

3745-266-102 **Permit standards for burners.**

(A) Applicability.

- (1) General. Owners and operators of boilers and industrial furnaces burning hazardous waste and not operating under permit by rule must comply with the requirements of this rule, rule 3745-50-66, and paragraphs (C)(9) to (C)(9)(f) of rule 3745-50-44 of the Administrative Code, unless exempt under the small quantity burner exemption of rule 3745-266-108 of the Administrative Code.
- (2) Applicability of Chapters 3745-54 to 3745-57 and 3745-205 of the Administrative Code. Owners and operators of boilers and industrial furnaces that burn hazardous waste are subject to the following provisions, except as provided otherwise by rules 3745-266-100 to 3745-266-112 of the Administrative Code:
 - (a) Reserved;
 - (b) Rules 3745-54-11 to 3745-54-19 of the Administrative Code (general facility standards);
 - (c) Rules 3745-54-31 to 3745-54-37 of the Administrative Code (preparedness and prevention);
 - (d) Rules 3745-54-51 to 3745-54-56 of the Administrative Code (contingency plan and emergency procedures);
 - (e) The applicable provisions of rules 3745-54-71 to 3745-54-77 of the Administrative Code (manifest system, recordkeeping, and reporting);
 - (f) Rules 3745-54-90 and 3745-54-101 of the Administrative Code (releases from waste management units);
 - (g) Rules 3745-55-11 to 3745-55-15 of the Administrative Code (closure and post-closure);
 - (h) Rules 3745-55-41, 3745-55-42, 3745-55-43, and 3745-55-47 to 3745-55-51 of the Administrative Code, except that states and the federal government are exempt from the requirements of rules 3745-55-40 to 3745-55-51 of the Administrative Code (financial requirements); and

(i) Reserved.

(B) Hazardous waste analysis.

(1) The owner or operator must provide an analysis of the hazardous waste that quantifies the concentration of any constituent identified in the appendix to rule 3745-51-11 of the Administrative Code that may reasonably be expected to be in the waste. Such constituents must be identified and quantified if present, at levels detectable by using appropriate analytical procedures. Alternative methods that meet or exceed the method performance capabilities of U.S. EPA publication SW-846 methods may be used. If U.S. EPA publication SW-846 does not prescribe a method for a particular determination, the owner or operator must use the best available method. The constituents in the appendix to rule 3745-51-11 of the Administrative Code that are excluded from this analysis must be identified and the basis for their exclusion explained. This analysis will be used to provide all information required by rules 3745-50-66 and 3745-266-100 to 3745-266-112 and paragraphs (C)(9) to (C)(9)(f) of rule 3745-50-44 of the Administrative Code and to enable the permit writer to prescribe such permit conditions as necessary to protect human health and the environment. Such analysis must be included as a portion of the "Part B" permit application, or, for facilities operating under the interim standards of rules 3745-266-100 to 3745-266-112 of the Administrative Code, as a portion of the trial burn plan that may be submitted before the "Part B" application under provisions of paragraph (G) of rule 3745-50-66 of the Administrative Code as well as any other analysis required by the permit authority in preparing the permit. Owners and operators of boilers and industrial furnaces not operating under the interim standards must provide the information required by paragraphs (C)(9) to (C)(9)(f) of rule 3745-50-44 or paragraph (C) of rule 3745-50-66 of the Administrative Code in the "Part B" application to the greatest extent possible.

(2) Throughout normal operation, the owner or operator must conduct sampling and analysis as necessary to ensure that the hazardous waste, other fuels, and industrial furnace feedstocks fired into the boiler or industrial furnace are within the physical and chemical composition limits specified in the permit.

(C) Emissions standards. Owners and operators must comply with emissions standards provided by rules 3745-266-104 to 3745-266-107 of the Administrative Code.

(D) Permits.

