Part 61 - National Emission Standards for Hazardous Air Pollutants

1. The authority citation for Part 61 continues to read as follows: 42 U.S.C. 7401, 7412, 7413, 7414, 7416, 7601, and 7602.

§ 61.18 [Amended]

2. In § 61.18, paragraph (a) is amended by revising to read as follows:

§ 61.18 Incorporation by reference.

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(a) The following materials are available for purchase from at least one of the following addresses: American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

(1) ASTM D737-75, Standard Test Method for Air Permeability of Textile Fabrics, incorporation by reference (IBR) approved January 27, 1983 for §61.23(a).

(2) ASTM D835-85, Standard Specification for Refined Benzene-485, IBR approved September 14, 1989 for §61.270(a).

(3) ASTM D836-84, Standard Specification for Industrial Grade Benzene, IBR approved September 14, 1989 for §61.270(a).

(4) ASTM D1193-77, 91, Standard Specification for

Reagent Water, IBR approved for Appendix B: Method 101, Section 7.1.1; Method 101A, Section 7.1.1; and Method 104, Section 7.1; Method 108, Section 7.1.3; Method 108A, Section 7.1.1; Method 108B, Section 7.1.1; Method 108C, Section 7.1.1; and Method 111, Section 7.3.

(5) ASTM D2267-68, 78, 88, Aromatics in Light Naphthas and Aviation Gasoline by Gas Chromatography, IBR approved September 30, 1986, for §61.67(h)(1).

(6) ASTM D2359-85a, 93, Standard Specification for Refined Benzene-535, IBR approved September 14, 1989 for §61.270(a).

(7) ASTM D2382-76, 88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved June 6, 1984 for §61.245(e)(3).

(8) ASTM D2504-67, 77, 88, 93, Noncondensable Gases in C_3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved June 6, 1984 for §61.245(e)(3).

(9) ASTM D2986-71, 78, 95a, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for Appendix B: Method 103, Section 6.1.3.

(10) ASTM D4420-94, Standard Test Method for Determination of Aromatics in Finished Gasoline by Gas Chromatography, IBR approved for §61.67(h)(1).

(11) ASTM D4734-87, 96, Standard Specification for Refined Benzene-545, IBR approved September 14, 1989 for §61.270(a).

(12) ASTM D4809-95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §61.245(e)(3).

(13) ASTM E50-82, 86, 90 (Reapproved 1995), Standard Practices for Apparatus Reagents, and Safety Precautions for Chemical Analysis of Metals, IBR approved for Appendix B: Method 108C, Section 6.1.4.

§ 61.20 [Amended]

3. Amend § 61.20 as follows:

a. Paragraph (a) is amended by revising the words "100,000 tons" to read "90,720 megagrams (Mg) (100,000 tons)."

b. Paragraph (b) is amended by revising the words "10,000 tons" to read "9,072 Mg (10,000 tons)."

c. Paragraph (b) is amended by revising the words "100,000 tons" to read "90,720 Mg (100,000 tons)."

61.21 [Amended]

4. In § 61.21(b), first sentence, the words "*Effective dose equivalent* means the sum of the products of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its distribution in the body of reference man" are revised to read "*Effective dose equivalent* means the sum of the products of the absorbed dose and appropriate effectiveness factors. These factors account for differences in biological effectiveness due to the quality of radiation and its distribution in the body of reference man."

§ 61.23 [Amended]

5. Amend § 61.23 as follows:

a. In paragraph (a), the first sentence is amended by revising the abbreviation "EPA" to read "U.S. Environmental Protection Agency (EPA)."

b. In paragraph (a), the second sentence is amended by revising the word "Appendix" to read "appendix."

§ 61.24 [Amended]

6. Amend § 61.24 as follows:

a. In paragraph (a), the first sentence is amended by revising the words "used in making the calculation" to read "used in making the calculations."

b. In paragraph (a), the second sentence is amended by

revising the words "Such report shall" to read "This report shall."

§ 61.30 [Amended]

7. In § 61.30, paragraph (a) is amended by revising the words "Extraction plans" to read "Extraction plants."

§ 61.32 [Amended]

8. Amend § 61.32 as follows:

a. Paragraph (a) is amended by revising the words "10 grams" to read "10 grams (0.022 lb)."

b. Paragraphs (b) and (b)(1)(i) are amended by revising the words "0.01 μg/m^3" to read "0.01 μg/m^3 (4.37x10^{-6} gr/ft^3)" wherever they occur.

§ 61.42 [Amended]

9. Amend § 61.42 as follows:

a. Paragraph (a) is amended by revising the words "75 microgram minutes per cubic meter of air" to read "75 microgram minutes per cubic meter (μg-min/m^3) [4.68 pound minutes per cubic foot (lb-min/ft^3)] of air."

b. Paragraph (b) is amended by revising the words "2 grams per hour" to read "2.0 g/hr (0.0044 lb/hr)."

c. Paragraph (b) is amended by revising the words "10 grams per day" to read "10 g/day (0.022 lb/day)."

§ 61.52 [Amended]

10. Amend § 61.52 as follows:

a. Paragraph (a) is amended by revising the words "2300 grams" to read "2.3 kg (5.1 lb)."

b. Paragraph (b) is amended by revising the words "3200 grams" to read "3.2 kg (7.1 lb)."

§ 61.53 [Amended]

11. In § 61.53, paragraph (c), the second sentence is amended by revising the words "1,300 gms/day" to read "1.3 kg/day (2.9 lb/day)."

§ 61.55 [Amended]

12. Amend § 61.55 as follows:

a. In paragraph (a), the second sentence is amended by revising the words "1,600 g" to read "1.6 kg (3.5 lb)."

b. Paragraph (b)(1) is amended by revising the words "Reference Method" to read "Method" wherever they occur.

c. Paragraph (c)(4) is amended by revising the words "established in 2" to read "established in paragraph (c)(2) of this section."

§ 61.61 [Amended]

13. Amend § 61.61 as follows:

a. Paragraph (c) is amended by revising the words "polyvinyl chloride plant" to read "polyvinyl chloride (PVC) plant."

b. In paragraph (l), the first sentence is amended by revising the words "a least" to read "at least."

c. Paragraph (w)(3) is amended by revising the words "Test Method 21" to read "Method 21."

