



Ohio Administrative Code

Rule 3745-30-03 Residual waste characterization.

Effective: May 28, 2021

(A) To determine and confirm whether it is appropriate to dispose a particular IMW waste stream in a residual landfill, the owner or operator shall sample the IMW in accordance with paragraph (C) of this rule. An extract from the IMW shall be obtained and tested in accordance with paragraphs (D) and (E) of this rule for the following parameters:

(1) For IMW generated by fuel burning operations as specified in paragraph (I)(1)(a) of rule 3745-30-01 of the Administrative Code, parameter numbers one through eight, ten through fifteen, and forty of appendix B to this rule.

(2) For IMW generated by foundry operations as specified in paragraph (I)(1)(b) of rule 3745-30-01 of the Administrative Code, parameter numbers one through eighteen, twenty-two through twenty-four, thirty-two, thirty-five, thirty-six, and forty of appendix B to this rule.

(3) For IMW generated by pulp and papermaking operations as specified in paragraph (I)(1)(c) of rule 3745-30-01 of the Administrative Code, parameter numbers one through forty of appendix B to this rule.

(4) For IMW generated by steelmaking operations as specified in paragraph (I)(1)(d) of rule 3745-30-01 of the Administrative Code, parameter numbers one through seventeen and forty of appendix B to this rule.

(5) For IMW generated from gypsum processing plant operations as specified in paragraph (I)(1)(e) of rule 3745-30-01 of the Administrative Code, parameter numbers one through seventeen and forty of appendix B to this rule.

(6) For IMW generated from lime processing operations as specified in paragraph (I)(1)(f) of rule 3745-30-01 of the Administrative Code, parameter numbers one through six, eight, ten through fifteen, and forty of appendix B to this rule.



(7) For IMW generated from portland cement operations as specified in paragraph (I)(1)(g) of rule 3745-30-01 of the Administrative Code, parameter numbers one through seventeen and forty of appendix B to this rule.

(8) For IMW specified in paragraph (I)(1)(h) of rule 3745-30-01 of the Administrative Code, applicable parameters approved by the director based on process or material knowledge or previously acquired waste characterization.

(B) As an alternative to a parameter list prescribed in paragraph (A) of this rule, the owner or operator may use another parameter list to characterize the IMW in accordance with the following:

(1) Parameters may be added or removed from the parameters listed in paragraph (A) of this rule if authorized by Ohio EPA.

(2) Ohio EPA may require the addition of a parameter to the parameter list prescribed in paragraph (A) of this rule based on process or material knowledge or previously acquired waste characterization data.

(3) If a parameter is added to the list prescribed in paragraph (A) of this rule, the maximum allowable concentration shall be set as thirty times the maximum contaminant level established in Chapters 3745-81 and 3745-82 of the Administrative Code. If a maximum contaminant level does not exist for that parameter, the maximum allowable concentration shall be set as thirty times the United States environmental protection agency regional screening level for resident tap water with a target hazard quotient of 1.0.

(4) A compound may be removed from the parameter list prescribed in paragraph (A) of this rule when performing the waste characterization required by paragraph (G) of this rule if the waste characterization conducted in accordance with paragraphs (C) to (F) of this rule demonstrates that the parameter is either not present in the waste or present at such low concentrations that the applicable maximum allowable concentration for the proposed residual landfill will not be exceeded.

(C) All samples of IMW shall be composite samples of that waste as described in "Guidance on



Choosing a Sampling Design for Environmental Data Collection" (EPA/240/R-02/005) and the owner or operator shall employ all reasonable measures, such as sampling different sources of the IMW at different times or conducting random sampling of a representative pile of the residual waste generated by the same production processes using the same raw materials at different times, to ensure that representative composite samples are obtained.

(1) At the discretion of the applicant, owner, or operator, wastes may be mixed or treated prior to collecting composite samples as long as one of the following criteria are met:

(a) The individual wastes are mixed prior to discharge in the normal production process of the generator or the individual wastes are generated by substantially similar industrial processes and raw materials.