- (1) The owner or operator may burn only hazardous wastes specified in the facility permit and only under the operating conditions specified under paragraph (E) of this rule, except in approved trial burns under the conditions specified in rule 3745-50-66 of the Administrative Code.
- (2) Hazardous wastes not specified in the permit may not be burned until operating conditions have been specified under a new permit or permit modification, as applicable. Operating requirements for new wastes may be based on either trial burn results or alternative data included with "Part B" of a permit application under paragraphs (C)(9) to (C)(9)(f) of rule 3745-50-44 of the Administrative Code.
- (3) Boilers and industrial furnaces operating under the interim standards of rule 3745-266-103 of the Administrative Code are permitted under procedures provided by paragraph (G) of rule 3745-50-66 of the Administrative Code.
- (4) A permit for a new boiler or industrial furnace (those boilers and industrial furnaces not operating under the interim standards) must establish appropriate conditions for each of the applicable requirements of this rule, including but not limited to allowable hazardous waste firing rates and operating conditions necessary to meet the requirements of paragraph (E) of this rule, in order to comply with the following standards:
 - (a) For the period beginning with initial introduction of hazardous waste and ending with initiation of the trial burn, and only for the minimum time required to bring the device to a point of operational readiness to conduct a trial burn, not to exceed a duration of seven hundred twenty hours operating time when burning hazardous waste, the operating requirements must be those most likely to ensure compliance with the emission standards of rules 3745-266-104 to 3745-266-107 of the Administrative Code, based on Ohio EPA's engineering judgment. If the applicant is seeking a waiver from a trial burn to demonstrate conformance with a particular emission standard, the operating requirements during this initial period of operation must include those specified by the applicable provisions of rule 3745-266-104, 3745-266-105, 3745-266-106, or 3745-266-107 of the Administrative Code. The director may extend the duration of this period for up to seven hundred twenty additional hours when good cause for the extension is demonstrated by the applicant.
 - (b) For the duration of the trial burn, the operating requirements must be sufficient to demonstrate compliance with the emissions standards of rules 3745-266-104 to 3745-266-107 of the Administrative Code and

must be in accordance with the approved trial burn plan;

- (c) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, submittal of the trial burn results by the applicant, review of the trial burn results and modification of the facility permit by the director to reflect the trial burn results, the operating requirements must be those most likely to ensure compliance with the emission standards rules 3745-266-104 to 3745-266-107 of the Administrative Code based on Ohio EPA's engineering judgment.
- (d) For the remaining duration of the permit, the operating requirements must be those demonstrated in a trial burn or by alternative data specified in paragraphs (C)(9) to (C)(9)(f) of rule 3745-50-44 of the Administrative Code, as sufficient to ensure compliance with the emissions standards of rules 3745-266-104 to 3745-266-107 of the Administrative Code.

(E) Operating requirements.

- (1) General. A boiler or industrial furnace burning hazardous waste must be operated in accordance with the operating requirements specified in the permit at all times there is hazardous waste in the unit.
- (2) Requirements to ensure compliance with the organic emissions standards.
 - (a) Destruction and removal efficiency (DRE) standard. Operating conditions will be specified either on a case-by-case basis for each hazardous waste burned as those demonstrated [in a trial burn or by alternative data as specified in paragraphs (C)(9) to (C)(9)(f) of rule 3745-50-44 of the Administrative Code] to be sufficient to comply with the DRE performance standard of paragraph (A) of rule 3745-266-104 of the Administrative Code or as those special operating requirements provided by paragraph (A)(4) of rule 3745-266-104 of the Administrative Code for the waiver of the DRE trial burn. When the DRE trial burn is not waived under paragraph (A)(4) of rule 3745-266-104 of the Administrative Code, each set of operating requirements will specify the composition of the hazardous waste (including acceptable variations in the physical and chemical properties of the hazardous waste which will not affect compliance with the DRE performance standard) to which the operating requirements apply. For each such hazardous waste, the permit will specify acceptable operating limits including, but not limited to, the following conditions as appropriate:

- (i) Feed rate of hazardous waste and other fuels measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (ii) Minimum and maximum device production rate when producing normal product expressed in appropriate units, measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (iii) Appropriate controls of the hazardous waste firing system;
 - (iv) Allowable variation in boiler and industrial furnace system design or operating procedures;
 - (v) Minimum combustion gas temperature measured at a location indicative of combustion chamber temperature, measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (vi) An appropriate indicator of combustion gas velocity, measured and specified as prescribed in paragraph (E)(6) of this rule, unless documentation is provided under rule 3745-50-66 of the Administrative Code demonstrating adequate combustion gas residence time; and
 - (vii) Such other operating requirements as are necessary to ensure that the DRE performance standard paragraph (A) of rule 3745-266-104 of the Administrative Code is met.
- (b) Carbon monoxide and hydrocarbon standards. The permit must incorporate a carbon monoxide limit and, as appropriate, a hydrocarbon limit as provided by paragraphs (B), (C), (D), (E), and (F) of rule 3745-266-104 of the Administrative Code. The permit limits will be specified as follows:
- (i) When complying with the carbon monoxide standard of paragraph (B)(1) of rule 3745-266-104 of the Administrative Code, the permit limit is one hundred ppmv;
 - (ii) When complying with the alternative carbon monoxide standard under paragraph (C) of rule 3745-266-104 of the Administrative Code, the permit limit for carbon monoxide is based on the trial burn and is established as the average over all valid runs of the highest hourly rolling average carbon monoxide level of each run,

and the permit limit for hydrocarbon is twenty ppmv [as defined in paragraph (C)(1) of rule 3745-266-104 of the Administrative Code], except as provided in paragraph (F) of rule 3745-266-104 of the Administrative Code.

(iii) When complying with the alternative hydrocarbon limit for industrial furnaces under paragraph (F) of rule 3745-266-104 of the Administrative Code, the permit limit for hydrocarbon and carbon monoxide is the baseline level when hazardous waste is not burned as specified by paragraph (F) of rule 3745-266-104 of the Administrative Code.

(c) Start-up and shut-down. During start-up and shut-down of the boiler or industrial furnace, hazardous waste [except waste fed solely as an ingredient under the "Tier I" (or "Adjusted Tier I") feed rate screening limits for metals and chloride/chlorine, and except low risk waste exempt from the trial burn requirements under paragraph (A)(5) of rule 3745-266-104 and rules 3745-266-105, 3745-266-106, and 3745-266-107 of the Administrative Code] must not be fed into the device unless the device is operating within the conditions of operation specified in the permit.

(3) Requirements to ensure conformance with the particulate standard.

(a) Except as provided in paragraphs (E)(3)(b) and (E)(3)(c) of this rule, the permit must specify the following operating requirements to ensure conformance with the particulate standard specified in rule 3745-266-105 of the Administrative Code:

(i) Total ash feed rate to the device from hazardous waste, other fuels, and industrial furnace feedstocks, measured and specified as prescribed in paragraph (E)(6) of this rule;

(ii) Maximum device production rate when producing normal product expressed in appropriate units, and measured and specified as prescribed in paragraph (E)(6) of this rule;

(iii) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(iv) Allowable variation in boiler and industrial furnace system design