§ 61.62 [Amended]

14. In § 61.62, paragraph (b) is amended by revising the words "0.2 g/kg (0.0002 lb/lb)" to read "0.2 g/kg (0.4 lb/ton)."

§ 61.64 [Amended]

15. Amend § 61.64 as follows:

a. In paragraph (a)(2), the first sentence is amended by revising the words "0.02 g vinyl chloride/kg (0.00002 lb vinyl chloride/lb)" to read "0.02 g vinyl chloride/kg (0.04 lb vinyl chloride/ton)."

b. Paragraph (e)(2)(i) is amended by revising the words "2 g/kg (0.002 lb/lb)" to read "2 g/kg (4 lb/ton)."

c. Paragraph (e)(2)(ii) is amended by revising the words "0.4 g/kg (0.0004 lb/lb)" to read "0.4 g/kg (0.8 lb/ton)."

d. Paragraph (f)(2)(i) is amended by revising the words "2.02 g/kg (0.00202 lb/lb)" to read "2.02 g/kg (4.04 lb/ton)."

e. Paragraph (f)(2)(ii) is amended by revising the words "0.42 g/kg (0.00042 lb/lb)" to read "0.42 g/kg (0.84 lb/ton)."

§ 61.65 [Amended]

16. Amend § 61.65 as follows:

a. In paragraph (a), the first sentence is amended by revising the words "*Relief valve discharge*" to read "*Relief valve discharge (RVD)*."

b. Paragraph (b)(8)(i)(D)(*1*) is amended by revising the words "sections 5.2.1. and 5.2.2. of Test Method 106 and in accordance with section 7.1 of Test Method 106" to read "sections 7.2.1 and 7.2.2 of Method 106 and in accordance with section 10.1 of Method 106."

c. In paragraph (b)(8)(i)(D)(*2*), the fourth sentence is amended by revising the words "maximum self life" to read "maximum shelf life."

d. In paragraph (b)(8)(i)(D)(*2*), the fifth sentence is amended by revising the words "section 7.3 of Test Method 106. The requirements in section 5.2.3.1. and 5.2.3.2. of Test Method 106" to read "Sections 8.1 and 9.2 of Method

106. The requirements in Sections 7.2.3.1 and 7.2.3.2 of Method 106."

e. In paragraph (c), the second sentence is amended by revising the words "Test Method" to read "Method 106."

§ 61.67 [Amended]

17. Amend § 61.67 by:

a. In paragraph (g) introductory text, in the first sentence by revising the words "test Test Methods" to read "the test methods."

b. In paragraph (g) introductory text, in the fourth sentence by revising the words "Section 1.1" to read "Section 1.2"

c. In paragraphs (g) introductory text, (g)(1) introductory text, and (g)(1)(iii) by revising the words "Test Method" to read "Method" wherever they occur.

d. In paragraphs (g)(1)(i) and (g)(1)(iii) by revising the equations; paragraphs (g)(1)(iv), (g)(4)(ii), (g)(5)(i), (g)(6)(ii)(B), (g)(6)(ii)(C), and (g)(6)(iii) are revised; and a new table is added to the end of paragraph (g)(6)(ii)(A).

e. In paragraph (g)(1)(i), in the fifth sentence by revising the words "50 liters" to read "50 liters (1.8 ft^3)."

f. In paragraph (g)(1)(iii), the definition of the

term "percent O_2" is amended by revising the words "Reference Method 3 in Appendix A of part 60" to read "Method 3 of appendix A to part 60."

g. In paragraphs (g)(2), (g)(3), (g)(4)(i), and (g)(4)(ii) by revising the words "Test Method" to read "Method" wherever they occur.

h. In paragraphs (g)(5)(i)(A) and (g)(5)(i)(B) by revising the term "Cb" to read "C_b."

i. In paragraph (g)(5)(i)(C) by revising the words "The production rate of polyvinyl chloride (Z) is to be determined" to read "The production rate of polyvinyl chloride (Z), which is the product of the average batch weight and the number of batches produced since the reactor was last opened to the atmosphere, is to be determined."

j. In paragraphs (g)(6)(i)(A), (g)(6)(i)(B), (g)(6)(i)(C), (g)(6)(ii)(A), and (g)(6)(ii)(B) by removing "(ppm)", "(mm Hg)", or "(°C)" as they appear.

k. In paragraph (g)(6)(ii)(A) by adding the heading "Metric Units" to the existing table.

l. In paragraph (h)(1) by revising "ASTM Method D-2267" to read "ASTM D2267-68, 78, or 88 or D4420-94."

The revisions read as follows:

§ 61.67 Emission tests.

* * * * *

(g) * * *

(1) * * *

(i) * * *

equivalent diameter = 2 (length)(width) / (length + width)

* * *

* * * * * *

(iii) * * *

$C_{b(corrected)} = C_b$ (10.9) / (20.9 - percent O_2)

* * *

(iv) For those emission sources where the emission limit is prescribed in terms of mass rather than concentration, mass emissions are to be determined using the following equation:

$$C_{BX} = \frac{C_b D_{VC} Q K (10^{-6})}{Z}$$

Where:

C_{BX} = Vinyl chloride emissions, g/kg (lb/ton) product.

C_b = Concentration of vinyl chloride as measured by Test Method 106, ppmv.

D_{VC} = Density of vinyl chloride at standard conditions, 2.60 kg/m^3 (0.162 lb/ft^3).

Q = Volumetric flow rate as determined by Method 2 of appendix A to part 60 of this chapter, m^3/hr (ft^3/hr).

K = Unit conversion factor, 1,000 g/kg (1 lb/lb).

10^{-6} = Conversion factor for ppm.

Z = Production rate, kg/hr (ton/hr).

* * * * *

(4) * * *

(ii) Method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream subject to the emission limit prescribed in § 61.64(e). Vinyl chloride mass emissions are to be determined using the following equation:

$$C_{BX} = \frac{C_{rvc} Q_{water} D_{water} Q K (10^{-6})}{Z}$$

Where:

C_{BX} = Vinyl chloride emissions, g/kg (lb/ton) product in each inprocess wastewater stream.

