the dry weight of the rubber. As discussed in section 6.5, comments were received on the definition of "crumb rubber dry weight," and the EPA decided to revise this definition to allow the weight of extender oils to be included in the crumb rubber dry weight. During the meetings and conferences discussed above, the EPA verified the correct production number, including the weight of extender oil, to use in the emission factor determination.

Comment: One commenter (IV-D-02) attempted to predict how the PBR/SBRS MACT floor was determined, and came to the conclusion that it would be difficult to reasonably create the proposed limitation for PBR/SBRS. The commenter was basing his prediction on an assumed residual HAP level (i.e., emission factor) for his facility of 19 kg/Mg. All the emission factors used in the analysis were kept confidential, since the production numbers used to calculate them were all claimed confidential. What the commenter did not realize at the time of his comments was that the emission factor for his facility was approximately an order of magnitude lower than the number he had estimated, due to the inclusion of the effects of add-on controls to reduce emissions at the commenter's facility. These controls are described below.

As the crumb/water slurry leaves the stripper, it is stored in storage tanks. These storage tanks are vented to a condenser to recover toluene solvent. Also, the crumb dryer exhaust streams are vented to a boiler at this facility.

Upon learning of this situation, the commenter objected (see Docket A-92-44, item number IV-E-16), claiming that two add-on control situations were improperly considered. The commenter maintained that since neither of these control systems were in operation for the base year reported in the questionnaire responses (1990), it was inappropriate to include their effectiveness in the analysis.

Response: As outlined below, the EPA disagrees with the commenter on this issue. Section 112(d)(3)(B) of the Clean Air Act specifies that for subcategories with less than 30 sources, emission limitations for existing sources shall not be less stringent than "the average emission limitation achieved by the best performing 5 sources (for which the Administrator has emissions information). . ." Absent in this provision is any mention of a required base

period for the determination of the controls in place at the top 5 facilities. The EPA believes that section 112(d)(3)(B) gives the Agency the authority, in determining the MACT floor, to consider any information regarding emissions that have been achieved by a source prior to the development of the standard.

The EPA would agree in principle that it may not be practical to continuously track the installation of control devices during the development of section 112(d) standards and continually update the floor analysis based on this "new" information. This could lead to a constantly changing floor level that would make impossible the promulgation of final rules within the timeframes specified by the Act. In fact, in late 1994, the EPA became aware of another PBR/SBRS facility that was considering the installation of an incinerator to reduce back-end HAP emissions. This incinerator, which began operation after proposal in late 1995, was not considered in the floor. However, as discussed below, the EPA believes that it is appropriate to consider controls that were clearly in place during the development of the standard.

In the commenter's original information submittal to the EPA dated August 10, 1992 (see Docket A-92-44, item number II-D-49), two control options were identified to reduce emissions from the "back-end" of their PBR/SBRS production operations. The dryer vent streams were shown in the process flow diagram and in the emission summary table to be routed to a boiler. Similarly, emissions from PBR crumb storage vessels located just downstream of the stripper were reported to be routed to a condenser. Other than the use of the term "control option," there was no mention that these controls were not in operation at the time of this original submittal.

In their October 11, 1993 response to a questionnaire sent by the EPA to clarify information from the original

submittal (Docket A-92-44, item number II-D-74), the commenter's facility stated that "the control options were not in place at the time of the original submittal." However, the post-control emissions were also reported in this response.

The EPA has since learned that the boiler began operation in December of 1992, and the dryer emissions have been routed to the boiler since that time. The condenser control was phased-in for the crumb storage vessels, with the first being routed to the condenser in late 1992. Thus, the emission levels from the commenter's controls were clearly "achieved" prior to the development of the standard, and were therefore appropriate for the EPA to consider in determining the MACT floor.

In addition, the EPA maintains that even if the commenter's controls were not considered in determining the MACT floor, it would be appropriate to select a more stringent level of control. The Clean Air Act authorizes the EPA to consider control levels more stringent than the MACT floor. In the evaluation of such controls, the Agency must take into consideration "the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements . . ."

In the evaluation of the impacts of a more stringent level of control, the EPA can consider the controls in place at the four PBR/SBRS facilities. As discussed above, the commenter's facility has controls in place that result in an emission factor that would be well below a floor level calculated without these controls. At the baseline conditions, one other facility's emission factor was also well below this level. During a November 9, 1995 telephone conference, a representative of the company owning the remaining facilities (see Docket A-92-44, item number IV-E-23) reported that they have installed an incinerator to reduce their dryer vent emissions at one facility, reducing

emissions to a degree that would place the emission factor below the floor level calculated without the commenter's controls. These representatives also reported that they have improved the stripping at their other facility to the point that they believed they could meet the proposed 5 kg/Mg weekly limit. Therefore, it can reasonably be expected that the other facility can also meet a limitation more stringent than the MACT floor even without considering the commenter's controls.

In conclusion, the EPA believes that it is appropriate to consider the effects of the commenter's controls in the MACT floor analysis. Further, the EPA believes that there will be essentially no incremental impact to the industry between a level of control calculated without the commenter's controls to the MACT floor level calculated considering these controls.

Comment: Several commenters (IV-D-10, IV-D-12, IV-D-16, and IV-D-17) disagreed with the EPA's approach in developing the MACT floor and residual HAP limits for EPR, expressing concerns similar to those raised regarding the MACT floor for PBR/SBRS. These commenters stated that the back-end residual organic HAP limitation of 9 kg total organic HAP per Mg of dry rubber crumb leaving the stripping operation is too low and does not reflect industry data. One commenter submitted residual organic HAP data (IV-D-17) to support his contention that the limit for ethylene-propylene rubber should be at least 11 kg/Mg dry rubber crumb if a weekly average limitation is specified. This commenter also believes that the proposed limitation of 5 kg/Mg for new sources may not be achievable with demonstrated stripping technology, and he requests that the variability factors used to convert long-term data to a short-term limitation be reviewed for new sources.

One commenter (IV-D-10) also stated that the limit fails to account for wide variations in residual HAP among

different EPR polymer types and families (such as oil-extended and non-extended, high and low mooney). Furthermore, the commenter stated that some annual emission figures were based on stack testing of finishing building stacks. These results cannot be equated to those from crumb sampling at the EPA's designated sampling point, because there are numerous potential emission sources between the proposed sampling point and the stack testing locations.

Another commenter (IV-D-16) stated that the approach of establishing the floor at a level between the mean, median, and mode does not comply with the Clean Air Act requirements. This commenter also said that using annual emissions and limited weekly data to establish weekly limits is inherently uncertain, and may have resulted in an inappropriate standard. Finally, commenter IV-D-12 said that the analysis is in error because of differences in testing, differences in the point of compliance, extrapolation of annual limits to weekly limits, and a failure to consider different types of polymer (such as oil-extended).

Response: Commenters on the back-end process emission limits for EPR raised many of the same issues that were raised for the PBR/SBRS facilities. The EPA's responses on several of these issues, as they relate to EPR, are the same as provided in the previous response. For instance, the EPA agreed that the MACT floor should be based on the mean of the individual facility emission factors, that the oil extender weight should be included in the crumb rubber dry weight, that the averaging period should be monthly, and that residual HAP remaining in the final product should be taken into account. Changes were made to the MACT floor based on these comments.

In response to the comments that the proposed EPR back-end emission limit was too low and did not reflect industry data, and that the limit was derived using inconsistent

data, the EPA undertook the same measures described in the previous comment to investigate this issue.

As with the PBR/SBRS producers, the EPA held telephone conferences with each of the four EPR producers using a solution process (Docket Number A-92-44, Item Nos. IV-E-20, IV-E-21, IV-E-24, and IV-E-25). Since the MACT floor was determined making the same assumptions cited in the previous response, the primary purpose of these conferences was to learn (1) if back-end emissions were reported for dryer stacks only, or if fugitive emissions were taken into account when the facilities reported back-end emissions; (2) if the methods used to estimate these emissions were consistent with the residual HAP test methods being validated in the industry (see section 6.3.1); and (3) if there was significant residual HAP remaining in the product leaving the facility.

As a result of these calls, the EPA learned that three of the four facilities reported total back-end emissions, which included an estimate of fugitive emissions. These three companies also reported that the methods used to determine their original estimate correlated favorably with the test methods being validated. Only one facility did not report fugitive emissions and was relating the original estimate to the new test methods.

The EPA made adjustments for oil extender weight, residual HAP in the product, and other minor adjustments, and redetermined the annual MACT floor. In this determination, the mean was used as the measure of central tendency.

In their public comments, one EPR facility provided detailed information on the daily variability of residual HAP content (see docket item IV-D-17). While similar information was requested from the other facilities, none was provided to the EPA. For each month in the data provided, the EPA determined the ratio of the monthly

average residual HAP to the annual average residual HAP. The largest month to annual ratio was then applied to the annual MACT floor to obtain the residual HAP limitation for EPR in the final rule, 8 kg/Mg.

Comment: Three commenters (IV-D-12, IV-D-10, IV-D-27) stated that the proposed standard does not take into account residual HAP that may remain in the polymer after finishing. The commenters believe that a certain amount of HAP will always remain in the product after finishing, and this should be reflected in the HAP limit. One commenter (IV-D-12) suggested that a residual HAP content should be determined and subtracted from the emission rate calculated at the point of compliance. This commenter proposed that a standard residual HAP value be assigned to each polymer, based on historic analyses.

Response: The original calculation of the floor was made assuming that no residual HAP leaves with the product. As a result of these comments, the EPA called the four PBR/SBRS and the four EPR producers and asked them to quantify the amount of residual HAP remaining in the finished product. Only one PBR/SBRS producer reported residual HAP in their product. This producer uses a different solvent than the other three producers, noting that this solvent is more difficult to strip than the solvent used by the other producers. One EPR facility also reported residual HAP in their product and quantified the amount. The EPA agreed with the comment that the floor should be adjusted for the amount of the residual HAP remaining in the product, so for the two facilities that reported residual HAP in their product, the EPA added the amount of residual HAP in their product back into their respective emission factors.