(b) The mixing of individual wastes results in a waste in which leaching characteristics are reduced relative to one or more of the individual wastes due to attenuation factors other than dilution, such as precipitation, adsorption, or ion exchange and the applicant, owner, or operator demonstrates the following to Ohio EPA:

(i) That a reduction in leaching characteristics occurs in one or more parameters due to such a factor. At a minimum, the demonstration shall be submitted to Ohio EPA for approval and it shall include the following:

(a) The concentration, determined in accordance with the waste characterization specified in paragraph (E) of this rule, of each parameter that undergoes a reduction in concentration due to such a factor and of each parameter with a concentration greater than fifty per cent of the maximum concentration for the proposed landfill class, for the following:

(i) Each individual waste in the mixture.

(ii) The resultant mixture.

(b) A listing and the ratio, by weight and volume, of the individual wastes that comprise the mixture.



(c) Calculations using the concentration and weight data required by paragraphs (C)(1)(b)(i)(a), (C)(1)(b)(i)(b), and (C)(1)(c) of this rule, which demonstrate quantitatively that the reduction in leaching characteristics is not due solely to dilution.

(d) An identification and explanation of the chemical reactions, including chemical equations, which causes the attenuation.

(ii) The individual wastes are mixed in the same ratios and in the same manner in which they will be mixed prior to disposal during the normal operation of the residual landfill.

(c) IMW may be treated by aeration to reduce the concentration of phenol prior to the waste characterization performed in accordance with paragraph (D) of this rule provided that an aeration process is performed in the same manner and for the same duration on all similar IMW prior to disposal in the residual landfill.

(2) If the director determines that mixing of individual wastes when co-disposed in the residual landfill facility may result in increased concentrations of parameters, wastes shall be mixed prior to collecting composite samples.

(D) To obtain extracts for the purpose of characterizing IMW proposed for disposal in a residual landfill, the applicant, owner, or operator shall use the specifications of the United States environmental protection agency's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846), method 1311, method 1312, method 1313, method 1314, or method 1315. The acid and water solutions may each be used for specific parameters as appropriate to utilize characterization knowledge from other testing, such as hazardous waste determination. The solution chosen for a parameter in the initial characterization of IMW shall be used for that parameter in all subsequent characterizations of that waste. Laboratory analytical methods for determining the concentration of the parameters required by paragraph (A) of this rule in an extract shall be in accordance with the following:

(1) Methods specified in United States environmental protection agency's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) for the analysis of organic and inorganic parameters.



(2) ASTM D5907 or SM 2540C for the analysis of total dissolved solids.

(E) The concentration of all parameters required to be analyzed by paragraph (A) of this rule shall be determined using a minimum number of seven samples. Based on a high degree of variability in the concentration of a parameter at or near the maximum allowable concentration for disposal in a residual landfill, the sampler, applicant, owner or operator, or Ohio EPA may determine that additional samples are necessary to characterize the IMW. The maximum allowable concentration is established in appendix B to this rule and, if appropriate, by paragraph (B) of this rule. The waste classification shall be performed to determine either of the following:

(1) The concentrations of all parameters required for analysis by paragraph (A) of this rule are less than seventy per cent of the maximum allowable concentrations for disposal in a residual landfill.

(2) The upper limit of the eighty per cent confidence interval of the mean of the concentration of each parameter required for analysis by paragraph (A) of this rule is below the maximum allowable concentration for disposal in a residual landfill. The statistical procedure for determining the eighty per cent confidence intervals shall be in accordance with appendix A to this rule or with an alternative statistical procedure deemed acceptable by Ohio EPA.

(F) Leachate from previously disposed IMW that is representative of long-term field leachate of the IMW proposed for future disposal may be substituted for the extract specified in paragraph (D) of this rule upon written concurrence from Ohio EPA. Ohio EPA may allow alternative statistical procedures to those specified in paragraph (E) of this rule when leachate is used.