C_{rvc} = Concentration of vinyl chloride in wastewater, as measured by Test Method 107, ppmw.

D_{water} = Density of wastewater, 1.0 kg/m^3 (0.0624 lb/ft^3).

Q_{water} = Wastewater flow rate, determined in accordance with a method which has been submitted to and approved by the Administrator, m^3/hr (ft^3/hr).

K = Unit conversion factor, 1,000 g/kg (1 lb/lb).

10^{-6} = Conversion factor for ppm.

Z = Production rate, kg/hr (ton/hr), determined in

accordance with a method which has been submitted to and approved by the Administrator.

(5) * * *

(i) Except as provided in paragraph (g)(5)(ii) of this section, the reactor opening loss is to be determined using the following equation:

$$C_{BX} = C_b \frac{V_R D_{VC} Q K (10^{-6})}{Z}$$

Where:

C_{BX} = Vinyl chloride emissions, g/kg (lb/ton) product.

C_b = Concentration of vinyl chloride, in ppmv, as determined by Method 106 or a portable hydrocarbon detector which measures hydrocarbons with a sensitivity of at least 10 ppmv.

V_R = Capacity of the reactor, m^3 (ft^3).

D_{VC} = Density of vinyl chloride at standard conditions, 2.60 kg/m^3 (0.162 lb/ft^3).

K = Unit conversion factor, 1,000 g/kg (1 lb/lb).

10^{-6} = Conversion factor for ppm.

Z = Production rate, kg/hr (ton/hr).

* * * * *

(6) * * *

(ii) * * *

(A) * * *

English Units

Reactor vapor temperature (°F)	H_2O vapor pressure (psia)	Reactor vapor temperature (°F)	H_2O vapor pressure (psia)	Reactor vapor temperature (°F)	H_2O vapor pressure (psia)
104	1.07	144	3.167	183	8.060
106	1.13	145	3.314	185	8.384
108	1.19	147	3.467	187	8.719
109	1.25	149	3.626	189	9.063
111	1.32	151	3.792	190	9.419
113	1.39	153	3.964	192	9.786
115	1.46	154	4.142	194	10.17
117	1.54	156	4.326	196	10.56
118	1.62	158	4.519	198	10.96
120	1.70	160	4.716	199	11.38
122	1.79	162	4.923	201	11.81
124	1.88	163	5.138	203	12.26
126	1.974	165	5.360	205	12.72
127	2.073	167	5.590	207	13.19
129	2.175	169	5.828	208	13.68
131	2.282	170	6.074	210	14.18
133	2.394	172	6.329	212	14.70
135	2.510	174	6.594		
136	2.632	176	6.866		
138	2.757	178	7.149		
140	2.889	180	7.443		
142	3.024	181	7.746		

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

$$PP_{VC} = P_{ATM} - P_{RV} - P_W$$

Where:

PP_{VC} = partial pressure of vinyl chloride, mm Hg (psia)

P_{ATM} = atmospheric pressure at 0 °C (32 °F), 760 mm Hg (14.7 psia)

P_{RV} = absolute pressure of reactor vacuum, mm Hg (psia)

P_W = vapor pressure of water, mm Hg (psia)

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

$$V_{RVS} = V_R - V_W - \frac{W_{PVC}}{D_{PVC}}$$

Where:

V_{RVS} = reactor vapor space volume, m^3 (ft^3)

V_R = reactor capacity, m^3 (ft^3)

V_W = volume of water in reactor from recipe, m^3 (ft^3)

W_{PVC} = dry weight of polyvinyl chloride in reactor from recipe, kg (lb)

D_{PVC} = typical density of polyvinyl chloride, 1,400 kg/m^3 (87.4 lb/ft^3)

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

$$C_{BX} = K_1 (PPM_{VC}) + \frac{(PP_{VC})(V_{RVS})(R_{VC})}{(M_{VC})(T_R + K_T)}$$

Where:

C_{BX} = Vinyl chloride emissions, g/kg (lb/ton) product.

PPM_{VC} = Concentration of vinyl chloride in resin after stripping, ppmw

K_1 = conversion factor from ppmw to units of emission standard, 0.001 (metric units)

= 0.002 (English units)

PP_{VC} = partial pressure of vinyl chloride determined according to paragraph (g)(6)(ii)(B) of this section, mm Hg (psia)

V_{RVS} = reactor vapor space volume determined according to paragraph (g)(6)(ii)(C) of this section, m^3 (ft^3)

R_{VC} = ideal gas constant for vinyl chloride, 1,002 g-°K/(mm Hg-m^3) [5.825 lb-°R/(psia-ft^3)]

M_{PVC} = dry weight of polyvinyl chloride in reactor from recipe, kg (ton)

T_R = reactor temperature, °C (°F)

K_T = temperature conversion factor for °C to °K, 273 (°F to °R, 460)

* * * * *

§ 61.68 [Amended]

18. Amend § 61.68 as follows:

a. Paragraph (c)(1) is amended by revising the words "sections 5.2.1. and 5.2.2. of Test Method 106 and in accordance with section 7.1 of Test Method 106" to read "Sections 7.2.1 and 7.2.2 of Method 106 and in accordance with Section 10.1 of Method 106."

b. In paragraph (c)(2), the fifth sentence is amended by revising the words "section 7.3 of Test Method 106. The requirements in section 5.2.3.1. and 5.2.3.2. of Test Method 106" to read "Sections 8.1 and 9.2 of Method 106. The requirements in Sections 7.2.3.1 and 7.2.3.2 of Method 106."

§ 61.70 [Amended]

19. Amend § 61.70 as follows:

a. In paragraph (c), the first sentence is amended by revising the words "Test Methods" to read "test methods."

b. Paragraph (c)(2)(iii) is amended by revising the words "Test Method" to read "Method."

c. In paragraph (c)(2)(v), the definitions of the terms Q_T and M_{Gi} are revised; and in paragraph (c)(4)(iv), the definitions of the terms A_T, Q_T, C_{Gi}, and P_{Gi} are revised.

d. Paragraph (c)(4)(ii) is amended by revising the words "Test Method" to read "Method."