Comment: One commenter (IV-D-11) stated that it is unclear how section 114 submittals have been used to develop

the standard for SBRE; however, the commenter supported the 350 ppm standard for SBRE.

Response: In 1992 and 1993, the EPA requested emissions and emissions control information from elastomer producers under the authority of section 114 of the Clean Air Act. The EPA analyzed the information submitted in the responses to these requests, and presented the results of the preliminary SBRE MACT floor analysis to the industry in December 1994 (see docket item II-B-16). In this analysis, the EPA was forced to make numerous assumptions to convert the emissions and production data to latex concentrations. At the December 1994 meetings, the SBRE industry requested that the MACT floor be calculated directly from latex data, which they offered to provide. In January and February of 1995, latex data were provided to the EPA by all four SBRE producers. However, one of the facilities provided monthly data, which could not be used in the weekly floor determination. Therefore, the proposed MACT floor was based on this residual HAP data from three SBRE facilities. The back-end MACT floor for the SBRE industry was determined as a measure of central tendency of the weekly average residual styrene concentrations from the latex data provided, and the original section 114 data were not used to determine the back-end MACT floor.

Two general comments affected the limit for SBRE. First, as discussed above, the EPA concluded that it was more appropriate to use the "mean," rather than another measure of central tendency. Second, the change in the averaging time from weekly to monthly allowed the use of the data from all four SBRE producers. Because much of the data used in this analysis were claimed confidential, the EPA is not able to further discuss the details of the MACT floor calculations.

6.2.3 Compliance Using Stripping Technology

Comment: Two commenters (IV-D-5 and IV-D-10) recommended that engineering calculations and production records be sufficient for calculating the amount of latex or dry weight rubber leaving the stripper. One commenter was uncertain whether this is allowed in the proposed rule, and contends that requiring measurements to determine the amount of latex or dry weight rubber after stripping would be impractical or uneconomical. The commenters also pointed out that current State permits allow these numbers to be calculated using the amount of product and engineering knowledge. The sections of the rule where the commenters believed this is relevant are: section 63.487-2(b)(2)(ii), section 63.487-2(f), section 63.487-3(b)(4), section 63.487-5(b)(1)(iii)(A) & (B), and section 63.487-5(d)(1)(ii).

Response: The EPA agrees that requiring measurements of the quantity of the material (weight of latex or dry crumb rubber) leaving the stripper would be impractical and uneconomical. The intent of the proposed rule was that production records and engineering knowledge be used to determine the amount of material processed in the stripper. Changes have been made in the rule to clearly state that production records and engineering knowledge are acceptable methods of determining the quantity of material processed in the stripper. However, the EPA does not want to preclude the use of measurement devices, so measurement is also listed as an acceptable method.

Comment: Two commenters (IV-D-3, IV-D-10) expressed support for the proposal to allow the use of predictive computer modeling for compliance purposes. However, one commenter (IV-D-3) stated that sources should also be allowed to use stack test results as part of the predictive modeling or parameter monitoring processes. This commenter stated that this is necessary because source operating

permits do not currently require frequent crumb testing, and allowing the use of stack test results would provide greater flexibility to the source. The other commenter pointed out that many companies now use predictive computer modeling in conjunction with stripper parameter monitoring rather than sampling. This commenter suggested that sources should be allowed to use such alternatives to sampling, which in some cases may be dangerous or uneconomical. However, three other commenters (IV-D-1, IV-D-23, IV-D-25) expressed some reservations about whether these systems can be used to correctly predict final product concentrations of HAP, and from this to predict emissions from the source, and recommended that such systems be carefully evaluated and proven before they can be used for compliance purposes. One commenter (IV-D-1) added that the model needs to be directly connected to the stripper, so that any operating problems can be detected by the model. One commenter (IV-D-25) stated that predictive computer modeling is a more accurate reflection of emissions than normal CEM systems, as long as periodic calibration testing is conducted to ensure the continued accuracy of the system. This commenter favored allowing such systems if there is a requirement for periodic calibration against stack testing or another accurate test method.

Response: The EPA believes that computer predictive modeling may be an attractive alternative to the periodic sampling and stripper parametric monitoring options in the proposed rule. In addition, the EPA believes that other alternative means of compliance, such as the one suggested by commenter IV-D-3, could be acceptable alternatives. However, the EPA is convinced that the use of computer predictive modeling is so site-specific that it is not possible to include general requirements for its use in subpart U. Nevertheless, the EPA believes that facilities should have the opportunity to utilize techniques that are

equivalent to the two options of compliance provided in the proposed rule for facilities using stripping technology. The EPA maintains that the opportunity to use techniques such as these is already available through the alternative continuous monitoring and recordkeeping provisions in section 63.506(g).

Comment: The commenter stated that the final regulation should explicitly provide that not all back-end emissions must be directed to a control device as long as the residual HAP limits are met.

Response: A sentence has been added in the introduction to section 63.493 that explicitly states that compliance with the residual organic HAP limitations may be achieved by using stripping technology, or by using control or recovery devices.

Comment: The commenter (IV-D-19) stated that for the initial compliance test, a more logical latex sampling location for determining the initial HAP concentration for SBRE is the mixed latex in the storage tank (rather than directly after the stripper). Because of the fact that latex is stored in the tanks for a period of 8 to 16 hours at their facility, the latex coming out of the stripper during the compliance test is not the same latex being fed to the coagulation/dryer equipment.

Response: The EPA agrees with the commenter. However, in addition to the consideration of the sampling point for initial compliance testing for sources complying with the back-end process provisions through the use of add-on control, this comment resulted in EPA's review of the sampling location in section 63.495 [old section 63.487-2] (d) for all compliance options. This decision led to the conclusion that the proposed requirement to sample latex "after the stripping operations before any opportunity for the emission of organic HAP to the atmosphere" was not warranted. The EPA believes that there is little

opportunity for styrene emissions from the latex after the stripping operation. In fact, as discussed in section 2 of this document, the EPA has determined that the emission potential of all SBL storage and surge control vessels is so low that they are exempt from the regulation. Further, the industry has pointed out that often stripped latexes are blended prior to coagulation, which can affect the residual styrene content of the coagulated crumb going to the dryer. Therefore, rather than change the sampling location for initial compliance testing of add-on control devices, the EPA revised section 63.495 [old section 63.487-2] (d)(1) as follows:

> For styrene-butadiene rubber produced by the emulsion process, the sample shall be a sample of the latex taken at the location specified in either (d)(1)(i), (d)(1)(ii), or (d)(1)(iii) of this section.
>
> (i) When the latex is not blended with other materials or latexes, the sample shall be taken at a location meeting all of the following criteria:
>
> (A) After the stripping operation,
>
> (B) Prior to entering the coagulation operations, and
>
> (C) Before the addition of carbon black or oil extenders.
>
> (ii) When two or more latexes subject to this subpart are blended, samples may be taken in accordance with either (d)(1)(ii)(A) or (B) of this section, at a location meeting the requirements of (d)(1)(i)(A) through (C) of this section.
>
> (A) Individual samples may be taken of each latex prior to blending, or
>
> (B) A sample of the blended latex may be taken.
>
> (iii) When a latex subject to this subpart is blended with a latex or material not subject to this subpart, a sample shall be taken of the latex prior to blending at a location meeting the requirements of (d)(1)(i)(A) through (C) of this section.

In addition, the EPA has revised section 63.496 [old section 63.487-3] (b)(3) to clarify that the sample of latex analyzed for residual styrene must be representative of the latex that is the origin of the crumb being processed in the dryer, or other back-end unit operation, for which the

compliance test is being conducted. This section also specifies a similar requirement for PBR/SBRS and EPR crumb.

Comment: Several commenters (IV-D-1, IV-D-3, IV-D-5, IV-D-10, IV-D-12, IV-D-18) submitted comments on the proposed requirement for sampling to take place before any opportunity for emissions to the atmosphere. Four of the commenters (IV-D-3, IV-D-10, IV-D-12, IV-D-18) found this requirement to be either infeasible or unsafe, and suggested modifications to the provisions, indicating either that sampling should take place as soon as safe and feasible after the stripping operation (IV-D-10), at the point where emissions to the atmosphere occur (IV-D-12), or before substantial emissions to the atmosphere (IV-D-18). One commenter (IV-D-3) stated that at least one of its processes will not be able to meet the requirement for sampling to be conducted before opportunity for emissions to the atmosphere, as this process will not permit a closed sampling system because of safety concerns. This commenter recommended a revision to the sampling location requirements that would minimize the opportunity for emissions to the atmosphere (see language provided on page 3). Another commenter (IV-D-5) suggested that the provision be revised to require that the location for measuring latex be set either immediately after the stripping operation, or at a location just prior to entering the finishing or back-end operations, when the plant has no strippers (instead of immediately after the reactors when the plant has no strippers). Finally, one State commenter (IV-D-1) stated that the safety considerations regarding the sampling location would be the same as elsewhere in the plant, but that the sampling requirement could necessitate the addition of a gas chromatograph to distinguish between chemicals in a fluid flow, and this would be an expensive, albeit technically feasible, addition.

Response: As discussed earlier, the EPA has revised the sampling location requirements for styrene-butadiene rubber by emulsion producers. The EPA recognizes the safety and technical problems associated with the proposed sampling requirements for polybutadiene and styrene-butadiene rubber by solution and ethylene-propylene rubber. The EPA does not believe any of the suggestions made by the commenters are acceptable as provided. However, the EPA developed a modified version of one of these suggestions, which has been added to the final rule. The PBR/SBRS or EPR crumb sample must be taken "as soon as safe and feasible after the stripping operation, but no later than the entry point for the first unit operation following the stripper (e.g., the dewatering screen)."

