**Section 726.204 Standards to Control Organic Emissions**

a) Destruction Removal Efficiency (DRE) Standard

1) General. Except for subsection (a)(3), a boiler and industrial furnace (BIF) burning hazardous waste must achieve a DRE of 99.99 percent for all organic hazardous constituents in the waste feed. To demonstrate conformance with this requirement, 99.99 percent DRE must be demonstrated during a trial burn for each principal organic hazardous constituent (POHC) designated (under subsection (a)(2)) in its permit for each waste feed. DRE is determined for each POHC from the following equation:

$$DRE=100\frac{(I-O)}{I}$$

Where:

|  |  |  |
| --- | --- | --- |
| I | = | Mass feed rate of one POHC in the hazardous waste fired to the BIF |
| O | = | 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 Section must be demonstrated in a trial burn in compliance with procedures prescribed in 35 Ill. Adm. Code 703.232. One or more POHCs must be designated by the Agency for each waste feed to be burned. POHCs must be designated based on the degree of difficulty of destruction of the organic constituents in the waste and on their 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 Appendix H to 35 Ill. Adm. Code 721 that are also present in the normal waste feed. However, if the applicant demonstrates to the Agency that a compound not listed in Appendix H of 35 Ill. Adm. Code 721 or not present in the normal waste feed is a suitable indicator of compliance with the DRE requirements of this Section, that compound must be designated as a POHC. Such POHCs need not be toxic or organic compounds.

3) Dioxin-Listed Waste. A BIF burning hazardous waste containing (or derived from) USEPA Hazardous Wastes Nos. F020, F021, F022, F023, F026, or F027 must achieve a DRE of 99.9999 percent for each POHC designated (under subsection (a)(2)) in its permit. This performance must 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 subsection (a)(1). In addition, the owner or operator of the BIF must notify the Agency of intent to burn USEPA 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 Section 726.210 are considered to be in compliance with the DRE standard of subsection (a)(1) and are exempt from the DRE trial burn.

5) Low risk waste. Owners and operators of BIFs that burn hazardous waste in compliance with the requirements of Section 726.209(a) are considered to be in compliance with the DRE standard of subsection (a)(1) and are exempt from the DRE trial burn.

b) CO Standard

1) Except for subsection (c), the stack gas concentration of CO from a BIF burning hazardous waste cannot exceed 100 ppmv on an hourly rolling average basis (i.e., over any 60 minute period), continuously corrected to seven percent oxygen, dry gas basis.

2) CO and oxygen must be continuously monitored according to "Performance Specifications for Continuous Emission Monitoring of Carbon Monoxide and Oxygen for Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste" in Appendix I.

3) Compliance with the 100 ppmv CO limit must be demonstrated during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). To demonstrate compliance, the highest hourly rolling average CO level during any valid run of the trial burn or compliance test must not exceed 100 ppmv.

c) Alternative CO Standard

1) The stack gas concentration of CO from a BIF burning hazardous waste may exceed the 100 ppmv limit if stack gas concentrations of HCs do not exceed 20 ppmv, except for subsection (f) for certain industrial furnaces.

2) HC limits must be established under this Section on an hourly rolling average basis (i.e., over any 60 minute period), reported as propane, and continuously corrected to seven percent oxygen, dry gas basis.

3) HC must be continuously monitored according to "Performance Specifications for Continuous Emission Monitoring of Hydrocarbons for Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste" in Appendix I. CO and oxygen must be continuously monitored according to subsection (b)(2).

4) The alternative CO standard is established based on CO data during the trial burn (for a new facility) and the compliance test (for an interim status facility). The alternative CO standard is the average over all valid runs of the highest hourly average CO level for each run. The CO limit is implemented on an hourly rolling average basis, and continuously corrected to seven percent 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 Section 726.203(a)(5)(B)) at any location other than the end where products are normally discharged and where fuels are normally fired must comply with the HC limits of subsection (c) or (f) irrespective of whether stack gas CO concentrations meet the 100 ppmv limit of subsection (b).

e) Controls for Dioxins and Furans. Owners and operators of BIFs that are equipped with a dry PM control device that operates within the temperature range of 450 °F through 750 °F, and industrial furnaces operating under an alternative HC limit established under subsection (f) must 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 (MEI) exceeding 1 x 10-5 (1 in 100,000):

1) During the trial burn (for new facilities or an interim status facility applying for a permit) or compliance test (for interim status facilities), determine emission rates of the tetra-octa congeners of chlorinated dibenzo-p-dioxins and dibenzofurans (CDDs/CDFs) using Method 0023A(Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans Emissions from Stationary Sources) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA publication number EPA-530/SW-846, or Method 23 (Determination of Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources), incorporated by reference in 35 Ill. Adm. Code 720.111(b);

2) Estimate the 2,3,7,8-TCDD toxicity equivalence of the tetra-octa CDDs/CDFs congeners using section 4.0 (Procedures for Estimating the Toxicity Equivalence of Chlorinated Dibenzo-p-Dioxin and Dibenzofuran Congeners) in appendix IX to 40 CFR 266 (Methods Manual for Compliance with the BIF Regulations), incorporated by reference in 35 Ill. Adm. Code 720.111(b) (see Appendix I). Multiply the emission rates of CDD/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 appendix W to 40 CFR 51 (Guideline on Air Quality Models), in section 5.0 (Hazardous Waste Combustion Air Quality Screening Procedure) in appendix IX to 40 CFR 266 (Methods Manual for Compliance with the BIF Regulations), or in "Screening Procedures for Estimating Air Quality Impact of Stationary Sources, Revised," USEPA publication number EPA-454/R-92-019, each incorporated by reference in 35 Ill. Adm. Code 720.111, to predict the maximum annual average off-site ground level concentration of 2,3,7,8-TCDD equivalents determined under subsection (e)(2). The maximum annual average on-site concentration must 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 (RSD) for 2,3,7,8-TCDD provided in Appendix E (2.2 x 10-7) must not exceed 1.0.

f) Monitoring CO and HC in the By-Pass Duct of a Cement Kiln. Cement kilns may comply with the CO and HC limits provided by subsections (b), (c), and (d) by monitoring in the by-pass duct if the following conditions are met:

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; and

2) The by-pass duct diverts a minimum of 10 percent of kiln off-gas into the duct.

g) Use of Emissions Test Data to Demonstrate Compliance and Establish Operating Limits. Compliance with the requirements of this Section must be demonstrated simultaneously by emissions testing or during separate runs under identical operating conditions. Further, data to demonstrate compliance with the CO and HC limits of this Section or to establish alternative CO or HC limits under this Section must be obtained during the time that DRE testing, and where applicable, CDD/CDF testing under subsection (e) and comprehensive organic emissions testing under subsection (f) is conducted.

h) Enforcement. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under Section 726.202) will be regarded as compliance with this Section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements of this Section is "information" justifying modification or revocation and re-issuance of a permit under 35 Ill. Adm. Code 703.270 et seq.

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