§ 61.70 Reporting.

* * * * *

(c) * * *

(2) * * *

(v) * * *

Q_T = Total production of type T resin over the 24-hour period, in kg (ton).

* * *

M_{Gi} = Production of grade G_i resin represented by the sample, in kg (ton).

* * * * *

(4) * * *

(iv) * * *

A_T = 24-hour average combined reactor opening loss and emissions from all sources following the

reactor used as a stripper, on a dry weight basis, g vinyl chloride/kg (lb/ton) product.

Q_T = Total production of type T resin for which stripping is completed during the 24-hour period, in kg (ton).

* * * * *

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

P_{Gi} = Production of grade Gi resin in batches for which C_{Gi} is determined, in kg (ton).

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§ 61.93 [Amended]

20. In § 61.93, paragraphs (b)(1)(i), (b)(1)(ii), and (b)(2)(i) are amended by revising the words "Reference Method" to read "Method" wherever they occur.

§ 61.107 [Amended]

21. Amend § 61.107 as follows:

a. Paragraphs (b)(1)(i), (b)(1)(ii), and (b)(2)(i) are

amended by revising the words "Reference Method" to read "Method" wherever they occur.

b. Paragraphs (b)(2)(iv) and (b)(5)(v) are amended by revising the words "method 114" to read "Method 114" wherever they occur.

c. Paragraph (b)(5)(iv) is amended by revising the words "table 2" to read "Table 2", wherever they occur.

§ 61.110 [Amended]

22. In § 61.110, paragraph (c)(2) is amended by revising the words "1,000 megagrams" to read "1,000 megagrams (1,102 tons)."

§ 61.123 [Amended]

23. Amend § 61.123 as follows:

a. Paragraph (d) is amended by revising the words "curies per metric ton" to read "curies per Mg or curies per ton)" wherever they occur.

b. In paragraph (d), the fifth sentence is amended by revising the words "in metric tons" to read "in Mg (tons)."

§ 61.125 [Amended]

24. Amend § 61.125 as follows:

a. Paragraph (a)(1) is amended by revising the words "Test Method 1 of Appendix A" to read "Method 1 of Appendix A."

b. Paragraph (a)(2) is amended by revising the words

"Test Method 2 of Appendix A" to read "Method 2 of appendix A."

c. Paragraph (a)(3) is amended by revising the words "Test Method 3 of Appendix A" to read "Method 3 of Appendix A."

d. Paragraph (a)(4) is amended by revising the words "Test Method 5 of Appendix A" to read "Method 5 of Appendix A."

e. Paragraph (a)(5) is amended by revising the words

"Test Method 111 of Appendix B" to read "Method 111 of Appendix B."

§ 61.132 [Amended]

25. In § 61.132, paragraphs (b) and (b)(1) are amended by revising the words "Reference Method" to read "Method" wherever they occur.

§ 61.133 [Amended]

26. In § 61.133, paragraphs (c) and (c)(1) are amended by revising the words "Reference Method" to read "Method" wherever they occur.

§ 61.139 [Amended]

27. Amend § 61.139 as follows:

a. In paragraph (c)(1), the equation definitions for "Q_{aj}" and "Q_{bi}" are revised.

b. Paragraph (d)(2)(ii) is amended by revising the words "method 21" to read "Method 21" wherever they occur.

c. In paragraph (g)(1)(vi), the second sentence is amended by revising the words "Either follow section 7.1, "Integrated Bag Sampling and Analysis," or section 7.2,

"Direct Interface Sampling and Analysis Procedure"" to read "Either the integrated bag sampling and analysis procedure or the direct interface procedure may be used."

d. Paragraph (g)(1)(vi)(A) is amended by revising the words "section 7.1" to read "the integrated bag sampling and analysis procedure."

e. In paragraph (g)(1)(vi)(B), the first sentence is amended by revising the words "section 7.2" to read "the direct interface sampling and analysis procedure."

f. Paragraphs (h)(3), (h)(3)(ii), and (h)(4)(ii) are amended by revising the words "method 18" to read "Method 18" wherever they occur.

The revisions read as follows:

§ 61.139 Provisions for alternative means for process vessels, storage tanks, and tar-intercepting sumps.

* * * * *

(c) * * *

(1) * * *

Q_{aj} = volumetric flow rate in vents after the control device, standard cubic meters/minute (scm/min) [standard cubic feet/minute (scf/min)].

Q_{bi} = volumetric flow rate in vents before the control device, scm/min (scf/min).

* * * * *

61.155 [Amended]

28. In § 61.155, the section heading is amended by revising the words "**asbesto-containing**" to read "**asbestos-containing**."

§ 61.162 [Amended]

29. Amend § 61.162 as follows:

a. Paragraph (a)(1) is amended by revising the words "2.5 Mg per year" to read "2.5 Mg (2.7 ton) per year."

b. Paragraph (b)(1) is amended by revising the words "0.4 Mg per year" to read "0.4 Mg (0.44 ton) per year."

§ 61.164 [Amended]

30. Amend § 61.164 as follows:

a. Paragraph (c) is amended by revising the words "8.0 Mg per year" to read "8.0 Mg (8.8 ton) per year."

b. Paragraph (c) is amended by revising the words "1.0 Mg per year" to read "1.0 Mg (1.1 ton) per year."

c. In paragraph (c)(1), the first sentence is amended

by revising the words "grams of elemental arsenic per kilogram" to read "grams of elemental arsenic per kilogram (pounds per ton)."

d. Paragraphs (c)(1) and (d)(3) are amended by revising; the equation and definitions in paragraphs (c)(2) and (d)(5) are revised; and the definitions of the terms

"R_a" and "T_i" in paragraph (d)(4) are revised.

e. Paragraph (d) is amended by revising the words "8.0 Mg per year" to read "8.0 Mg (8.8 ton) per year."

f. Paragraph (d) is amended by revising the words "1.0 Mg per year" to read "1.0 Mg (1.1 ton) per year."

g. Paragraph (d)(2)(i) is amended by revising the words "emission rate (g/h)" to read "emission rate, g/hr (lb/hr)."

h. Paragraph (d)(2)(ii)(D) is amended by revising the words "Section 4 of Method 5D" to read "Section 8.0 of Method 5D."

i. Paragraph (e)(1)(ii)(D) is amended by revising the words "Section 4 of Method 5D" to read "Section 8.0 of Method 5D."