Comment: Several commenters (IV-D-10, IV-D-16) stated that the daily sampling requirement for back-end process provisions is not appropriate. One commenter (IV-D-16) requested that in the case of continuous processes, only one test per "campaign" be required. Another commenter (IV-D-10) suggested that after a period of daily sampling where compliance is demonstrated for a particular grade, the sampling frequency could be reduced to weekly. However, a third commenter (IV-D-18) supported the EPA's proposed sampling frequency of one sample per operating day per grade of elastomer produced. However, the commenter stated that this could be interpreted to require a sample for a grade that is begun near the end of the day, or that finishes near the beginning of the day. Consequently, the commenter suggested that no sample is needed for brief periods of time (e.g., 4 hours) at the beginning or end of processing a particular grade, where processing occurs over a period greater than one day. Another commenter (IV-D-17) added that it is impractical to take a rubber sample each operating day for every grade of elastomer produced, because of the time required to reach representative operating

conditions and to run an accurate analytical test. The commenter suggested a maximum sampling frequency for practical purposes to be once daily.

Response: Upon review and consideration of these comments, as well as subsequent discussions with industry (Docket Number A-92-44, Item Number IV-E-10), the EPA has decided that one sample per day is sufficient for continuous processes. Industry pointed out two facts that led the EPA to this decision. First, the variability of the residual HAP contents between elastomer grades is relatively small; and second, production schedules typically produce very similar grades of polymer for extended periods of time. The EPA is convinced that reducing the sampling frequency to once per day for continuous processes would greatly simplify the rule, while still ensuring that practically all grades of elastomer produced are represented. The largest contrast in residual HAP contents is between oil-extended and non oil-extended grades. However, the EPA determined that switching between the production of oil-extended and non oil-extended polymers on a short-term basis does not occur.

A similar change was made to the sampling requirements for batch processes. The required sampling frequency was changed to one sample per batch, rather than one sample per day per batch.

While the EPA is interested in reducing the sampling frequency and associated burden, sampling on a less frequent basis than daily for continuous processes is not an acceptable option to the EPA. The EPA does not believe that such an approach would provide adequate verification of the continued control of back-end emissions.

Comment: Three commenters (IV-D-5, IV-D-10 and IV-D-12) stated that in some cases multiple samples may be taken in a 24 hour period (for example, where samples are used as a process indicator). The commenters suggested that a provision be added in paragraph 63.487-2(b)(2)(ii) to

state that if a company samples more than once per day, all samples taken during the day can be averaged to determine the residual HAP content.

Response: The proposed rule did not preclude a company from using more than one sample per day in determining the weekly average. In order to make this opportunity clearer, section 63.495 [old section 63.487-2] (b)(2)(i) and (b)(2)(ii) have been changed to indicate that "at least" one representative sample is to be taken . . . . The EPA would like to point out the proper procedure to utilize multiple samples taken in a day. The correct procedure is to use the residual HAP result of the sample, along with the corresponding weight of material processed in the stripper in the equation to calculate the monthly weighted average. The EPA does not intend this provision to permit industry to average the sample multiple residual HAP results for a day to obtain a single residual organic HAP average, and then use this average and the material processed in the entire day.

Comment: Several commenters (IV-D-10, IV-D-11, IV-D-5, and IV-D-17) suggested that the rule should provide an allowance for missed invalid samples to be used in the calculation of a weekly average, rather than requiring that every sample be taken and analyzed, and calling the failure to collect any single sample an excursion. Several commenters suggested that the EPA should require 75 percent of the samples to be collected. Another commenter (IV-D-17) suggested that the rule should allow for the invalidation of a sample without penalty, for any defensible reason.

Response: The EPA recognizes that a number of circumstances could occur that cause a sample not to be analyzed in accordance with the rule. These may be in the form of sampling system malfunctions, mis-analysis, or other problems. The EPA realizes that there are unique challenges associated with the sampling of solid polymer, and agrees

that problems could occur that would cause a sample to be missed. The EPA also recognizes that some of the test methods being validated to analyze the residual organic HAP in the crumb take long periods of time to perform, meaning that the opportunity to obtain a second sample may not be available if a mis-analysis in the laboratory occurs. While the EPA expects that sound company procedures could eliminate most of these and other problems, the EPA agrees that it is unreasonable to expect that no problems would ever occur that result in a missed sample. Therefore, section 63.505(h)(1) has been changed to define an excursion for back-end process operations as when either (1) the monthly weighted average is above the applicable limit, or (2) when less than 75 percent of the required samples are taken and analyzed in accordance with section 63.495 [old section 63.487-2] (b). However, the EPA disagrees with the concept that more than 25 percent of the required samples could be missed or invalidated without penalty.

6.2.4 Compliance Using Control or Recovery Devices

Comment: One commenter (IV-D-18) suggested that sections 63.487-3(d) and 63.492(b)(2)(iv) be revised to clarify that process changes that could impair control device performance require a redetermination of compliance status. Another commenter (IV-D-19) added that only changes that may increase the process's potential to emit should trigger this requirement. These commenters explained that the rule as written would require compliance redeterminations in numerous cases where it does not make sense to require them, such as when a change makes the emissions a different color, or reduces the emissions. Alternatively, the replacement of mechanical or electrical components could require a compliance redetermination. In addition, commenter IV-D-18 stated that the proposed rule also does not specify whether the "organic HAP content" refers to the HAP that is reacted in and becomes part of the

polymer, or the residual organic HAP. The commenter suggested that "organic HAP content" should refer to residual organic HAP.

Response: The commenters are correct in pointing out that the purpose of compliance redeterminations is to verify that process changes have not affected the ability of a control device to meet the requirements of subpart U. While the EPA believes that some of the interpretations raised by the commenters are unrealistic, the EPA agrees that the language in proposal paragraphs section 63.487-3(d) and section 63.492(b)(2)(iv) [final paragraphs section 63.496(d) and section 63.505(e)(4), respectively] could be modified to avoid unnecessary compliance redeterminations. Therefore, these paragraphs have been changed in accordance with the suggestions raised by commenter IV-D-18.

Comment: One commenter (IV-D-18) stated that it is unreasonable to require sources to assume a 98 percent control efficiency if a higher control efficiency has been demonstrated in a performance test.

Response: There are different reasons for which section 63.496 [old section 63.487-3] (b)(7) exempts certain control devices from a portion of the source testing requirements. The first is because the EPA believes it is impractical to perform performance tests on flares, boilers or process heaters with design heat input capacities of 44 megawatts or greater, boilers or process heaters where the vent stream is introduced with the primary fuel or is used as the primary fuel, and boilers or process heaters burning hazardous wastes. These devices have traditionally been exempted from source testing requirements for this reason. For these devices, section 63.496 [old section 63.487-3] (b)(8)(ii) indicates that a control device efficiency of 98 percent should be used. However, if a previous performance test using acceptable procedures indicated that the control device provided a different level of efficiency than 98

percent, paragraph 63.496 [old section 63.487-3] (b)(8)(iii) states that "the control device efficiency shall be the efficiency determined in the previous performance test."

The example cited by the commenter was a combustion device that was previously tested for an NSPS and demonstrated to achieve 99.99 percent. As discussed above, section 63.496 [old section 63.487-3] (b)(8)(iii) would allow the use of 99.99 percent in the calculation of outlet emissions.

Comment: Two commenters (IV-D-10 and IV-D-27) stated that the rule should consider the effect of condensers installed on top of crumb storage tanks after the final stripper. The commenters stated that data submitted to the EPA indicate that nearly 0.25 percent residual HAP is removed from the process at this point, and where these condensers are installed, the residual HAP limit should be adjusted accordingly.

Response: As noted in the introduction to section 63.493 [old section 63.487], compliance with the residual organic HAP limitations may be achieved by using either stripping technology, or by using control and recovery devices. The situation described by the commenter is exactly the circumstance for which the option of complying by using control or recovery devices was developed. The requirements of this option are provided in sections 63.496 [old section 63.487-3] and 63.497 [old section 63.487-4] of the final rule.

Comment: The commenters (IV-D-11 and IV-D-12) stated that in the future, new products will be harder to strip and may be better controlled through a combination of stripping and finishing building controls. Consequently, the commenter suggested that the EPA allow a combination of controls to achieve all portions of the standard that apply to the back-end of the process (process vents, wastewater, etc.), and asked the EPA to confirm that this option is

available. Commenter IV-D-12 stated specifically that customer demands will push EPR production toward lower molecular weight products that are difficult to strip. Consequently, the commenter stated that the EPA should include provisions in the rule for such polymers.

Response: The option of complying with the residual organic HAP limitations through the use of control and recovery devices does consider the combined effects of stripping and the add-on control. The EPA believes that this option provides the type of flexibility requested by the commenters. However, the amount of residual HAP entering the back-end of the process will not be restricted for facilities using control or recovery devices to comply with the back-end residual HAP limitations. Therefore, the EPA believes that wastewater streams at these facilities should continue to be subject to the provisions of section 63.501 [old section 63.488].

6.3 TEST METHODS AND MONITORING

6.3.1 Residual Organic HAP Tests

Comment: Several commenters (IV-D-10, IV-D-11, IV-D-16, and IV-D-27) stated that no single analytical method will produce consistent results for all polymers, and consequently, each company should be allowed to demonstrate compliance using a company-specific method that is comparable to the EPA test method. Alternatively, according to commenter IV-D-27, a procedure for substituting other methods should be included in the rule. Two commenters (IV-D-10 and IV-D-11) specifically submitted their test methods to the Agency for review, requesting that the EPA allow these methods to be used as alternative test methods for the analysis of residual HAP. Another commenter (IV-D-5) said that additional methods should be provided for PBR/SBRS, and that they have not yet been able to get successful results using Method 313. Alternatively, if the Agency does not incorporate the additional methods used by

different companies, it should thoroughly evaluate Method 313, as would be done for an ASTM method.

Another commenter (IV-D-17) supported the use of proposed Method 310 for the determination of residual organic HAP content in ethylene-propylene rubber crumb produced by the solution process.

Response: The EPA agrees with the commenters and has undergone an extensive effort to rectify this situation. While the finalization of test methods will be addressed in a separate rulemaking effort, a summary of the action on this issue is provided below.

