

**WAC 173-303-110 Sampling, testing methods, and analyses. (1)**

Purpose. This section sets forth the testing methods to be used to comply with the requirements of this chapter. Quality control procedures specified by the testing method or an approved equivalent method must be followed for the analytical result to be considered valid for designation. All methods and publications listed in this section are incorporated by reference.

(2) Representative samples.

(a) The methods and equipment used for obtaining representative samples of a waste will vary with the type and form of the waste. The department will consider samples collected using the sampling methods below or the most recent version of such methods for wastes with properties similar to the indicated materials, to be representative samples of the wastes:

(i) Crushed or powdered material - ASTM Standard D346-04e1;

(ii) Extremely viscous liquid - ASTM Standard D140-01 (2007);

(iii) Fly ash-like material - ASTM Standard D2234/D2234M-03e1;

(iv) Soil-like material - ASTM Standard D1452-80 (2000);

(v) Soil or rock-like material - ASTM Standard D420-98 (2003);

(vi) Containerized liquid wastes - "COLIWASA" described in SW-846, as incorporated by reference at WAC 173-303-110 (3)(a), or the equivalent representative sampling method described in ASTM D5743-97 (2003). Per this method, the selection of an appropriate device must be best suited for the characteristics of the waste being sampled; and

(vii) Liquid waste in pits, ponds, lagoons, and similar reservoirs - "Pond Sampler" described in SW-846, as incorporated by reference at WAC 173-303-110 (3)(a).

(b) Copies of these representative sampling methods are available from the department except for the ASTM standards which can be obtained by writing to:

ASTM  
100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959

(3) Test procedures. Copies of the test procedures listed in this subsection can be obtained by writing to the appropriate address below:

For copies of Department of Ecology test methods:

Attn: Test Procedures  
Hazardous Waste Section  
Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504-7600

For copies of SW-846, including updates, and 40 C.F.R. Part 261:

Superintendent of Documents  
U.S. Government Printing Office  
Washington, D.C. 20402  
202-512-1800

For copies of ASTM methods:

ASTM  
100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959

For copies of APTI methods:

APTI  
National Technical Information Service  
5285 Port Royal Road  
Springfield, VA 22161

The document titles and included test procedures are as follows:

(a) *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication, SW-846* (Third Edition (November 1986) as amended by Updates I (dated July 1992), II (dated September 1994), IIA (dated August 1993), IIB (dated January 1995), III (dated December 1996), IIIA (dated April 1998), IIIB (dated July 2005), Update IVA and IVB (dated February 2007)), and Update V (dated August 2015) which is incorporated by reference. The Third Edition of SW-846, as amended by Final Updates I, II, IIA, IIB, III, IIIA, IIIB, IVA, IVB, V, and VI, is available in portable document format (PDF) on EPA's Office of Resource Conservation and Recovery web page at <http://www.epa.gov/hw-sw846>;

(b) *Biological Testing Methods for the Designation of Dangerous Waste*, Department of Ecology Publication #80-12, the latest revision, describing procedures for the static acute fish toxicity test.

(c) *Chemical Test Methods for Designating Dangerous Waste*, Department of Ecology Publication #97-407, the latest revision, describing methods for testing:

- (i) Ignitability;
  - (ii) Corrosivity;
  - (iii) Reactivity;
  - (iv) Toxicity characteristic leaching procedure;
  - (v) Halogenated organic compounds; and
  - (vi) Polycyclic aromatic hydrocarbons.
- (d) (Reserved);

(e) (i) The determination of Polychlorinated Biphenyls in Transformer Fluids and Waste Oils, EPA-600/4-81-045; and

(ii) Analysis of Polychlorinated Biphenyls in Mineral Insulating Oils by Gas Chromatography, ASTM Standard D4059-00 (2005)e1.

(f) Appropriate analytical procedures to determine whether a sample contains a given toxic constituent are specified in Chapter Two, "Choosing the Correct Procedure" found in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846*;

(g) The following publications for air emission standards (in addition to (a) of this subsection):

(i) ASTM Standard Method for Analysis of Reformed Gas by Gas Chromatography, ASTM Standard D1946-90 (2006).

(ii) ASTM Standard Test Method for Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), ASTM Standard D4809-06.

(iii) ASTM Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis, ASTM Standard E169-04.

(iv) ASTM Standard Practices for General Techniques of Infrared Quantitative Analysis, ASTM Standard E168-06.

(v) ASTM Standard Practice for Packed Column Gas Chromatography, ASTM Standard E260-96 (2006).

(vi) ASTM Standard Test Method for Aromatics in Light Naphthas and Aviation Gasolines by Gas Chromatography, ASTM Standard D5580-02.

(vii) ASTM Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isotherm, ASTM Standard D2879-97 (2002)e1.

(viii) "APTI Course 415: Control of Gaseous Emissions," EPA Publication EPA-450/2-81-005, December 1981.

(ix) API Manual of Petroleum Measurement Standards (MPMS) chapter 19.2 (API MPMS 19.2), Evaporative Loss from External Floating-Roof Tanks (formerly API Publications 2517 and 2519), Third Edition, American Petroleum Institute, Washington D.C., October 2012.