The revisions read as follows:

§ 61.164 Test methods and procedures.

* * * * *

(c) * * *

(1) Derive a theoretical uncontrolled arsenic emission factor (T), based on material balance calculations for each arsenic-containing glass type (i) produced during the 12-month period, as follows:

$$T_i = (A_{bi} \times W_{bi}) + (A_{ci} \times W_{ci}) - B_{gi}$$

Where:

T_i = The theoretical uncontrolled arsenic emission factor for each glass type (i), g/kg (lb/ton).

A_{bi} = Fraction by weight of elemental arsenic in the fresh batch for each glass type (I).

W_{bi} = Weight of fresh batch melted per unit weight of glass produced for each glass type (i), g/kg (lb/ton).

A_{ci} = Fraction by weight of elemental arsenic in cullet for each glass type (i).

W_{ci} = Weight of cullet melted per unit weight of glass produced for each glass type (i), g/kg (lb/ton).

B_{gi} = Weight of elemental arsenic per unit weight of glass produced for each glass type (i), g/kg (lb/ton).

(2) * * *

$$Y_i = \frac{T_i G_i}{K}$$

Where:

Y_i = Theoretical uncontrolled arsenic emission estimate for the 12-month period for each glass type, Mg/year (ton/year).

T_i = Theoretical uncontrolled arsenic emission factor for each type of glass (i) produced during the 12-month period as calculated in paragraph (c)(1) of this section, g/kg (lb/ton).

G_i = Quantity of each arsenic-containing glass type

(i) produced during the 12-month period, kg/yr (ton/yr).

K = conversion factor for unit consistency, 10^6 g/Mg (2,000 lb/ton).

* * * * *

(d) * * *

(3) Determine the actual uncontrolled arsenic emission factor (R_a) as follows:

$$R_a = E_a \div P$$

Where:

R_a = Actual uncontrolled arsenic emission factor, g/kg (lb/ton).

E_a = Actual uncontrolled arsenic emission rate from paragraph (d)(2) of this section, g/hr (lb/hr).

P = Rate of glass production, kg/hr (ton/hr), determined by dividing the weight of glass pulled from the furnace during the emission test by the number of hours taken to perform the test under paragraph (d)(2) of this section.

(4) * * *

R_a = Actual uncontrolled arsenic emission factor, determined in paragraph (d)(3) of this section, g/kg (lb/ton).

T_i = Theoretical uncontrolled arsenic emission factor, g/kg (lb/ton), determined in paragraph (c)(1) of

this section for the same glass type for which R_a was determined.

(5) * * *

$$U = \frac{\sum_{i=1}^{n} (T_i \times F \times G_i)}{K}$$

Where:

U = Uncontrolled arsenic emission rate for the 12-month period, Mg/yr (ton/yr).

T_i = Theoretical uncontrolled arsenic emission factor for each type of glass (i) produced during the 12-month period as calculated in paragraph (c)(1) of this section, g/kg (lb/ton).

F = The correction factor calculated in paragraph (d)(4) of this section.

G_i = Quantity of each arsenic-containing glass type (i) produced during the 12-month period, kg/yr (ton/yr).

n = Number of arsenic-containing glass types produced during the 12-month period.

K = Conversion factor for unit consistency, 10^6 g/Mg (2,000 lb/ton).

* * * * *

§ 61.165 [Amended]

31. In § 61.165, paragraph (a)(7) is amended by revising the words "all records of maintenance" at the beginning of the sentence to read "All maintenance."

§ 61.172 [Amended]

32. Amend § 61.172 as follows:

a. Paragraph (a) is amended by revising the words "75 kg/h" to read "75 kg/hr (165 lb/hr)."

b. Paragraph (c) is amended by revising the words "11.6 milligrams per dry standard cubic meter" to read "11.6 mg/dscm (0.0051 gr/dscf)."

§ 61.174 [Amended]

33. Amend § 61.174 as follows:

a. Paragraph (f)(3) is amended by revising the definitions of the terms R_c, W_{ci}, and W_{li}.

b. In paragraph (f)(3), the definition of the term "H_c" is amended by revising "(h)" to read "(hr)."

The revisions read as follows:

§ 61.174 Test methods and procedures.

* * * * *

(f) * * *

(3) * * *

R_c is the converter arsenic charging rate, kg/hr (lb/hr). * * *

W_{ci} is the total rate of copper matte charged to a

copper converter during the month, kg (lb).

W_{li} is the total rate of lead matte charged to a copper converter during the month, kg (lb). * * *

* * * * * *

§ 61.192 [Amended]

34. In § 61.192, the first sentence is amended by revising the words "20 pCi/-m^2-s" to read "20 picocuries per square meter per second (pCi/(m^2-sec)) [1.9 pCi/(ft^2-sec)]."

§ 61.202 [Amended]

35. In § 61.202, the third sentence is amended by revising the words "20 pCi/m^2-s" to read "20 pCi/(m^2-sec) [1.9 pCi/(ft^2-sec)]."

§ 61.204 [Amended]

36. In § 61.204, paragraph (b) is amended by revising the words "10 picocuries per gram (pCi/g)" to read "10 pCi/g (4500 pCi/lb)."

§ 61.205 [Amended]

37. In § 61.205, paragraph (b)(2) is amended by revising the words "700 pounds" to read "318 kg (700 lb)."

§ 61.207 [Amended]

38. In § 61.207, paragraph (a), the second sentence is amended by revising the word "intitial" to read "initial."

§ 61.208 [Amended]

39. Amend § 61.208 as follows:

a. Paragraph (a)(1)(vi) is amended by revising the words "in pCi/g" to read "in pCi/g (pCi/lb)."

b. Paragraph (a)(1)(iii) is amended by revising the words "quantity (in pounds) of phosphogypsum" are revised to read "quantity of phosphogypsum, in kilograms or pounds."