In an effort to fully understand the industry's concerns related to the test methods, representatives of EPA's Emission Measurement Center participated in a meeting with industry representatives. Following this meeting, the EPA concluded that it was appropriate to allow every interested company to validate their own test method using a modified version of 40 CFR 63, Appendix A, Method 301. These validations were conducted not against a reference method, but rather against a known standard. The EPA provided the procedures for these validations, and requested that the companies provide a copy of the validated test methods in a specified format, along with results of the validation.

A total of nine test methods were submitted (three for EPR, three for SBRE, and three for PBR/SBRS). Upon review of the methods and validation data, the EPA approved all nine methods. Therefore, there will be nine accepted residual HAP methods that will be referenced in section 63.495 [old section 63.487-2] (e) of the final rule.

Comment: One commenter (IV-D-26) stated it is unclear in the proposal whether alternative emission monitoring tests can be used, adding that the final regulation should state clearly that equivalent test methods are allowed.

Response: The EPA agrees with the commenter that the rule should clearly state that alternative test methods are allowed, provided that such tests are validated by Method 301 of appendix A. The EPA assumes that the comment is directed to the residual organic HAP test methods in section 63.495 [old section 63.487-2] (e), since paragraph section 63.496 [old section 63.487-3] (b)(5)(iii) clearly states that, in the evaluation of control or recovery device efficiency, other Method 301-validated method can be used to measure the inlet and outlet total organic HAP. A paragraph has been added to section 63.495 [old section 63.487-2] (e) to clarify this provision.

6.3.2 Control or Recovery Device Testing

Comment: One commenter (IV-D-15) stated that the provisions of section 63.487-3(c)(2) may be interpreted to indicate that each run during the initial compliance test must be below the residual HAP limitation. The commenter suggested that it is more appropriate for compliance to be demonstrated on the basis of the arithmetic mean of three runs.

Response: The EPA agrees with the commenter, and section 63.496 [old section 63.487-3] (c)(2) has been revised to state that the owner or operator is in compliance if the average of the three test runs is below the residual HAP limitation.

Comment: One commenter (IV-D-18) supported the proposal in section 63.487-3(b)(7) to exempt various control devices from source testing requirements, but disagreed with other aspects of these provisions. The commenter stated that it is unreasonably burdensome and unnecessary to require inlet and outlet emissions to be determined.

Response: The EPA disagrees with the commenter on the need to measure inlet emissions when previous source tests have been conducted. Unlike the continuous and batch front-end process vent provisions, which require a

percentage emission reduction, the back-end provisions require that emissions be reduced by the control or recovery device to a level equivalent to the emissions that would occur if the facility were complying with the residual organic HAP limitations in section 63.494 [old section 63.487-1] through the use of stripping technology. In gathering and analyzing data from this industry, the EPA has found that fugitive emissions from process back-end operations are significant, and that many facilities have previously failed to account for these emissions. The requirement to determine the inlet emissions, in conjunction with a determination of the residual organic HAP content of the material being fed to the back-end process operations, allows the calculation of these fugitive emissions using a straightforward material balance. The EPA believes it is imperative that these fugitive emissions be accounted for in this manner. The EPA also believes it is unlikely that previous testing programs have been conducted using an acceptable method of determining the residual organic HAP content of the material being fed to the back-end operations (see Section 6.3.1) and an acceptable method of determining the inlet emissions to the control device. However, the EPA does not wish to rule out the possibility that this situation could occur. Therefore, section 63.496 [old section 63.487-3] (a) has been changed to allow the use of previous test results, provided that all conditions of section 63.496 [old section 63.487-3] (b) were met and equivalent test procedures were used.

6.4 REPORTING AND RECORDKEEPING

Comment: The commenter requested that the EPA provide a table like Table 5 under the batch process vent provisions, to demonstrate the monitoring, recordkeeping, and reporting requirements for the back-end process provisions.

Response: The EPA agrees that such a table would be helpful to both the regulated industry and agencies charged with implementing the regulation. Therefore, Table 8 in the final rule has been added to demonstrate the monitoring, recordkeeping, and reporting requirements for the back-end process provisions, as suggested by the commenter.

6.5 ASSOCIATED DEFINITIONS

Comment: Numerous commenters (IV-D-3, IV-D-5, IV-D-10, IV-D-12, IV-D-16, and IV-D-27) stated that, for solution processes, the definition of "crumb rubber dry weight" should not exclude extender oils and carbon black for compliance purposes, because these are an integral part of the polymer. The commenters indicated that solution and emulsion polymerization are extremely different in this regard and should be separated for the purposes of determining total weight and calculating residual HAP. In the solution process, the oil is incorporated into the polymer prior to stripping, and thus the combination should be considered one entity. According to the commenters, the oil has a propensity for holding residuals, and subtracting the oil weight yields an artificially elevated residual HAP content per unit crumb, because HAP are found in the oil and carbon black. The commenters indicated that this definition will not result in any environmental benefit, but it may lead to the replacement of oil-extended grades with non-oil-extended grades, which are more expensive.

Response: Upon review of these comments and further discussion of this issue with commenters (docket item no. IV-E-9), the EPA has concluded that the definition of crumb rubber dry weight should be revised such that the weight of oil extender and carbon black added prior to coagulation should not be excluded from the crumb rubber dry weight.

Comment: Several commenters (IV-D-5, IV-D-10, IV-D-18, and IV-D-8) commented on the proposed definition of "stripping technology." Three of the commenters stated that

chemical stripping should be included in the definition, and the other commenter (IV-D-18) stated that the EPA should clarify the definition of "stripping technology" to generally include all types of devolatilization, since it already refers to the removal of organics by the use of heat or vacuum.

Response: The EPA has amended the definition of stripping technology in accordance with commenter suggestions. The revised definition reads as follows:

> Stripping technology means the removal of organic compounds from a raw elastomer product by the use of heat and/or vacuum. Stripping technology includes steam stripping, direct volatilization, chemical stripping, and other methods of devolatilization.

Comment: One commenter (IV-D-17) stated that the word "week" should be defined to avoid compliance problems, as section 63.487-1 establishes back-end residual organic HAP limitations in terms of weekly weighted averages. The commenter suggested that a week should be any consecutive seven operating day period, and those days when a plant is not producing rubber should not be included in the weekly average. A suggested definition was included.

Response: As discussed in section 6.2.1, the averaging period for the back-end residual organic HAP limitations in the final rule was changed to monthly. Therefore, a definition of week is not needed. However, the concept of the commenter's suggestion is still valid, and the EPA has defined month in the final rule as a calendar month or "a repeating 30-day period". The monthly weighted average residual organic HAP content is to be calculated based on the actual production during the calendar month. The EPA believes that moving to a monthly average should eliminate the concern expressed by the commenter over non-production periods.

Comment: Several commenters (IV-D-3, IV-D-5, IV-D-10, and IV-D-18) stated that the definition of "grade" should be

revised to distinguish physical or chemical alterations that might result in differences in HAP emissions. They suggested that appropriate characteristics to use in defining grades include molecular weight, monomer composition, presence/absence of extender oil and/or carbon black, while changes in minor constituents such as antioxidants should not be considered grade changes. The commenters suggested that the proposed definition of "grade" could result in small changes that do not affect emissions being considered grade changes, and triggering burdensome requirements. Several of the commenters supported the Texas Natural Resource Conservation Commission's definitions of normal bound styrene grade (less than 24.5 percent styrene) and special grade (greater than or equal to 24.5 percent styrene) for identifying the grades of styrene butadiene elastomers produced by emulsion processes. For solution processes, grades could be identified based on the solvent used. One commenter (IV-D-18) provided a list of examples and posed the question whether EPA would say there are two grades of elastomer involved. The commenter requested the EPA's response to these examples, and stated that in most cases, a classification as two grades for these examples would constitute an excessive burden.

Response: The elastomer "grade" was integral to three elements of the back-end provisions of the proposed rule. For facilities complying with the provisions of section 63.487-1(a) using stripping technology and periodic sampling, a sample of crumb rubber or latex was required to be taken "each operating day for every grade of elastomer processed" for continuous stripping operations. The residual HAP content of this sample, determined in accordance with the specified test methods, would be used in the weekly weighted average residual organic HAP content.

Upon additional conversations with these commenters (Docket item number IV-E-10) the EPA has concluded that the

requirement described above could produce an unintended, and possibly unreasonable, burden. The EPA believes that the intent of these proposed requirements, which was to account for the variability of the residual HAP content of different polymers, can be achieved by requiring daily sampling. The industry explained that one sample per day would, for all practical purposes, mean that all "grades" of polymer produced would be sampled and included in the weighted average. In conclusion, the EPA has changed the sampling requirements in section 63.495 [old section 63.487-2] (b)(2)(ii) to require that for continuous stripping operations, at least one sample is to be taken each operating day. Therefore, this eliminates the use of the term grade in this context, which alleviates the primary concern of the commenters.

The second use of the term "grade" is in section 63.495 [old section 63.487-2] (c). An owner or operator complying with the residual organic HAP limitations through the use of stripping technology and demonstrating compliance by monitoring stripper parameters must establish stripper monitoring parameters for each grade of elastomer produced.

The third use of the term grade was in the carbon disulfide limitations for SBRE producers in section 63.500 [old section 63.487-7]. The owner or operator was required to develop (and subsequently follow) a standard operating procedure, for every grade of rubber produced using a sulfur-containing reaction terminator (shortstop agent), in order to monitor concentrations of CS_2 in the dryer stacks. A distinction between SBRE polymer grades is needed to distinguish between polymers with different CS_2 emission potentials. The EPA agrees with the commenters that the proposed definition of grade was much too broad to serve these purposes. Therefore, the definition of grade has been

revised in accordance with commenter suggestions, as follows:

> Grade means the subdivision of an elastomer product type by different characteristics such as molecular weight, monomer composition, significant mooney values, and the presence or absence of extender oil and/or carbon black.

6.6 CARBON DISULFIDE LIMITATIONS

Comment: Several commenters (IV-D-5, IV-D-10, IV-D-11) stated that section 63.487-7 should be revised to specify that if carbon disulfide precursors are not used in the SBR emulsion process, the requirements of this section should not apply, including testing and standard operating procedure requirements (i.e., the requirement should apply only to sulfur-containing shortstopping agents, not all sulfur-containing additives).