including any air pollution control system or operating procedures; and

- (v) Such other operating requirements as are necessary to ensure that the particulate standard in paragraph (A) of rule 3745-266-105 of the Administrative Code is met.
 - (b) Permit conditions to ensure conformance with the particulate matter standard must not be provided for facilities exempt from the particulate matter standard under paragraph (B) of rule 3745-266-105 of the Administrative Code;
 - (c) For cement kilns and light-weight aggregate kilns, permit conditions to ensure compliance with the particulate standard must not limit the ash content of hazardous waste or other feed materials.
- (4) Requirements to ensure conformance with the metals emissions standard.
- (a) For conformance with the "Tier I" (or "Adjusted Tier I") metals feed rate screening limits of paragraph (B) or (E) of rule 3745-266-106 of the Administrative Code, the permit must specify the following operating requirements:
 - (i) Total feed rate of each metal in hazardous waste, other fuels, and industrial furnace feedstocks measured and specified under provisions of paragraph (E)(6) of this rule;
 - (ii) Total feed rate of hazardous waste measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (iii) A sampling and metals analysis program for the hazardous waste, other fuels, and industrial furnace feedstocks;
 - (b) For conformance with the "Tier II" metals emission rate screening limits under paragraph (C) of rule 3745-266-106 of the Administrative Code and the "Tier III" metals controls under paragraph (D) of rule 3745-266-106 of the Administrative Code, the permit must specify the following operating requirements:
 - (i) Maximum emission rate for each metal specified as the average emission rate during the trial burn;

- (ii) Feed rate of total hazardous waste and pumpable hazardous waste, each measured and specified as prescribed in paragraph (E)(6)(a) of this rule;
- (iii) Feed rate of each metal in the following feedstreams, measured and specified as prescribed in paragraph (E)(6) of this rule:
 - (a) Total feedstreams;
 - (b) Total hazardous waste feed; and
 - (c) Total pumpable hazardous waste feed;
- (iv) Total feed rate of chlorine and chloride in total feedstreams measured and specified as prescribed in paragraph (E)(6) of this rule;
- (v) Maximum combustion gas temperature measured at a location indicative of combustion chamber temperature, and measured and specified as prescribed in paragraph (E)(6) of this rule;
- (vi) Maximum flue gas temperature at the inlet to the particulate matter air pollution control system measured and specified as prescribed in paragraph (E)(6) of this rule;
- (vii) Maximum device production rate when producing normal product expressed in appropriate units and measured and specified as prescribed in paragraph (E)(6) of this rule;
- (viii) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;
- (ix) Allowable variation in boiler and industrial furnace system design including any air pollution control system or operating procedures; and
- (x) Such other operating requirements as are necessary to ensure that the metals standards under paragraph (C) or (D) of rule 3745-266-106 of the Administrative Code are met.

- (c) For conformance with an alternative implementation approach approved by the director under paragraph (F) of rule 3745-266-106 of the Administrative Code, the permit will specify the following operating requirements:
- (i) Maximum emission rate for each metal specified as the average emission rate during the trial burn;
 - (ii) Feed rate of total hazardous waste and pumpable hazardous waste, each measured and specified as prescribed in paragraph (E)(6)(a) of this rule;
 - (iii) Feed rate of each metal in the following feedstreams, measured and specified as prescribed in paragraph (E)(6) of this rule:
 - (a) Total hazardous waste feed; and
 - (b) Total pumpable hazardous waste feed;
 - (iv) Total feed rate of chlorine and chloride in total feedstreams measured and specified prescribed in paragraph (E)(6) of this rule;
 - (v) Maximum combustion gas temperature measured at a location indicative of combustion chamber temperature, and measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (vi) Maximum flue gas temperature at the inlet to the particulate matter air pollution control system measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (vii) Maximum device production rate when producing normal product expressed in appropriate units and measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (viii) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;
 - (ix) Allowable variation in boiler and industrial furnace system design

including any air pollution control system or operating procedures; and

- (x) Such other operating requirements as are necessary to ensure that the metals standards under paragraph (C) or (D) of rule 3745-266-106 of the Administrative Code are met.

(5) Requirements to ensure conformance with the hydrogen chloride and chlorine gas standards.