§ 61.222 [Amended]

40. In § 61.222, paragraph (a) is amended by revising the words "20 pCi/m^2-s" to read "20 pCi/(m^2-sec) [1.9 pCi/(ft^2-sec)]."

§ 61.241 [Amended]

41. In § 61.241, the definition of the term *"In vacuum" service* is amended by revising the words "5

kilopascals (kPa) below" to read "5 kilopascals (kPa) (0.7 psia) below."

§ 61.242-11 [Amended]

42. In § 61.242-11, paragraph (c) is amended by revising the words "760 ◦C" to read "760 ◦C (1,400 ◦F)."

§ 61.243-2 [Amended]

43. Amend § 61.243-2 as follows:

a. Paragraph (b)(2) is amended by revising the words "skip 1 of the" to read "skip one of the."

b. Paragraph (b)(3) is amended by revising the words "After 5 consecutive" to read "After five consecutive."

c. Paragraph (b)(3) is amended by revising the words "skip 3 of the quartely" to read "skip three of the quarterly."

§ 61.244 [Amended]

44. In § 61.244, paragraph (b)(1) is amended by revising the words "emission limitation.limitation to test data" to read "emission limitation to test data."

§ 61.245 [Amended]

45. Amend § 61.245 as follows:

a. Paragraphs (b)(2), (b)(3), (b)(5), (c)(2), (c)(3), (e)(3), and (e)(4) are amended by revising the words "Reference Method" to read "Method" wherever they occur.

b. In paragraph (e)(3), the definitions of the terms

"H_T", "K", "C_i", and "H_i" are revised; and the equation and definitions in (e)(5) are revised as follows:

§ 61.245 Test methods and procedures.

* * * * *

(e) * * *

(3) * * *

H_T = Net heating value of the sample, MJ/scm (BTU/scf); where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg (77 °F and 14.7 psi), but the standard temperature for determining the volume corresponding to one mole is 20 °C (68 °F).

K = conversion constant, 1.740×10^{7} (g-mole)(MJ)/(ppm-scm-kcal) (metric units)

= 4.674×10^{8} [(g-mole)(Btu)/(ppm-scf-kcal)] (English units)

C_i = Concentration of sample component "i" in ppm, as measured by Method 18 of Appendix A to 40 CFR Part 60 and ASTM D2504-67, 77, or 88 (Reapproved 1993)(incorporated by reference as specified in §61.18).

H_i = net heat of combustion of sample component "i" at 25 °C and 760 mm Hg (77 °F and 14.7 psi), kcal/g-mole. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95

(incorporated by reference as specified in §61.18) if published values are not available or cannot be calculated.

* * * * *

(5) * * *

$$V_{max} = K_1 + K_2 H_T$$

where:

V_{max} = Maximum permitted velocity, m/sec (ft/sec).

H_T = Net heating value of the gas being combusted, as determined in paragraph (e)(3) of this section, MJ/scm (Btu/scf).

K_1 = 8.706 m/sec (metric units)

= 28.56 ft/sec (English units)

K_2 = 0.7084 m^4/(MJ-sec) (metric units)

= 0.087 ft^4/(Btu-sec) (English units)

* * * * *

§ 61.246 [Amended]

46. Amend § 61.246 as follows:

a. Paragraph (c)(7) is amended by revising the words "calendar days.unrepaired." to read "calendar days."

b. Paragraph (c)(9) is redesignated as paragraph (c)(8).

§ 61.252 [Amended]

47. In § 61.252, paragraph (a) is amended by revising the words "20 pCi/m^2-s" to read 20 pCi/(m^2-sec) [1.9 pCi/(ft^2-sec)].

§ 61.270 [Amended]

48. Amend § 61.270 as follows:

a. Paragraph (a) is revised.

b. Paragraph (e) is amended by revising the words "204.9 kPa" to read "204.9 kPa (29.72 psia)."

The revisions read as follows:

§ 61.270 Applicability and designation of sources.

(a) The source to which this subpart applies is each storage vessel that is storing benzene having a specific gravity within the range of specific gravities specified in ASTM D836-84 for Industrial Grade Benzene, ASTM D835-85 for Refined Benzene-485, ASTM D2359-85a or 93 for Refined Benzene-535, and ASTM D4734-87 or 96 for Refined Benzene-545. These specifications are incorporated by reference as

specified in § 61.18. See § 61.18 for acceptable versions of these methods.

* * * * *

§ 61.272 [Amended]

49. Amend § 61.272 as follows:

a. In paragraph (c)(1)(i), the fourth sentence is amended by revising the words "816 ◦C" to read "816 ◦C (1,500 ◦F)."

b. Paragraph (d) is amended by revising the letter "O" in the words "40 CFR 6O.18(e)" to read "40 CFR 60.18(e)."

§ 61.301 [Amended]

50. Amend § 61.301 as follows:

a. The definitions of the terms "*Leak*" and "*Vapor-tight marine vessel"* are amended by revising the words "method 21" to read "Method 21" wherever they occur.

b. In the definition of the terms "*Vapor-tight tank truck or vapor-tight railcar"*, the second sentence is amended by revising the words "method 27 of part 60" to read "Method 27 of Appendix A to 40 CFR part 60."

§ 61.302 [Amended]

51. Amend § 61.302 as follows:

a. In paragraph (d)(1), the third sentence is amended by revising the words "method 27 of part 60" to read "Method 27 of Appendix A to 40 CFR Part 60."

b. In paragraph (e)(2), the second sentence is amended by revising the words "method 21 of part 60" to read "Method 21 of Appendix A to 40 CFR Part 60."

c. In paragraph (e)(2)(ii)(B), fourth sentence, the words "method 21" are revised to read "Method 21 of Appendix A to 40 CFR Part 60."

d. In paragraph (h), the first sentence is amended by revising the words "method 27 of part 60" to read "Method 27 of Appendix A to 40 CFR Part 60."

§ 61.303 [Amended]

52. In § 61.303, paragraphs (c), (c)(1), and (c)(2) are amended by revising the words "44 MW" to read "44 MW (150×10^6 BTU/hr)" wherever they occur.

