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Ohio Administrative Code

Rule 3745-266-104 Standards to control organic emissions.

Effective: September 29, 2021

(A) Destruction and removal efficiency (DRE) standard.

(1) General. Except as provided in paragraph (A)(3) of this rule, a boiler or industrial furnace burning hazardous waste shall achieve a DRE of 99.99 per cent for all organic hazardous constituents in the waste feed. To demonstrate conformance with this requirement, 99.99 per cent DRE shall be demonstrated during a trial burn for each principal organic hazardous constituent (POHC) designated [under paragraph (A)(2) of this rule] in the boiler's or industrial furnace's permit for each waste feed. DRE is determined for each POHC from the following equation:

$$DRE = 1 [1 - (W_{out} / W_{in})] x 100$$

where:

W_{in} = mass feed rate of one POHC in the hazardous waste fired to the boiler or industrial furnance.

W_{out} = mass emission rate of the same POHC present in stack gas prior to release to the atmosphere.

(2) Designation of POHCs. POHCs are those compounds for which compliance with the DRE requirements of this rule shall be demonstrated in a trial burn in conformance with procedures prescribed in rule 3745-50-66 of the Administrative Code. One or more POHCs shall be designated by the director for each waste feed to be burned. POHCs shall be designated based on the degree of difficulty of destruction of the organic constituents in the waste and on the organic constituents' concentrations or mass in the waste feed considering the results of waste analyses submitted with "Part B" of the permit application. POHCs are most likely to be selected from among those compounds listed in the appendix to rule 3745-51-11 of the Administrative Code that are also present in the normal waste feed. However, if the applicant demonstrates to the director's satisfaction that a compound not listed in the appendix to rule 3745-51-11 of the Administrative Code or not present in the normal waste feed is a suitable indicator of compliance with the DRE requirements of this rule,

that compound may be designated as a POHC. Such POHCs need not be toxic or organic compounds.

(3) Dioxin-listed waste. A boiler or industrial furnace burning hazardous waste containing (or derived from) EPA hazardous waste numbers F020, F021, F022, F023, F026, or F027 shall achieve a DRE of 99.9999 per cent for each POHC designated [under paragraph (A)(2) of this rule] in the boiler's or industrial furnace's permit. This performance shall be demonstrated on POHCs that are more difficult to burn than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. DRE is determined for each POHC from the equation in paragraph (A)(1) of this rule. In addition, the owner or operator of the boiler or industrial furnace shall notify the director of intent to burn EPA hazardous waste numbers F020, F021, F022, F023, F026, or F027.

(4) Automatic waiver of DRE trial burn. Owners and operators of boilers operated under the special operating requirements provided by rule 3745-266-110 of the Administrative Code are considered to be in compliance with the DRE standard of paragraph (A)(1) of this rule and are exempt from the DRE trial burn.

(5) Low risk waste. Owners and operators of boilers or industrial furnaces that burn hazardous waste in compliance with paragraph (A) of rule 3745- 266-109 of the Administrative Code are considered to be in compliance with the DRE standard of paragraph (A)(1) of this rule and are exempt from the DRE trial burn.

(B) Carbon monoxide standard.

(1) Except as provided in paragraph (C) of this rule, the stack gas concentration of carbon monoxide from a boiler or industrial furnace burning hazardous waste cannot exceed one hundred parts per million by volume (ppmv) on an hourly rolling average basis (i.e., over any sixty-minute period), continuously corrected to seven per cent oxygen, dry gas basis.

(2) Carbon monoxide and oxygen shall be continuously monitored in conformance with "Performance Specifications for Continuous Emission Monitoring of Hydrocarbons for Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste" in the appendix to rule 3745-266-103 of the Administrative Code.

(3) Compliance with the one hundred ppmv carbon monoxide limit shall be demonstrated during the trial burn (for new facilities or a permit by rule facility applying for a permit) or the compliance test (for permit by rule facilities). To demonstrate compliance, the highest hourly rolling average carbon monoxide level during any valid run of the trial burn or compliance test shall not exceed one hundred ppmv.

(C) Alternative carbon monoxide standard.

(1) The stack gas concentration of carbon monoxide from a boiler or industrial furnace burning hazardous waste may exceed the one hundred ppmv limit provided that stack gas concentrations of hydrocarbons do not exceed twenty ppmv, except as provided by paragraph (F) of this rule for certain industrial furnaces.

(2) Hydrocarbon limits shall be established under this rule on an hourly rolling average basis (i.e., over any sixty-minute period), reported as propane, and continuously corrected to seven per cent oxygen, dry gas basis.