- (a) For conformance with the "Tier I" total chloride and chlorine feed rate screening limits of paragraph (B)(1) of rule 3745-266-107 of the Administrative Code, the permit will specify the following operating requirements:

- (i) Feed rate of total chloride and chlorine in hazardous waste, other fuels, and industrial furnace feedstocks measured and specified as prescribed in paragraph (E)(6) of this rule;

- (ii) Feed rate of total hazardous waste measured and specified as prescribed in paragraph (E)(6) of this rule;

- (iii) A sampling and analysis program for total chloride and chlorine for the hazardous waste, other fuels, and industrial furnace feedstocks;

- (b) For conformance with the "Tier II" hydrogen chloride and chlorine gas, emission rate screening limits under paragraph (B)(2) of rule 3745-266-107 of the Administrative Code and the "Tier III" hydrogen chloride and chlorine gas controls under paragraph (C) of rule 3745-266-107 of the Administrative Code, the permit will specify the following operating requirements:

- (i) Maximum emission rate for hydrogen chloride and chlorine gas specified as the average emission rate during the trial burn;

- (ii) Feed rate of total hazardous waste measured and specified as prescribed in paragraph (E)(6) of this rule;

- (iii) Total feed rate of chlorine and chloride in total feedstreams, measured and specified as prescribed in paragraph (E)(6) of this rule;

- (iv) Maximum device production rate when producing normal product expressed in appropriate units, measured and specified as prescribed in paragraph (E)(6) of this rule;
 - (v) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;
 - (vi) Allowable variation in boiler and industrial furnace system design including any air pollution control system or operating procedures; and
 - (vii) Such other operating requirements as are necessary to ensure that the hydrogen chloride and chlorine gas standards under paragraph (B)(2) or (C) of rule 3745-266-107 of the Administrative Code are met.
- (6) Measuring parameters and establishing limits based on trial burn data.
- (a) General requirements. As specified in paragraphs (E)(2) to (E)(5) of this rule, each operating parameter must be measured, and permit limits on the parameter must be established, according to either of the following procedures:
 - (i) Instantaneous limits. A parameter may be measured and recorded on an instantaneous basis (i.e., the value that occurs at any time) and the permit limit specified as the time-weighted average during all valid runs of the trial burn; or
 - (ii) Hourly rolling average.
 - (a) The limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:
 - (i) A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.
 - (ii) An hourly rolling average is the arithmetic mean of the

rate of each feedstream must be monitored under the continuous monitoring requirements of paragraphs (E)(6)(a) and (E)(6)(b) of this rule.

(d) Conduct of trial burn testing.

- (i) If compliance with all applicable emissions standards of rules 3745-266-104 to 3745-266-107 of the Administrative Code is not demonstrated simultaneously during a set of test runs, the operating conditions of additional test runs required to demonstrate compliance with remaining emissions standards must be as close as possible to the original operating conditions.
- (ii) Prior to obtaining test data for purposes of demonstrating compliance with the emissions standards of rules 3745-266-104 to 3745-266-107 of the Administrative Code or establishing limits on operating parameters under this rule, the facility must operate under trial burn conditions for a sufficient period to reach steady-state operations. The director may determine, however, that industrial furnaces that recycle collected particulate matter back into the furnace and that comply with an alternative implementation approach for metals under paragraph (F) of rule 3745-266-106 of the Administrative Code need not reach steady state conditions with respect to the flow of metals in the system prior to beginning compliance testing for metals emissions.
- (iii) Trial burn data on the level of an operating parameter for which a limit must be established in the permit must be obtained during emissions sampling for the pollutant(s) (i.e., metals, particulate matter, hydrogen chloride/chlorine gas, organic compounds) for which the parameter must be established as specified by paragraph (E) of this rule.

(7) General requirements.