§ 61.304 [Amended]

53. Amend § 61.304 as follows:

a. Paragraph (a)(4)(iii) is amended by revising the word "method" to read "Method."

b. In paragraph (a)(4)(iv), the first sentence is amended by revising the words "method 25A or method 25B" to read "Method 25A or Method 25B."

c. Paragraph (b) is amended by revising the words "a

performance test according to method 22 of appendix A of this part, shall be performed to determine visible emissions. The observation period shall be at least 2 hours and shall be conducted according to method 22" to read "a performance test according to Method 22 of appendix A of 40 CFR part 60 shall be performed to determine visible emissions. The observation period shall be at least 2 hours."

§ 61.305 [Amended]

54. Amend § 61.305 as follows:

a. Paragraphs (a), (b)(3), and (d) are amended by revising the words "44 MW" to read "44 MW (150×10^6 BTU/hr)" wherever they occur.

b. Paragraph (a)(3)(ii) is revised.

c. Paragraphs (b)(1), (b)(2), and (b)(3) are amended by revising the words "28 °C" to read "28 °C (50 °F)" wherever they occur.

The revisions read as follows:

§ 61.305 Reporting and recordkeeping.

(a) * * *

(3) * * *

(ii) The average combustion temperature of the steam generating unit or process heater with a design heat input capacity of less than 44 MW (150 × 10^6 BTU/hr), measured with the following frequency: at least every 2 minutes during a loading cycle if the total time period of the loading cycle is less than 3 hours, and every 15 minutes if the total time period of the loading cycle is equal to or greater than 3 hours. The measured temperature shall be averaged over the loading cycle.

* * * * *

§ 61.342 [Amended]

55. Amend § 61.342 as follows:

a. In paragraph (a), the first sentence, the words "10 megagrams per year (Mg/yr)" are revised to read "10 megagrams per year (Mg/yr) [11 ton/yr]."

b. Paragraphs (a)(3), (b), (c), (c)(3)(i), (d), and (e) are amended by revising the words "10 Mg/yr" to read "10 Mg/yr (11 ton/yr)."

c. Paragraph (c)(3)(i) is amended by revising the words "0.02 liters per minute" to read "0.02 liters per minute (0.005 gallons per minute)."

d. Paragraph (c)(3)(ii)(B) is amended by revising the words "2.0 Mg/yr" to read "2.0 Mg/yr (2.2 ton/yr)."

e. Paragraph (d)(2)(1) is redesignated as paragraph

(d)(2)(i).

f. In the newly redesignated paragraph (d)(2)(i), the first sentence is amended by revising the words "1 Mg/yr" to read "1 Mg/yr (1.1 ton/yr)."

g. In paragraph (e)(2)(i), the first sentence is amended by revising the words "6.0 Mg/yr" to read "6.0 Mg/yr (6.6 ton/yr)."

§ 61.348 [Amended]

56. Amend § 61.348 as follows:

a. In paragraph (b)(2)(ii), the first sentence is amended by revising the words "1 Mg/yr" to read "1 Mg/yr (1.1 ton/yr)."

b. In paragraph (b)(2)(ii)(B), the third sentence is amended by revising the words "range of 0.05 to 1.0 kg of biological oxygen demand per kg of biomass per day" to read "range of 0.05 to 1.0 kg of biological oxygen demand per kg (lb per lb) of biomass per day."

c. In paragraph (b)(2)(ii)(B), the third sentence is amended by revising the words "range of 1 to 8 grams per liter" to read "range of 1 to 8 grams per liter (0.008 to 0.07 pounds per gallon)."

§ 61.349 [Amended]

57. In § 61.349, paragraph (a)(2)(i)(C) is amended by revising the words "760 ◦C" to read "760 ◦C (1,400 ◦F)."

§ 61.354 [Amended]

58. In § 61.354, paragraphs (c)(4) and (c)(5) are amended by revising the words "44 megawatts (MW)" to read "44 MW (150×10^6 BTU/hr)."

§ 61.355 [Amended]

59. Amend § 61.355 as follows:

a. Paragraphs (a)(3), (a)(4), (a)(4)(ii) are amended by revising the words "10 Mg/yr" to read "10 Mg/yr (11 ton/yr)" wherever they occur.

b. Paragraphs (a)(4), (a)(5), and (a)(5)(ii) are amended by revising the words "1 Mg/yr" to read "1 Mg/yr (1.1 ton/yr)" wherever they occur.

c. Paragraphs (c)(2)(ii)(F) and (c)(2)(ii)(H) are amended by revising the words "10 ◦C" to read "10 ◦C (50 ◦F)" wherever they occur.

d. Paragraph (c)(2)(v) is amended by revising the words "kg/yr" to read "kg/yr (lb/yr)" wherever they occur.

e. Paragraphs (e)(3), (e)(4), (f)(3), (f)(4)(iv), (f)(5), (i)(3)(iv), and (i)(4) are amended by revising the definitions of the terms used in the equations; and (f)(4)(iii) and (i)(3)(iii) are amended by revising the equation and definitions of terms used in the equations.

f. Paragraphs (f)(4)(ii)(B), (f)(4)(ii)(C), (h)(1), (h)(2), (h)(3), (h)(5), (h)(6), (i)(2), (i)(3)(ii)(B), and

(i)(3)(ii)(C) are amended by revising the word "method" to read "Method" wherever it occurs.

g. Paragraph (k)(7) is amended by revising the words "6.0 Mg/yr" to read "6.0 Mg/yr (6.6 ton/yr)."

The revisions read as follows:

§ 61.355 Test methods, procedures, and compliance provisions.

* * * * *

(e) * * *

(3) * * *

E_b = Mass flow rate of benzene entering the treatment process, kg/hr (lb/hr).

K = Density of the waste stream, kg/m^3 (lb/ft^3).

V_i = Average volume flow rate of waste entering the treatment process during each run i, m^3/hr (ft^3/hr).

C_i = Average concentration of benzene in the waste stream entering the treatment process during each run i, ppmw.

n = Number of runs.

10^6 = Conversion factor for ppmw.

(4) * * *

E_a = Mass flow rate of benzene exiting the treatment process, kg/hr (lb/hr).