Response: The intent of section 63.500 [old section 63.487-7] was to instruct the owner/operator in how to demonstrate and assure compliance with the carbon disulfide emissions requirements. The EPA has investigated this issue and learned that SBRE is produced with sulfur-containing additives that do not produce carbon disulfide emissions. Therefore, the EPA agrees with the commenters that this section in the proposed rule was too general. The EPA has revised this section in the final rule so that testing and standard operating procedure requirements apply only when sulfur-containing shortstop agents are used, and not when all sulfur-containing additives are used.

Comment: Two commenters (IV-D-10 and IV-D-11) suggested that when testing is required for the CS_2 limitation, the standard should be expressed as a mass limit, as required in many permits, rather than as a stack gas concentration. While no commenter suggested a limit on the quantity of raw material as a possible alternative, one commenter (IV-D-25) stated that placing limits on the quantities of raw materials used is an acceptable method of

limiting carbon disulfide emissions only if testing is used to verify the level of emissions, because there is not a linear connection between the quantity of raw material and resultant emissions. The commenter stated that changes in the raw materials or significant process changes would require a retest to confirm continued reduction of carbon disulfide emissions.

Response: The EPA's primary reason for using a concentration limitation for carbon disulfide (CS_2) instead of an annual mass emission limit was to avoid a limitation that could possibly result in a production limitation. It was reported to the EPA that CS_2 emissions are proportional to the amount of sulfur-containing shortstop used. Therefore, to limit the annual mass emission rate of CS_2 would result in a limitation of the sulfur-containing shortstop precursor used, which in turn would set a limit on the production of those products that use the sulfur-containing shortstop. Additionally, a concentration limit is easier to calculate and enforce compared to an annual mass emission rate.

The EPA re-evaluated the 10 ppmv limit by gathering additional data. The proposed limit was calculated as the average of the data from only the best performing facility. Since proposal, the EPA was able to calculate tested CS_2 concentrations from a second facility. Then, the EPA calculated the maximum CS_2 concentrations for both facilities. This was done by scaling up the CS_2 concentration using the ratio of their production capacity over their actual production rate. The average of both facilities' highest CS_2 concentration was then calculated and assigned as the MACT floor. The revised CS_2 limit is 45 ppmv.

Comment: The commenter stated that the rule should be revised to specify that only changes in the standard

operating procedures that could increase the concentration of carbon disulfide in a crumb dryer exhaust above 10 ppmv should require recertification of compliance, submittal of test results, and notification.

Response: The EPA agrees that the standard operating procedure for monitoring carbon disulfide emissions should be revised to specify that only changes in the standard operating procedure that increase carbon disulfide emissions require recertification. As noted above, several commenters noted that there are sulfur-containing additives other than reaction terminators (i.e., shortstops) that do not increase carbon disulfide emissions, thereby rendering the statement in the proposed rule to be too general. The final rule has been modified to reflect this change.

Comment: Two commenters (IV-D-5, IV-D-10) suggested that the sampling point for carbon disulfide performance testing be changed to a representative location after emissions exit the dryer prior to leaving the stack. One commenter stated that it is difficult to sample most dryer stacks where the dryer exhausts to the atmosphere. In addition, the commenter says that modifications to Method 18 are necessary to sample for carbon disulfide in a dryer stack, and he believes these changes should be allowed without undergoing Method 301 validation.

Response: The EPA contacted the commenter and learned that the modifications needed at their facility for testing carbon disulfide emissions are covered within the Method 18 format (REFERENCE DOCKET ITEM NUMBER). Therefore, modifications to Method 18 will not be needed and the comment is no longer valid.

7.0 WASTEWATER OPERATIONS

7.1 BASIS FOR THE STANDARDS

Comment: Two commenters (IV-D-17 and IV-D-10) pointed out that the wastewater provisions of subpart G that are referenced in section 63.488 of subpart U are the subject of litigation brought by the Chemical Manufacturers' Association against the EPA. Consequently, sources subject to these provisions cannot know what the final wastewater provisions, proposed to be incorporated into subpart U, will be. The commenters suggested that the EPA "reserve" the provisions of section 63.488 pending the outcome of the litigation. The commenter added that the EPA should indicate that when these provisions are finalized, they will be considered for incorporation into subpart U, a further comment period will be provided, and a compliance schedule will be provided allowing 3 years from the date section 63.488 is finalized for compliance. One commenter (IV-D-10) also stated that the definitions of "wastewater" and "point of generation" were challenged in the HON litigation, and these definitions must be amended in the final subpart U rule to conform to the outcome of the litigation.

Response: As part of the HON litigation proposal, the EPA will request comments specific to the elastomers rule. If comments specific to the elastomers rule are received they will be addressed as part of the HON rulemaking actions or in actions specific to the elastomers rule, depending on the comments. Therefore, the comment period for this rule will not specifically be reopened.

The EPA believes that the wastewater provisions and the other HON provisions should be referenced in the elastomers rule so that final resolutions of the HON litigation will be

automatically included in the elastomers rule. However, changes made to the HON will be evaluated by the EPA for applicability to this rule. The "automatic" part refers to the fact that text changes will not need to be made to this rule once the EPA, following notice and opportunity for comment, finds the HON changes to be applicable. If the EPA determines that any changes to the HON are not applicable to this rule, the elastomers rule will be revised to reflect that.

Comment: One commenter (IV-D-14) stated that the EPA has not recognized the differences between elastomers and SOCMI operations in establishing wastewater provisions for the proposed rule. The commenter stated that the EPA has not fulfilled its statutory requirement to consider controls appropriate to the source category. The commenter added that the references to the HON wastewater provisions increases the complexity of the proposed rule.

Response: The EPA rejects the suggestion by the commenter that the EPA simply incorporated the HON provisions without considering the appropriateness for the elastomer industry. In determining whether the controls were appropriate, the EPA compared the levels of control in place at elastomer production facilities with the HON levels of control. Based on this comparison, the EPA concluded that the HON wastewater applicability and control provisions were appropriate for the elastomer industry.

7.2 APPLICABILITY REQUIREMENTS

Comment: One commenter (IV-D-10) noted that the VOHAP threshold for regulation of new source wastewater streams (10 ppmw) is too restrictive, and that the EPA has not provided an economic justification regarding the achievability of the limit.

Response: In response to this comment, the EPA evaluated the new source MACT floor determinations for wastewater. In this analysis, the existing wastewater

controls were compared to the control level that would be required by the HON wastewater controls, and each facility was designated as being controlled at a level less than, equal to, or greater than the HON. For all subcategories except one (Butyl Rubber, which was less than the HON), the MACT floor for wastewater was determined to be equal to the HON, meaning that the majority of the facilities in the category or subcategory were controlled at the HON level of wastewater control. In many instances, facilities were reported to be controlled at the HON level because they had all uncontrolled wastewater streams that would not require control under the HON.

No facility in any category or subcategory was designated as a facility with controls greater than the HON. Therefore, for each subcategory, the new source MACT floor level was set at the HON new source level.

Upon review, the EPA noted that no facility in any subcategory reported wastewater controls equivalent to the new source levels. In fact, no facility-wide wastewater controls greater than the existing source HON limitations were reported. Therefore, the EPA believes that this comment is valid, and has changed the final rule so that the new sources are subject to the same wastewater requirements as existing sources.

Comment: One commenter (IV-D-10) stated that many elastomer product process wastewater streams will have VOHAP concentrations less than 50 ppmw, and monitoring and recordkeeping requirements are not needed for these streams. The commenter recommended that the EPA exempt from regulation "any process stream at an affected source with an average flow rate of less than 0.02 liters per minute or an average VOHAP concentration of less than 50 ppmw."

Response: In the proposed rule, the definition of wastewater stated that a stream must contain at least 5 ppmw of VOHAP and have a flow rate of 0.02 liter per minute.

Given the change in the definition of a Group 1 wastewater stream for new sources, the EPA believes that it is reasonable to revise the definition of wastewater in accordance with the commenter's suggestion. Therefore, the definition in the final rule has been revised accordingly.

Comment: Two commenters (IV-D-5 and IV-D-10) suggested that paragraph 63.488(c)(1) be revised to indicate that back-end wastewater streams "where the stream only comes from equipment that only produce latex products" are exempt from control requirements. The proposed rule currently exempts "Back-end wastewater streams at affected sources that produce only latex products."

Response: The EPA believes that the exemption listed in section 63.501(c)(1) should apply to equipment dedicated to the production of latex that is located at an affected source that also produces a solid rubber product. Therefore, the final rule was changed in accordance with the suggestion of the commenters.

Comment: Three commenters (IV-D-5, IV-D-4, IV-D-10, and IV-D-17) suggested that, in section 63.488(c) the EPA clarify that sources exempt from back-end residual HAP compliance requirements under section 63.487-1(a)(4) [i.e, Hypalon, NBR, epichlorohydrin, butyl rubber and halobutyl rubber] are also exempted from back-end wastewater controls. The commenters assumed that since wastewater streams from affected units subject to residual HAP limits are exempt, affected units without back-end residual HAP limits should also be exempt.

Response: The back-end residual organic HAP limitations that apply to producers of ethylene-propylene rubber, polybutadiene rubber by solution, styrene-butadiene rubber by solution, and styrene-butadiene rubber by emulsion restrict the amount of HAP that enter the back-end of the process. If the facility producing one of these elastomer products is meeting the requirements of section 63.494 [old

section 63.487-1] (a) by stripping sufficient residual organic HAP from the polymer before it enters the back-end process operations, the EPA believes that it is not appropriate to require control of back-end wastewater streams. The rationale behind this is that if sufficient HAP were in back-end wastewater streams to require control, the residual organic HAP limitations in section 63.494 [old section 63.487-1] (a) should be lowered. Since facilities producing elastomer products listed in section 63.494 [old section 63.487-1] (a)(4) - neoprene, Hypalon, nitrile-butadiene rubber, butyl rubber, halobutyl rubber, epichlorohydrin elastomer, and polysulfide rubber - are not required to limit the amount of residual organic HAP entering the back-end of the process, the EPA does not believe that it is appropriate to exempt them from the back-end wastewater requirements.