(h) The following publications:

(i) "NFPA 30 Flammable and Combustible Liquids Code" (2015), available from the National Fire Protection Association, NFPA Headquarters, 1 Batterymarch Park, Quincy, MA 02169-7471.

(ii) U.S. EPA, "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised," October 1992, EPA Publication No. EPA-450/R-92-019, Environmental Protection Agency, Research Triangle Park, NC.

(iii) "ASTM Standard Test Methods for Preparing Refuse-Derived Fuel (RDF) Samples for Analyses of Metals," ASTM Standard E926-94, Test Method C-Bomb, Acid Digestion Method, available from American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19103.

(iv) Method 1664, Revision A, n-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated n-Hexane Extractable Material (SGT-HEM; Nonpolar Material) by Extraction and Gravimetry. Available from NTIS, PB99-121949, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

(v) ASTM Standard Test Methods for Flash Point of Liquids by Seataflash Closed Tester, ASTM Standard D3278-96 (2004)e1, available from American Society for Testing and Materials.

(vi) ASTM Standard Test Methods for Flash Point by Pensky-Martens Closed Tester, ASTM Standard D93-06.

(vii) API Manual of Petroleum Measurement Standards (MPMS) chapter 19.2 (API MPMS 19.2), Evaporative Loss from External Floating-Roof Tanks (formerly API Publications 2517 and 2519), Third Edition, American Petroleum Institute, Washington D.C., October 2012.

(4) Substantial changes to the testing methods described above will be made only after the department has provided adequate opportunity for public review and comment on the proposed changes. The department may, at its discretion, schedule a public hearing on the proposed changes.

(5) Equivalent testing methods. Any person may request department approval for the use of an equivalent testing method by submitting a petition, prepared in accordance with WAC 173-303-910(2), to the department.

(6) Reporting analytical results. Ecology requires that all test methods report their analytical results for solid and soil samples on a dry weight basis. Reporting on a dry weight basis compensates for variability in water content and provides a consistent procedure for all analytical results provided to ecology for designation purposes.

(7) "Ground-Water Monitoring List" Appendix IX to 40 C.F.R. Part 264 is replaced with the version in Appendix 5 of *Chemical Test Methods for Designating Dangerous Waste*, Department of Ecology Publication #97-407, revised December 2014. The Appendix "Ground-Water Monitoring List" in *Chemical Testing Methods* includes the columns "Suggested methods" and "PQL."

[Statutory Authority: Chapter 70.105, 70.105D RCW and Subtitle C of RCRA. WSR 20-20-045 (Order 19-07), § 173-303-110, filed 9/30/20, effective 10/31/20. Statutory Authority: Chapters 70.105, 70.105D RCW and RCRA. WSR 19-04-038 (Order 16-03), § 173-303-110, filed 1/28/19,

effective 4/28/19. Statutory Authority: Chapter 70.105 RCW. WSR 15-01-123 (Order 13-07), § 173-303-110, filed 12/18/14, effective 1/18/15. Statutory Authority: Chapters 70.105 and 70.105D RCW. WSR 09-14-105 (Order 07-12), § 173-303-110, filed 6/30/09, effective 7/31/09. Statutory Authority: Chapters 70.105, 70.105D, and 15.54 RCW and RCW 70.105.007. WSR 04-24-065 (Order 03-10), § 173-303-110, filed 11/30/04, effective 1/1/05. Statutory Authority: Chapters 70.105 and 70.105D RCW. WSR 03-07-049 (Order 02-03), § 173-303-110, filed 3/13/03, effective 4/13/03. Statutory Authority: Chapters 70.105, 70.105D, 15.54 RCW and RCW 70.105.007. WSR 00-11-040 (Order 99-01), § 173-303-110, filed 5/10/00, effective 6/10/00. Statutory Authority: Chapters 70.105 and 70.105D RCW. WSR 98-03-018 (Order 97-03), § 173-303-110, filed 1/12/98, effective 2/12/98; WSR 95-22-008 (Order 94-30), § 173-303-110, filed 10/19/95, effective 11/19/95; WSR 94-01-060 (Order 92-33), § 173-303-110, filed 12/8/93, effective 1/8/94. Statutory Authority: Chapters 70.105 and 70.105D RCW, 40 C.F.R. Part 271.3 and RCRA § 3006 (42 U.S.C. 3251). WSR 91-07-005 (Order 90-42), § 173-303-110, filed 3/7/91, effective 4/7/91. Statutory Authority: Chapter 70.105 RCW. WSR 89-02-059 (Order 88-24), § 173-303-110, filed 1/4/89; WSR 86-12-057 (Order DE-85-10), § 173-303-110, filed 6/3/86; WSR 84-14-031 (Order DE 84-22), § 173-303-110, filed 6/27/84. Statutory Authority: Chapter 70.105 RCW and RCW 70.95.260. WSR 82-05-023 (Order DE 81-33), § 173-303-110, filed 2/10/82.]