K = Density of the waste stream, kg/m^3 (lb/ft^3).

V_i = Average volume flow rate of waste exiting the treatment process during each run i, m^3/hr (ft^3/hr).

C_i = Average concentration of benzene in the waste stream exiting the treatment process during each run i, ppmw.

n = Number of runs.

10^6 = Conversion factor for ppmw.

(f) * * *

(3) * * *

E_b = Mass flow rate of benzene entering the combustion unit, kg/hr (lb/hr).

K = Density of the waste stream, kg/m^3 (lb/ft^3).

V_i = Average volume flow rate of waste entering the combustion unit during each run i, m^3/hr (ft^3/hr).

C_i = Average concentration of benzene in the waste stream entering the combustion unit during each run i, ppmw.

n = Number of runs.

10^6= Conversion factor for ppmw.

(4) * * *

(iii) * * *

$$M_i = D_b V C(10^{-6})$$

where:

M_i = Mass of benzene emitted during run i, kg (lb).

V = Volume of air-vapor mixture exhausted at standard conditions, m^3 (ft^3).

C = Concentration of benzene measured in the exhaust, ppmv.

D_b = Density of benzene, 3.24 kg/m^3 (0.202 lb/ft^3).

10^6 = Conversion factor for ppmv.

(iv) * * *

E_a = Mass flow rate of benzene emitted from the combustion unit, kg/hr (lb/hr).

M_i = Mass of benzene emitted from the combustion unit during run i, kg (lb).

T = Total time of all runs, hr.

n = Number of runs.

(5) * * *

R = Benzene destruction efficiency for the combustion unit, percent.

E_b = Mass flow rate of benzene entering the combustion unit, kg/hr (lb/hr).

E_a = Mass flow rate of benzene emitted from the combustion unit, kg/hr (lb/hr).

* * * * *

(i) * * *

(3) * * *

(iii) * * *

$$M_{aj} = \frac{K_1 V_{aj}}{10^6}\left(\sum_{i=1}^{n} C_{ai} MW_i\right)$$

$$M_{bj} = \frac{K_1 V_{bj}}{10^6}\left(\sum_{i=1}^{n} C_{bi} MW_i\right)$$

M_{aj} = Mass of organics or benzene in the vent stream entering the control device during run j, kg (lb).

M_{bj} = Mass of organics or benzene in the vent stream exiting the control device during run j, kg (lb).

V_{aj} = Volume of vent stream entering the control device during run j, at standard conditions, m^3 (ft^3).

V_{bj} = Volume of vent stream exiting the control device during run j, at standard conditions, m^3 (ft^3).

C_{ai} = Organic concentration of compound i or the benzene concentration measured in the vent stream entering the control device as determined by Method 18, ppm by volume on a dry basis.

C_{bi} = Organic concentration of compound i or the benzene concentration measured in the vent stream exiting the control device as determined

by Method 18, ppm by volume on a dry basis.

MW_i = Molecular weight of organic compound i in the vent stream, or the molecular weight of benzene, kg/kg-mol (lb/lb-mole).

n = Number of organic compounds in the vent stream; if benzene reduction efficiency is being demonstrated, then n=1.

K_1 = Conversion factor for molar volume at standard conditions [293 K and 760 mm Hg (527 R and 14.7 psia)]

= 0.0416 kg-mol/m^3 (0.00118 lb-mol/ft^3)

10^{-6} = Conversion factor for ppmv.

(iv) * * *

E_a = Mass flow rate of organics or benzene entering the control device, kg/hr (lb/hr).

E_b = Mass flow rate of organics or benzene exiting the control device, kg/hr (lb/hr).

M_{aj} = Mass of organics or benzene in the vent stream entering the control device during run j, kg (lb).

M_{bj} = Mass of organics or benzene in the vent stream exiting the control device during run j, kg (lb).

T = Total time of all runs, hr.

n = Number of runs.

(4) * * *

R = Total organic reduction efficiency or benzene reduction efficiency for the control device, percent.

E_b = Mass flow rate of organics or benzene entering the control device, kg/hr (lb/hr).

E_a = Mass flow rate of organics or benzene emitted from the control device, kg/hr (lb/hr).

* * * * *

§ 61.356 [Amended]

60. Amend § 61.356 as follows:

a. Paragraph (b)(2)(i) is amended by revising the

ords "0.02 liters per minute" to read "0.02 liters (0.005 gallons) per minute."

b. Paragraph (b)(2)(i) is amended by revising the words "10 Mg/yr" to read "10 Mg/yr (11 ton/yr)."

c. Paragraph (b)(2)(ii) is amended by revising the words "2.0 Mg/yr" to read "2.0 Mg/yr (2.2 ton/yr)."

d. Paragraph (b)(4) is amended by revising the words "6.0 Mg/yr" to read "6.0 Mg/yr (6.6 ton/yr)."

e. Paragraphs (j)(4), (j)(5), and (j)(6) are amended by revising the words "28 ◦C" to read "28 ◦C (50 ◦F)" wherever they occur.

f. Paragraph (j)(6) is amended by revising the words "44 MW" to read "44 MW (150×10^6 BTU/hr)" wherever they occur.

g. Paragraph (j)(8) is amended by revising the words "6 ◦C" to read "6 ◦C (11 ◦F)" wherever they occur.

§ 61.357 [Amended]

61. Amend § 61.357 as follows:

a. Paragraphs (b) and (c) are amended by revising the words "1 Mg/yr" to read "1 Mg/yr (1.1 ton/yr)" wherever they occur.

b. Paragraphs (c) and (d) are amended by revising the words "10 Mg/yr" to read "10 Mg/yr (11 ton/yr)" wherever they occur.

c. Paragraphs (d)(6)(iii)(A), (d)(6)(iii)(B), and (d)(6)(iii)(C) are amended by revising the words "28 ◦C" to read "28 ◦C (50 ◦F)" wherever they occur.

d. Paragraph (d)(6)(iii)(C) is amended by revising the words "44 MW" to read "44 MW (150×10^6 BTU/hr)."

e. Paragraph (d)(6)(iii)(E) is amended by revising the words "6 ◦C" to read "6 ◦C (11 ◦F)."