7.3 SELECTION OF EMISSION LIMITS

Comment: One commenter (IV-D-11) stated that the wastewater stripping provisions in subparts F and G, which are incorporated into subpart U, are not appropriate for the elastomer manufacturing industry. He added that the stripper dimensions referred to in the HON will not achieve the efficiencies necessary to meet the standards, because the rubber manufactured can coat trays and plug columns. The commenter requested that the EPA state that equipment for the elastomer industry should not be the same as for the HON. Alternatively, existing stripping systems should be considered adequate if they meet the wastewater and residual HAP limits.

Response: The HON wastewater provisions referenced in section 63.501 include four options for treating Group 1 wastewater streams. These are (1) recycle the stream back to the process, (2) reduce the VOHAP concentration of each individual organic HAP to less than 10 ppmw, (3) treat the stream in a steam stripper meeting the specifications

contained in the rule, or (4) reduce total VOHAP mass flow rate by 99 percent. If an owner or operator believes that the design stream stripper is not appropriate for their process, three other options are provided. Therefore, the EPA does not believe a rule change is necessary in response to this comment.

Comment: One commenter (IV-D-15) voiced concern that the target removal efficiencies for Group 1 wastewater streams may not be achievable for wastewater generated from latex production by emulsion, because soap in the wastewater hinders the strippability of the VOHAP.

Response: This commenter provided no data to allow the EPA to evaluate the validity of this concern. Therefore, no action was taken on this issue.

Comment: One commenter (IV-D-15) wondered whether biological treatment with a suppressed sewer system may be used as an alternative control method to steam stripping. The commenter stated that biological treatment is highly effective for biodegradable HAP.

Response: The EPA recognizes that biological treatment is a viable method of reducing the organic HAP concentration in wastewater. In fact, the EPA considers one of these compliance options, the use of biological treatment with enclosed sewers to the biological treatment operation unit, a favorable option for this situation because styrene is readily biodegraded. Section 63.138(e) of subpart G allows the use of a biological treatment unit as a wastewater treatment alternative.

Comment: One commenter (IV-D-15) stated that covering drains and impoundments as required for the suppression of emissions from process wastewater may cause fire or explosions because of VOHAP build-up in the head space. The commenter asked whether other methods, such as maintaining a water seal, may be used to suppress these emissions.

Response: The EPA recognizes that some of the wastewater requirements create confined air spaces over wastewater containing organic HAP, which can cause the accumulation of organic compounds that are volatilizing from the wastewater in the headspace. However, the EPA also believes that the institution of common safety practices can avoid fires, explosions, exposure of personnel to oxygen-deficient air, and other safety issues.

Comment: One commenter (IV-D-18) stated that the EPA should remove the definition of "Group 1 and Group 2 wastewater streams" that says these are identified in subpart G, and include this term on the list of terms whose definition has been incorporated from subpart G. As proposed, these terms are not definitions.

Response: As discussed above, the definition of Group 1 and Group 2 wastewater streams for new sources has been changed, meaning that the HON definitions are no longer applicable. Therefore, Group 1 and Group 2 wastewater streams are defined in subpart U.

8.0 EQUIPMENT LEAKS

As discussed in Section 3.0, there was confusion among the commenters regarding the difference between storage vessels and surge control vessels. Therefore, some comments regarding surge control vessels are addressed in Section 3.0.

8.1 APPLICABILITY REQUIREMENTS

Comment: One commenter (IV-D-18) stated that EPA should revise its cross-reference to incorporate the HON definition of "in organic hazardous air pollutant service." As written, the rule incorporates the definition of the term "in organic hazardous air pollutant."

Response: The EPA intended for the HON term "in organic hazardous air pollutant or in organic HAP service" to apply to the proposed rule, and this term has been incorporated into the final rule.

Comment: One commenter (IV-D-27) stated that the proposed rule should include an exclusion for reciprocating pumps that must leak small quantities of product to lubricate and cool the shaft and seal areas. These pumps will fail the leak definition of 500 ppm, and although some of these pumps have been replaced, there remains a technical problem with replacing the pump in two plant locations. The commenter stated that it is not clear whether the quality improvement program in 63.176 will offer any relief. The commenter added that the provisions of section 63.509 should be incorporated into this rule.

Response: The EPA agrees that an exemption for the situation described by the commenter is reasonable. The EPA included a similar exemption in the proposed Polymers and Resins IV regulation (subpart V). Therefore, section

63.502(d) has been added that exempts these reciprocating pump systems.

8.2 COMPLIANCE DATES

Comment: Several commenters (IV-D-5, IV-D-8, IV-D-18) requested that section 63.481(c) of the rule be revised to provide three years for compliance with equipment leak provisions for compressors (instead of six months) under certain circumstances. One commenter (IV-D-18) said this is needed when the compressor must be replaced, or the distance piece must be recast. The other commenters stated that changes likely to require State construction permits and therefore requiring three years for compliance are: (1) existing reciprocating compressors which would require design modifications to connect to a closed-vent or recovery system; and (2) systems where existing compressors would be replaced.

Response: The EPA agrees with the commenters, and has amended the compliance schedule for compressors in accordance with these comments.

Comment: One commenter (IV-D-15) questioned what the definition of "affected equipment" for equipment leaks. He asked whether the criteria in the HON (all equipment which contain or contact a fluid which is at least 5 percent VOHAP) also apply to the Polymers and Resins I NESHAP. Another commenter (IV-D-18) indicated that in the cross-reference to incorporate the HON definition of "in organic hazardous air pollutant service," the proposed rule appears to inadvertently leave off the word "service."

Response: Section 63.502 of subpart U directly incorporates the requirements of subpart H (HON equipment leak requirements), and section 63.482 directly incorporates the subpart H definition of "in organic hazardous air pollutant service" which means "that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic HAP's as

determined . . . ." The commenter was correct in pointing out that the reference to this definition was incorrect, which could possibly be the source of the confusion expressed by other commenter. This error has been corrected in the final rule.

8.3 ASSOCIATED DEFINITIONS

Comment: One commenter (IV-D-18) supported the provisions allowing three years' compliance time for existing surge control vessels subject to 63.170 of subpart H. However, the commenter indicated that the definitions of Group 1 and Group 2 storage vessels are not consistent with the HON, as the HON includes surge control vessels in a list of equipment that are not storage vessels. The commenter recommended that the subpart U rule use the HON's list of items that are not storage vessels and incorporate this list into the definitions of Group 1 and Group 2 storage vessels.

Response: The EPA did not intend a surge control vessel to be considered a storage vessel. Therefore, the term "surge control vessel" has been added to the list within the definition of "storage vessel" of tanks and vessels that are not considered storage vessels.

9.0 EMISSIONS AVERAGING

Comment: Two commenters (IV-D-18 and IV-D-19) supported the concept of emissions averaging included in the proposed rule. They added that it is of critical importance to facilities for determining the most cost-effective and reliable way of achieving required emissions reductions. However, one of the commenters (IV-D-18) stated that the provisions are so long and complicated that they are not certain anyone will actually use them.

Response: The EPA allows existing affected sources to use emissions averaging if they can achieve at least a comparable hazard and risk benefit to point-by-point compliance. As the EPA stated at proposal, although there is limited potential for emissions averaging in this rule, the EPA did not want to exclude emissions averaging from the rule. This decision is in keeping with the EPA's general policy of encouraging the use of flexible compliance approaches where they can be properly monitored and enforced. The EPA's goal in providing emissions averaging provisions in this and other rules has been to make emissions averaging available to sources faced with some emissions points that are particularly difficult or costly to control.

Comment: One commenter (IV-D-14) stated that it would be appropriate to include batch front-end process vents in emissions averaging. The commenter added that this would be advantageous to owners and operators, without having a detrimental effect on the environment. The commenter reported having an on-going opportunity to employ averaging across batch reactor vents at their facilities, and they are planning to submit additional information to the EPA on this

topic. The commenter also suggested that equations 35 and 61 in sections 63.490(g)(1) and (h)(1) should be changed to include actual and allowable terms for batch process vents.

Response: The final rule allows emissions averaging of existing batch front-end process vents. The equations in sections 63.503(g)(1) and 63.503(h)(1) have been revised to include both batch front-end process vents and aggregate batch vent streams.

Comment: One commenter (IV-D-14) disagreed with the fact that process units that have been shut down cannot be used to generate credits or debits, adding that this has no technical or regulatory validity.

Response: It is not appropriate to allow emissions averaging credits for process units that have been shutdown. Regardless of the motivation for a shutdown, the emission reduction from the production curtailment is not made permanent if emissions averaging credit is allowed. If credit were granted for the emission reduction, the source could then emit an equal amount of emissions from its debit generators. This is in contrast to point-by-point compliance, where if a point is shut down, the emissions reduction is permanent. To allow credit in emissions averaging for permanent shutdowns results in less stringent compliance and more total emissions than point-by-point compliance, in which case emissions averaging does not represent an equivalent compliance alternative.

Furthermore, allowing emissions averaging credits for the addition of new process units which are replacing older process units that have been shutdown is not appropriate. Although the EPA encourages affected sources to replace older process units to account for improved technologies, where cost-effective, emissions averaging credits will not be allowed in these circumstances because new sources are not allowed to emissions average under the provisions of the

rule. The rationale for not allowing emissions averaging for new sources is included in Volume 2C of the HON BID (EPA-453/R-94-003c; March 1994).

10.0 PERFORMANCE TESTING

Numerous comments were received regarding the proposed residual organic HAP test methods. These comments are addressed in section 6.0. Following are comments regarding the general performance test requirements in the rule.

Comment: One commenter (IV-D-18) stated that the rule should be revised to allow the use of alternative test methods and procedures approved by the Administrator. The commenter stated that requiring an alternative test method to be validated using Method 301 is overly burdensome, because it assumes that all possible things would go wrong at the same time. The commenter suggested that all references to Method 301 should be deleted from the rule. The commenter cited 10 instances in the rule where revisions are needed to allow the use of alternative test methods.