(3) Hydrocarbons shall be continuously monitored in conformance with "Performance Specifications for Continuous Emission Monitoring of Hydrocarbons for Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste" in the appendix to rule 3745-266-103 of the Administrative Code. Carbon monoxide and oxygen shall be continuously monitored in conformance with paragraph (B)(2) of this rule.

(4) The alternative carbon monoxide standard is established based on carbon monoxide data during the trial burn (for a new facility) and the compliance test (for a permit by rule facility). The alternative carbon monoxide standard is the average over all valid runs of the highest hourly average carbon monoxide level for each run. The carbon monoxide limit is implemented on an hourly rolling average basis, and continuously corrected to seven per cent oxygen, dry gas basis.

(D) Special requirements for furnaces. Owners and operators of industrial furnaces (e.g., kilns, cupolas) that feed hazardous waste for a purpose other than solely as an ingredient [see paragraph (A)(5)(b) of rule 3745-266-103 of the Administrative Code] at any location other than the end where

products are normally discharged and where fuels are normally fired shall comply with the hydrocarbon limits provided by paragraph (C) or (F) of this rule irrespective of whether stack gas carbon monoxide concentrations meet the one hundred ppmv limit of paragraph (B) of this rule.

(E) Controls for dioxins and furans. Owners and operators of boilers and industrial furnaces that are equipped with a dry particulate matter control device that operates within the temperature range of four hundred fifty to seven hundred fifty degrees Fahrenheit, and industrial furnaces operating under an alternative hydrocarbon limit established under paragraph (F) of this rule shall conduct a site-specific risk assessment as follows to demonstrate that emissions of chlorinated dibenzo-p-dioxins and dibenzofurans do not result in an increased lifetime cancer risk to the hypothetical maximum exposed individual exceeding one in one hundred thousand:

(1) During the trial burn (for new facilities or a permit by rule facility applying for a permit) or compliance test (for permit by rule facilities), determine emission rates of the tetra- to octa-congeners of chlorinated dibenzo-p-dioxins and dibenzofurans (CDDs and CDFs) using method 0023A, "Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans Emissions from Stationary Sources," U.S. EPA publication SW-846;

(2) Estimate the 2,3,7,8-TCDD toxicity equivalence of the tetra- to octa- CDDs and CDFs congeners using "Procedures for Estimating the Toxicity Equivalence of Chlorinated Dibenzo-p-dioxin and Dibenzofuran Congeners" in the appendix to rule 3745-266-103 of the Administrative Code. Multiply the emission rates of CDD and CDF congeners with a toxicity equivalence greater than zero (see the procedure) by the calculated toxicity equivalence factor to estimate the equivalent emission rate of 2,3,7,8-TCDD;

(3) Conduct dispersion modeling using methods recommended in 40 CFR Part 51 appendix W ["Guideline on Air Quality Models (Revised)" and any supplements], the "Hazardous Waste Combustion Air Quality Screening Procedure," provided in the appendix to rule 3745-266-103 of the Administrative Code, or in "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised" to predict the maximum annual average off-site ground level concentration of 2,3,7,8-TCDD equivalents determined under paragraph (E)(2) of this rule. The maximum annual average concentration shall be used when a person resides on-site; and

(4) The ratio of the predicted maximum annual average ground level concentration of 2,3,7,8-TCDD equivalents to the risk-specific dose for 2,3,7,8-TCDD provided in appendix B to rule 3745-266-109 of the Administrative Code (2.2×10^{-7}) shall not exceed 1.0.

(F) Monitoring carbon monoxide and hydrocarbons in the by-pass duct of a cement kiln. Cement kilns may comply with the carbon monoxide and hydrocarbon limits provided by paragraphs (B), (C), and (D) of this rule by monitoring in the by-pass duct provided that both:

(1) Hazardous waste is fired only into the kiln and not at any location downstream from the kiln exit relative to the direction of gas flow.

(2) The by-pass duct diverts a minimum of ten per cent of kiln off-gas into the duct.

(G) Use of emissions test data to demonstrate compliance and establish operating limits. Compliance with this rule shall be demonstrated simultaneously by emissions testing or during separate runs under identical operating conditions. Further, data to demonstrate compliance with the carbon monoxide and hydrocarbon limits of this rule or to establish alternative carbon monoxide or hydrocarbon limits under this rule shall be obtained during the time that DRE testing, and where applicable, CDD and CDF testing under paragraph (E) of this rule and comprehensive organic emissions testing under paragraph (F) of this rule is conducted.

(H) Enforcement. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under rule 3745-266-102 of the Administrative Code) will be regarded as compliance with this rule. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with this rule may be information justifying modification of a permit under rule 3745-50-51 of the Administrative Code.

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