(G) Upon the effective date of a permit to install for a residual landfill, the owner or operator shall characterize each waste in accordance with the following:

(1) Not later than twelve months after the effective date of the permit, establish a confirmation sampling date by collecting one sample of each waste and characterizing it in accordance with paragraphs (A) to (D) of this rule. Based on a concentration of a parameter that exceeds limit determined by paragraph (E)(1) or (E)(2) of this rule, the sampler, applicant, owner or operator, or Ohio EPA may determine that additional samples are necessary to characterize the IMW.



- (2) Annually, not later than forty-five days after the confirmation sampling date established in accordance with paragraph (G)(1) of this rule, or according to a more frequent schedule authorized by Ohio EPA based on variability noted in previous sampling events or other factors affecting the predictability of waste characteristics, collect one or more samples of each waste and characterize it in accordance with paragraphs (A) to (D) of this rule.
- (3) Submit all characterization data to Ohio EPA not later than seventy-five days after sampling and include a general process flow diagram that displays the processes, points of generation, and types of wastes generated.
- (4) If a test result indicates that the maximum allowable concentration for disposal in the residual landfill is exceeded, submit two test results from additional samples not later than seventy-five days after receipt of the test results. Testing may be limited to the parameter in exceedance and any parameters with a concentration greater than fifty per cent of the maximum allowable concentration. Test results from two samples are needed to reject the original exceedance. If the original exceedance is not rejected, the owner or operator shall cease disposal of the waste in the residual landfill facility. The owner or operator may submit to Ohio EPA a new waste characterization in accordance with paragraphs (A) to (E) of this rule or submit a permit to install application for modification to future phases of the residual landfill to comply with the liner system prescribed in rule 3745-30-07 of the Administrative Code due to a change in the type of waste received. If the owner or operator submits a new waste characterization, the director shall evaluate the characterization for the applicable maximum allowable concentration for disposal in a residual waste landfill and may require that the owner or operator submit a permit to install application to modify the landfill to comply with the liner system prescribed in rule 3745-30-07 of the Administrative Code. The director shall not apply the siting criteria specified in rule 3745-30-06 of the Administrative Code to such a permit to install application, but may require additional environmentally protective measures.
- (5) Whenever the production process or raw materials used in the production process change significantly or new wastes are proposed for disposal in the residual landfill, characterize the waste in accordance with paragraphs (A) to (E) of this rule. For the purposes of this rule, a significant change means that the change would be reasonably expected to cause the IMW to fail to meet the



criteria for disposal in a residual landfill, as established in rule 3745-30-03 of the Administrative Code.

[Comment: The confirmation sampling date established pursuant to paragraph (G)(1) of this rule is the same date to be applied to a new waste proposed for disposal.]

(H) All characterization data shall be submitted to Ohio EPA and be accompanied by a completed chain of custody documentation. The chain of custody documentation shall be a field tracking report form to record sample custody in the field prior to and during shipment.

(I) Incorporation by reference. The text of the incorporated materials is not included in this rule and are hereby made a part of this rule. Only the specific version specified in this rule is incorporated. Any amendment or revision to a referenced document is not incorporated until this rule has been amended to specify the new version. The materials incorporated by reference are available as follows:

(1) American public health association, American water works association, and water environment federation SM 2540C "Total Dissolved Solids Dried at 180C," "Standard Methods for the Examination of Water and Wastewater"; 23rd edition, 2017. The full text of this document is available in electronic format at <http://www.standardmethods.org/>.

(2) United States environmental protection agency, "Guidance on Choosing a Sampling Design for Environmental Data Collection EPA/240/R-02/005," published in December 2002. The full text is available at <http://www.epa.gov/nscep> or by writing to U.S. environmental protection agency/national service center for environmental publications, P. O. Box 42419, Cincinnati, OH 45242-0419.

(3) United States environmental protection agency, "Regional Screening Levels," May 2020. The full text is available in electronic format at: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-> May-2016.