Response: The EPA disagrees with the commenter regarding the usefulness of Method 301. The EPA believes that adequate flexibility has been added to the final rule with the addition of provisions allowing the use of Method 25A and allowing demonstrations of compliance based on TOC. The EPA cannot justify foregoing the use of Method 301 to validate alternative test methods when no specific comments concerning its use were provided. If commenters wish to pursue changes to the procedures for obtaining permission to use alternative test methods, they should address concerns to the General Provisions. [Note: Use of different EPA approved test methods is discussed in the next response.]

In response to the commenter's concern that some provisions of the proposed rule specified a specific test method and did not provide flexibility to pursue an alternative test method, the final rule has been changed to

specifically cite that other methods validated according to Method 301 are allowed. However, even when not specifically stated, owners or operators are always allowed to apply for use of an alternative test method under the General Provisions.

Comment: One commenter (IV-D-18) stated that the batch vent provisions in 63.486-4(b)(3) for exempting a source from performance test requirements are essentially useless, because requirements for testing are constantly changing in small ways, and it is unlikely that any test would ever have been performed with "the same" procedures as required under subpart U. Instead, the commenter suggested that if a performance test has been conducted to demonstrate compliance with any EPA-administered or EPA-supervised program, the EPA should allow that test to demonstrate compliance with subpart U.

Response: In response to this comment, the EPA considered the open-endedness of the commenter's request and considered it unreasonable to allow a test done using any EPA method to suffice for the performance test required by this rule. However, the EPA found it reasonable to allow tests done for compliance with an NSPS or NESHAP, where either total organic HAP or TOC or VOC were measured, to serve as a substitute for the performance test required under this rule.

Comment: One commenter (IV-D-18) stated that a performance test should not be required where process vents are sent to an RCRA incinerator that complies with 40 CFR part 264.

Response: The EPA agrees with the commenter that a performance test done for an RCRA should be acceptable for compliance with testing requirements under this rule; the final rule allows this. The proposed rule already exempted boilers or process heaters burning hazardous waste that are in compliance with 40 CFR part 266. In the final rule,

combustion devices that are in compliance with either 40 CFR part 264 or 40 CFR part 266 are exempt from performance testing requirements.

11.0 MONITORING

This section addresses comments on the general monitoring requirements in the proposed rule. Comments regarding the monitoring requirements of specific segments (i.e., batch process vents, back-end process operations) of the rule are addressed in the sections dedicated to those sections.

Comment: One commenter (IV-D-19) stated that the requirement in section 63.487-4(d)(1) for an exhaust gas flowmeter in bypass lines between the process and control device can be met with devices other than a gas flowmeter. Specifically, the commenter described a thermal oxidizer system at their plant which incorporates a bypass vent upstream of the oxidizer as a safety device. The commenter asserted that a sensor which would monitor and record the position of the bypass damper would serve the purpose of indicating whether a bypass was occurring equally well, and he interpreted the rule to include their system.

Response: The EPA agrees that the situation described by the commenter is an acceptable alternative to the options listed in section 63.497 [old section 63.487-4] (d)(1) and (2) to ensure that a control or recovery device is not by-passed. Therefore, this section of the rule was modified to allow the monitoring of damper or valve position as an alternative to a flow indicator, a car-seal, or a lock-and-key configuration.

This same requirement is also contained in section 63.489 [old section 63.486-3] (d). In this instance, the rule has been changed in the manner discussed above.

Comment: One commenter (IV-D-14) did not support the approach for determining monitoring levels that is provided

in paragraphs 63.492(b)(1)(iii)(A)(3 & 4), because the commenter asserted that it is not feasible for the parameters of each batch emission episode in each batch cycle for each elastomer product for each reactor to be continuously monitored. The commenter also disagreed with basing the level on the minimum or maximum of the average parameter values, because these values may vary widely, and erroneously indicate excursions. The commenter requested to work with the EPA to establish a more representative method for establishing monitor parameters.

Two commenters (IV-D-26, IV-D-14) disagreed with the use of "level" in the proposed rule. One commenter (IV-D-26) stated that "range," which was used in the HON, has been changed to "level" throughout the rule without adequate justification, and it is arbitrary. The commenters stated that "level" should be changed to "range" to provide greater flexibility and be consistent with the HON. One commenter (IV-D-14) further stated that paragraph (a)(3) suggests that a source may also have to comply with range requirements in the HON, and that the intent of this paragraph is unclear. This commenter suggested that this paragraph be deleted.

Two commenters (IV-D-14 and IV-D-18) expressed concern with the method for establishing minimum or maximum parameter monitoring levels in sections 63.492(b)(1)(iii)(A)(3) and (4). The commenters disagreed with the approach (as understood) whereby a minimum parameter level in a performance test becomes a maximum monitoring level, and a maximum parameter level in a performance test becomes a minimum monitoring level. The commenters contends that essentially, sources are required to use the worst-case number as the required operating level, which is not an accurate indicator of excursions, and that in order to achieve that level, production limits and stringent raw material specifications would have to be

implemented, leading to increased costs. Finally, one commenter (IV-D-18) stated that the worst aspect of these provisions is that they would have to be implemented for each piece of equipment, for each emission episode. This commenter stated that this requirement alone is enough to guarantee litigation if it is not changed in the final rule.

Commenter IV-D-18 recommended that a "buffer zone" approach similar to that used in other NESHAP or NSPS be used instead, and that EPA revise the rule to allow a monitoring level anywhere within the range that has been demonstrated to achieve compliance. Alternatively, he states that at least the average of the minimum datapoints could be used to establish a minimum monitoring level, and likewise for a maximum limit. In the worst case, the commenter stated, the EPA should use the same approach as for continuous process vents, whereby the monitoring limit is set at the average of the test run levels.

Another commenter (IV-D-8) disagreed with the proposed rule's departure from the HON requirements by failing to allow the use of engineering assessments and manufacturers' recommendations in establishing the enforceable monitoring level. The commenter stated that it is not appropriate to rely upon HON requirements, while selectively imposing more stringent requirements than the HON.

Response: The approach for establishing parameter monitoring criteria in the final rule incorporates the concepts included in the HON rule, thus satisfying all of the commenter's concerns. This approach requires a performance test and then allows the owner or operator to use the results of the performance test in concert with engineering judgement to determine an operating parameter level that reflects proper operation of the control or recovery device. The final rule also retains the parameter monitoring methods included in the proposed rule which require a performance test and then specify that the level

is to be based on the maximum or minimum recorded values as appropriate. For example, when determining the maximum operating temperature for a condenser used to control a continuous process vent, the owner or operator would conduct three 1-hour test runs. For each test run, four 15-minute average values of the temperature would be recorded. The level would be the average of the maximum recorded temperature (15-minute average value) for each of the three test runs.

By allowing the affected source to choose between approaches, the final rule ensures that site-specific variation in emission point characteristics and control device designs are considered in establishing appropriate parameter monitoring levels.

Comment: One commenter (IV-D-18) stated that the highest (or lowest) datapoint used to calculate an average that then becomes a parameter limit (maximum or minimum), should be the point that determines whether or not a violation has occurred. The commenter asserted that unless parameters go beyond these levels, rather than the average level, no violation of the standard has occurred.

Response: The EPA believes the procedures contained in the proposed and final rule for determining when a parameter monitoring violation has occurred are valid. The EPA believes the basis used to develop the parameter monitoring level and the basis used to calculate average values for the monitored parameter are equitable in that the averaging times are equivalent. The data used to develop the parameter monitoring level is typically based on average values from a performance test (some parameter monitoring levels are not based on performance tests). The typical performance test entails three 1-hour test runs, and the average that determines the parameter monitoring level is calculated using a single 15-minute value from each test run. Likewise, average values for monitored parameters are

based on 15-minute values; the 24-hour average value is calculated using all valid 15-minute values, and this average is compared to the parameter monitoring level. Further, as stated in the proposal Basis & Purpose Document, the EPA has concluded that operating parameter monitoring is an acceptable way to determine whether control devices are being maintained and operated properly. The commenter is referred to Section 8.6 for the rationale on this point that was presented at proposal.

Comment: One commenter (IV-D-18) supported the provision under 63.492(d)(2) stating that where multiple parameters are monitored for the same control or recovery device, an excursion involving one or more parameters is considered a single excursion for the device. However, another commenter (IV-D-14) believed that the requirement in paragraphs 63.492(d)(1) and (2), stating that missing one of multiple parameters in data collection is an excursion, is unreasonable. Commenter IV-D-18 also supported the approach whereby an excursion is determined by the batch cycle daily average, rather than by hourly or fifteen-minute data points. Finally, the commenter supported the fact that under section 63.492(d)(2), "insufficient data" does not mean a single missing data point.

Response: These provisions are retained in the final rule. The EPA disagrees with the commenter's suggestion that the EPA should allow an excursion for one parameters for those devices with multiple parameters. The EPA asserts that all parameters that are monitored for an air pollution control device need to be in compliance to assure that the device is operating correctly.

Comment: One commenter (IV-D-18) expressed support for the provision that excursions during a startup, shutdown, or malfunction are not considered excursions, as long as the process startup, shutdown, malfunction plan is being followed. In general, the commenter supported the excursion

provisions established in the HON, and supports the inclusion of some of these concepts in the Polymers and Resins I rule, such as the use of daily average parameter values to determine excursions.

Response: This provision is retained in the final rule.

Comment: Several commenters (IV-D-8, IV-D-14, IV-D-18, and IV-D-26) stated that the EPA should provide a number of allowed excursions in the rule for every annual permit reporting period. The commenters asserted that requiring perfect compliance is neither cost-effective nor environmentally beneficial.