(a) Fugitive emissions. Fugitive emissions must be controlled by:

- (i) Keeping the combustion zone totally sealed against fugitive emissions; or
- (ii) Maintaining the combustion zone pressure lower than atmospheric pressure; or

- (iii) An alternate means of control demonstrated (with "Part B" of the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.
- (b) Automatic waste feed cutoff. A boiler or industrial furnace must be operated with a functioning system that automatically cuts off the hazardous waste feed when operating conditions deviate from those established under this rule. The director may limit the number of cutoffs per an operating period on a case-by-case basis. In addition:
 - (i) The permit limit for (the indicator of) minimum combustion chamber temperature must be maintained while hazardous waste or hazardous waste residues remain in the combustion chamber;
 - (ii) Exhaust gases must be ducted to the air pollution control system operated in accordance with the permit requirements while hazardous waste or hazardous waste residues remain in the combustion chamber; and
 - (iii) Operating parameters for which permit limits are established must continue to be monitored during the cutoff, and the hazardous waste feed must not be restarted until the levels of those parameters comply with the permit limits. For parameters that may be monitored on an instantaneous basis, the director will establish a minimum period of time after a waste feed cutoff during which the parameter must not exceed the permit limit before the hazardous waste feed may be restarted.
- (c) Changes. A boiler or industrial furnace must cease burning hazardous waste when changes in combustion properties, or feed rates of the hazardous waste, other fuels, or industrial furnace feedstocks, or changes in the boiler or industrial furnace design or operating conditions deviate from the limits as specified in the permit.

(8) Monitoring and inspections.

- (a) The owner or operator must monitor and record the following, at a minimum, while burning hazardous waste:
 - (i) If specified by the permit, feed rates and composition of hazardous waste, other fuels, and industrial furnace feedstocks, and feed

rates of ash, metals, and total chloride and chlorine;

- (ii) If specified by the permit, carbon monoxide, hydrocarbons, and oxygen on a continuous basis at a common point in the boiler or industrial furnace downstream of the combustion zone and prior to release of stack gases to the atmosphere in accordance with operating requirements specified in paragraph (E)(2)(b) of this rule. Carbon monoxide, hydrocarbons, and oxygen monitors must be installed, operated, and maintained in accordance with methods specified in the appendix to rule 3745-266-103 of the Administrative Code.
 - (iii) Upon the request of the director, sampling and analysis of the hazardous waste (and other fuels and industrial furnace feedstocks as appropriate), residues, and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the applicable standards of rules 3745-266-104, 3745-266-105, 3745-266-106, and 3745-266-107 of the Administrative Code.
- (b) All monitors must record data in units corresponding to the permit limit unless otherwise specified in the permit.
 - (c) The boiler or industrial furnace and associated equipment (pumps, valves, pipes, fuel storage tanks, etc.) must be subjected to thorough visual inspection when it contains hazardous waste, at least daily for leaks, spills, fugitive emissions, and signs of tampering.
 - (d) The automatic hazardous waste feed cutoff system and associated alarms must be tested at least once every seven days when hazardous waste is burned to verify operability, unless the applicant demonstrates to the director that weekly testing will unduly restrict or upset operations and that less frequent inspections will be adequate. At a minimum, operational testing must be conducted at least once every thirty days.
 - (e) These monitoring and inspection data must be recorded and the records must be placed in the operating record required by rule 3745-54-73 of the Administrative Code.
- (9) Direct transfer to the burner. If hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit, the owner and operator must comply with rule 3745-266-111 of the Administrative Code.

- (10) Recordkeeping. The owner or operator must ~~keep~~maintain in the operating record of the facility all information and data required by this rule ~~until closure of the facility~~for five years.
- (11) Closure. At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including, but not limited to, ash, scrubber waters, and scrubber sludges) from the boiler or industrial furnace.

~~[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]~~

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Effective: 09/05/2010

R.C. 119.032 review dates: 04/14/2010 and 08/25/2014

CERTIFIED ELECTRONICALLY

Certification

07/23/2010

Date

Promulgated Under: 119.03
Statutory Authority: 3734.12
Rule Amplifies: 3734.12
Prior Effective Dates: 12/07/2004, 02/16/2009