Response: In the final rule, the EPA decided to excuse a certain number of excursions for each reporting period. This decision was based on data and information presented during public comment on the HON and reiterated in public comments received on this rule and during industry meetings held subsequent to proposal that indicated that a certain number of excursions could be expected even with properly operated pollution control devices. The EPA also concluded that not allowing excused excursions would impose significant additional capital and operating costs on the affected source for only negligible corresponding reductions in air emissions. As is always the case, a State has the discretion to impose more stringent requirements than the requirements of NESHAP and other federal requirements and could choose not to allow the excused excursion provisions of this rule.

The EPA considered the number of excused excursions that would be most appropriate for this standard and determined that the number of excursions allowed in the HON would be reasonable. Therefore, the final provisions allow a maximum of six excused excursions for the first semiannual reporting period, decreasing by one excursion each semiannual reporting period. Starting with the sixth

semiannual reporting period (i.e., the end of the third year of compliance) and thereafter, affected sources are allowed one excused excursion per semiannual reporting period.

Each excursion that occurs during an operating day must be designated as an excused excursion in order for the affected source to be considered in compliance. In other words, if multiple control devices or multiple emission points experience an excursion, the owner or operator must designate each excursion as "excused" using the allowable excused excursions remaining for the semiannual reporting period in order to be in compliance. As specified in the final rule, when multiple parameters related to a single emission point or single control device are outside of their parameter monitoring levels on the same day, only one excursion has occurred. Furthermore, problems with one control device can only result in one excursion per day. For example, if multiple emission points are ducted to the same control device, and the parameter monitoring levels for the control device are exceeded, this would be a single excursion.

12.0 RECORDKEEPING AND REPORTING

Comment: The commenter stated that most pilot flame outages occur when emissions are not being routed to the flare. Consequently, the commenter asserted the requirements in section 63.487-5(d)(5)(ii)(E) for records of the times and durations of these outages are inappropriate. The commenter added that the General Provisions state that failure to comply with "normal" requirements are not violations if the startup, shutdown, malfunction plan is followed. The commenter noted that these recordkeeping requirements should suffice.

Response: The EPA agrees with the commenter, and has included the suggestions in the final rule.

Comment: One commenter (IV-D-18) supported the provision in section 63.486-5(f)(2)(iv) of the proposed rule that states if all monitored parameters are within the required range, that fact may be recorded, and an average value for the batch cycle would not have to be recorded. The commenter also suggested that in that situation, they should not be required to retain records of individual recorded values.

Response: Compliance with the operating conditions is based on the daily average value of continuously monitored parameters. If all recorded values for a monitored parameter during an operating day are within the defined operating level established in the Notification of Compliance Status or operating permit, the owner or operator may record this fact and forego calculating a daily average (or batch daily average) value. [Note: The final elastomers rule requires an owner or operator to establish and monitor operating parameter levels.]

Comment: One commenter (IV-D-26) suggested that the rule allow for manual recordkeeping, as is allowed under section 63.151(g)(3) of the HON. These readings should be allowed at four hour intervals when the control device normally operates in steady-state, or, for batch operations, they should occur during the peak loading conditions of a batch cycle.

Response: The proposed and final rules allow non-automated monitoring and recording systems that meet the requirements specified in section 63.506(g)(2). These provisions state that manual reading and recording of the value of the relevant operating parameter must be performed no less frequently than once per hour. These provisions are identical to section 63.151(g)(3) of the HON. The decision to retain the hourly timeframe and to not switch to four hour intervals, as requested by the commenter, was made to ensure consistency with the continuous monitoring requirements requiring retention of hourly values for use in calculating the daily average.

Comment: One commenter (IV-D-18) requested that all "universal" recordkeeping requirements should be eliminated from the rule. The commenter defined these as instances where the EPA requires records to be kept that demonstrate routine compliance. Instead, the commenter stated that only records demonstrating excursions/violations should be required to be kept.

Response: Under section 114(a) of the Clean Air Act, the EPA may require owners or operators to demonstrate that each emission unit remains in compliance at all times. In order to ensure such compliance, a means must exist for verifying compliance on a continuous basis. Regulations must, therefore, establish monitoring requirements that are capable of determining continuous compliance with the applicable standards. The EPA believes that the recordkeeping and requirements of the final elastomers rule

are necessary to show compliance with the rule. The EPA will continue to require owners or operators to keep records, regardless or whether there was an excursion or not. These records are necessary to prove compliance, when no excursion has occurred, and are used to determine the severity of a violation, and, thus, how much of a penalty should be assessed, when an excursion does occur. If an excursion occurs, and no records have been kept regarding the severity of the excursion, a maximum fine of up to $25,000 per day per control device could be assessed.

The EPA has made every effort to reduce the recordkeeping requirements of the final elastomers rule. All of the provisions of the HON that reduce recordkeeping for parameter monitoring of control devices have been incorporated into this rule. In addition, the EPA reviewed the recordkeeping required by the proposed rule and has made even further reductions in the amount of information that is required to be recorded. For instance, the final rule has been changed to require recording and retention of hourly average values of continuously monitored values. The proposed rule required calculation of 15-minute averages. Under the proposed rule, if the daily average value was above the minimum or below the maximum established levels (i.e., excess emissions occurred), the 15-minute values had to be retained; if the daily average value was within the established level, the 15-minute values could be converted to hourly averages and the hourly averages could be retained instead of the 15-minute averages. Upon reconsideration, the EPA found the proposed two-step process (of first computing and recording 15-minute averages, and then being allowed to convert them to hourly averages for record retention) to be burdensome and unnecessary. Hourly average values provide a sufficient record to support the calculation of the daily average value of a parameter. Therefore, to reduce the recordkeeping burden, the rule has

been changed to specify that only hourly averages must be retained for all days, regardless of whether or not excess emissions occurred. The rule no longer requires recording or retention of 15-minute average values.

For emission points where continuous parameter monitoring is required, the value of the parameter must still be measured at least once every 15 minutes, but only an hourly average must be recorded and retained. Many facilities already have computerized systems and monitor parameters more frequently than once every 15 minutes for process control purposes. The 15-minute monitoring frequency is consistent with the General Provisions and previous NSPS and NESHAP for emission points from similar industries.

The final elastomers rule and the General Provisions require records to be kept for five years, which is consistent with the recordkeeping requirements of section 70.6 of the operating permit program and other NESHAP. Storage of records for more than five years would be burdensome, and any compliance issues should be identified within five years. Furthermore, the statute of limitations for enforcement is five years so there is no reason to keep records for a longer period of time.

Comment: Several commenters (IV-D-18 and IV-D-26) stated that the reporting requirements in the proposed rule were excessive. One commenter suggested that requirements for all routine reports should be deleted, as the information they provide is redundant with the annual operating permit certification requirement. The other commenter (IV-D-18) stated that the reporting provisions in the rule should be significantly revised in order to reduce burdens. Specifically, this commenter suggests that the EPA eliminate any five of the reports required under the rule. Barring elimination of these reports, the commenter suggested that revisions be made to minimize burdens. For

example, the commenter stated that 63.493(b)(6)(iv)(A) be revised to say that if a test report has already been sent in under any rule, the source would not be required to send in another one. The commenter suggested that the EPA review the reports and eliminate reports where a small fraction of the reports are never reviewed in detail by the enforcement agency, or at least eliminate data elements that are seldom reviewed. A third commenter (IV-D-16) stated that the compliance-related reporting requirements should be deleted, because the Title V permit certification assures facility compliance.

Response: The periodic reporting system of semiannual reporting is in conformance with section 70.5(c) of the operating permits program, which states that facilities are required to submit reports no less frequently than once every six months. The operating permits program contains monitoring, recordkeeping, and reporting requirements minimally sufficient for a facility to verify compliance and submit compliance certifications. The requirements in the operating permit program serve as a baseline minimum for all facilities subject to Title V. However, for facilities subject to other federal standards (e.g., NESHAP), more frequent or substantial monitoring, recordkeeping, and reporting may be necessary to certify compliance. Consequently, regulations developed under Title III, including the elastomers rule, will incorporate additional requirements that go beyond the minimal requirements contained in the operating permits program. Facilities must comply with only the most stringent requirements. Therefore, duplicate records or reports are not required.

Comment: Two commenters (IV-D-18 and IV-D-8) noted that section 63.493(b)(7)(i) requires sources to have a startup, shutdown, and malfunction plan. They noted that discussion of start up, shutdown, and malfunction plans also appear in section 63.493(b), where the reports that must be

submitted to the EPA are specified. They asserted that this implies the startup, shutdown, malfunction plan must be routinely submitted to the EPA. The commenters suggested that the EPA clarify that routine submitting of the SSM plan would not be required by the rule, and move this requirement out of the reporting into the recordkeeping section of the rule.

Response: The startup, shutdown, and malfunction plan required by section 63.10(d)(5) of subpart A is not required to be submitted to the Administrator. The provisions of the final rule have been changed to clarify that the startup, shutdown, and malfunction plan should be kept onsite. If, at any time, the startup, shutdown, and malfunction plan is not followed, this should be described and reported in the Periodic Report.

Comment: Three commenters (IV-D-10, IV-D-8 and IV-D-26) disagreed with the SSM reporting provisions. The commenters believe that the requirement in the proposed rule for sources to report a deviation from the startup, shutdown, and malfunction (SSM) plan within two hours is unreasonable. The commenters also suggested that the EPA should eliminate the requirement for periodic semiannual SSM reports, and only exceptions reporting should be required. Two of the commenters (IV-D-10 and IV-D-26) stated that sources in compliance should only be required to maintain records showing that no excursions occurred.

Response: If, at any time, the startup, shutdown, and malfunction plan is not followed, this should be described and reported in the Periodic Report.

With respect to the commenter's request to only document and report deviations from the startup, shutdown, and malfunction plan when they result in a violation, the requirements in the final rule have not been changed. The EPA believes that the documentation and reporting of all deviations is necessary for the EPA to evaluate the adequacy

of the startup, shutdown, and malfunction plan. Since the owner or operator is allowed to add to the startup, shutdown, malfunction plan as needed, deviations that occur frequently can be added to the plan to avoid a repetitive recordkeeping and reporting burden. Further, while a specific deviation may not result in a violation, it could be indicative of a problem that would eventually lead to a violation.