

**REGULATION IX
TOXIC AIR CONTAMINANTS**

RULE 905

**DIOXINS AIRBORNE TOXIC CONTROL MEASURE
MEDICAL WASTE INCINERATORS**

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RULE 905 DIOXIN EMISSIONS FROM MEDICAL WASTE INCINERATORS

PART 1.0 GENERAL

1.1 **Purpose**

The purpose of this rule is to control emissions of dioxin from medical waste incinerators.

1.2 **Applicability**

This rule shall apply to any person who owns or operates, or who plans to build, own, or operate, a medical waste incinerator located in the Northern Sierra Air Quality Management District.

1.3 **Exemptions, Crematoria**

The provisions of this rule do not apply to those incinerators which are exclusively crematoria of human or animal remains.

PART 2.0 DEFINITIONS

2.1 **ARB Test Method 2**

The test method specified in Title 17, of the California Code of Regulations, Section 94102.

2.2 **ARB Test Method 428**

The test method specified in Title 17, of the California Code of Regulations, Section 94139.

2.3 **Control Equipment**

Any device which reduces emissions from medical waste incinerators.

2.4 **Dioxins**

Dibenzo-p-dioxins and dibenzofurans chlorinated in the 2,3,7, and 8 positions and containing 4,5,6, or 7 chlorine atoms and expressed as 2,3,7,8, tetrachlorinated dibenzo-para-dioxin equivalents using current California Department of Health Services toxic equivalency factors.

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2.5 Medical Facilities

Medical and dental offices, clinics and hospitals, skilled nursing facilities, research facilities, research laboratories, clinical laboratories, all unlicensed and licensed facilities, surgery centers, diagnostic laboratories, and other providers of health care.

2.6 Medical Waste Incinerators

Furnaces or other closed fire chambers that are located at a facility and used to dispose of waste generated at medical facilities by burning.

2.7 Uncontrolled Emissions

The dioxin emissions measured from the incinerator at a location downstream of the last combustion chamber, but prior to the air pollution control equipment.

2.8 Waste

All discarded putrescible and non-putrescible solid, semisolid, and liquid materials, including garbage, trash, refuse, paper, rubbish, food, ashes, plastics, industrial waste, demolition and construction waste, equipment, instruments, utensils, appliances, manure, and human or animal solid and semi-solid wastes.

PART 3.0 OPERATING REQUIREMENTS

3.1 Facilities Burning More Than 25 Tons/Year Of Waste

The following requirements shall apply only to medical waste incinerators that incinerate more than 25 tons of waste per year.

- A. No person shall operate a medical waste incinerator unless:
1. The dioxin emissions have been reduced by 99 percent or more of the uncontrolled emissions; or
 2. The dioxin emissions have been reduced to 10 nanograms or less per kilogram of waste burned.

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- B. No person shall operate a medical waste incinerator unless the control equipment is installed and used in a manner which has been demonstrated to and approved by the Air Pollution Control Officer to meet the following requirements:
1. The flue gas temperature at the outlet of the air pollution control equipment shall not exceed 300°F, unless it has been demonstrated to, and approved in writing by, both the ARB, and the APCO that lower emissions of dioxin are achieved at a higher outlet temperature.
 2. For a single chamber incinerator, the combustion chamber shall be maintained at no less than 1,800°F ($\pm 200^\circ\text{F}$) primary combustion chamber shall be maintained at no less than 1,400°F and the secondary combustion chamber shall be maintained at no less than 1,800°F ($\pm 200^\circ\text{F}$). The furnace design shall provide for a residence time for combustion gas of at least one second. Residence time shall be calculated using the following equation:

Residence Time = V/Q_c where;

V = means the volume, as expressed in cubic feet, from the point in the incinerator where the maximum temperature has been reached until the point where the temperature has dropped to 1600°F.

Q_c = means the combustion gas flow through V , expressed in actual cubic feet per second, which is the measured ARB Test Method 2, corrected to the maximum combustion chamber temperature (T_c) by using T_c instead of T^{std} .

T_c = means the maximum temperature, in degrees Fahrenheit, that has been reached in the incinerator.

The volumetric flow rate measured at the sampling points must be adjusted to chamber pressures.

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Alternative methods may be used if conditions for determining the combustion gas flow rate by ARB Test Method 2 are unacceptable. The determination shall be equivalent to and within the guidelines of ARB Test Method 2 and at the discretion of the Air Pollution Control Officer.

3. The bottom ash, fly ash and air pollution control equipment residuals shall be handled and stored in a manner that prevents entrainment into ambient air.
4. The owner or operator of a medical waste incinerator shall maintain the following:
 - a. A continuous data recording system which provides for each day of operation continuous recording of the primary and secondary combustion chamber temperatures; carbon monoxide emissions; the key operating parameters of the air pollution control equipment, as specified by the APCO; the hourly waste charging rates; and the opacity of stack emissions or other indicator of particulate matter which is approved by the APCO.
 - b. Maintenance records for the incinerator, control equipment, and monitoring equipment, and calibration records for the monitoring equipment.
 - c. Equipment for determining and recording the weight of waste charged to the incinerator. A recordkeeping log which includes the following information: date, load time, number of bags, total weight of bags charged into the incinerator and signature of personnel weighing and charging the incinerator.
5. For purposes of demonstrating compliance with subsection (3.1)(A) of this rule, the owner or operator of a medical waste incinerator shall conduct a minimum of two annual source tests for the dioxins stack emissions using ARB Test Method 428. The high resolution mass spectrometry option of this method shall be used since it offers better selectivity and lower detection limits when compared to low resolution mass spectrometry.

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Annual source tests shall be conducted until at least two consecutive tests demonstrate compliance, at which time source tests shall be conducted every three years to assure continued compliance.

- a. For purposes of determining compliance with subsection (3.1)(A)(1) of this rule, emissions shall be sampled simultaneously from the flue at a location downstream of the last combustion chamber, but prior to the control equipment, and from the stack during source testing.
 - b. For purposes of determining compliance with subsection (3.1)(A)(2) of this rule, the source testing shall be conducted at the stack.
 - c. Prior to source testing, the APCO shall review the waste log for the last 12 months to determine what type of waste sample would be most representative of "worst case" operations. The information regarding the composition (moisture content, and amount of the total waste that is infectious, pathological, hazardous, or radioactive) and feed rate of the fuel charged during the source test shall be provided with the test results. The APCO can require additional information regarding the composition of the waste.
 - d. Source testing shall be conducted at the maximum waste firing capacity (\pm 10 percent) allowed by the District's Permit to Operate. A copy of all source test results conducted for purposes of demonstrating compliance with this rule shall be provided to the ARB at the same time that it is provided to the local Air Quality Management District.
6. Any violation, malfunction, or upset conditions on the incinerator, the air pollution control equipment, or the continuous data recording system shall be reported to the District within 1 hour of occurrence or by 9:00 AM the next business day if the malfunction occurs outside normal business hours.

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7. No person shall operate a medical waste incinerator unless each individual who operates or maintains the incinerator obtains either a certificate of training in medical waste incineration issued by the American Society of Mechanical Engineers within nine months of the commencement of the training program, or equivalent training as determined by the APCO. Copies of the training certificates for the operators shall be submitted to the District and the original certificates shall be made available for inspection at the facility.

3.2 Facilities Burning Less Than 25 Tons/Year Of Waste

The following requirements shall apply to incinerators that incinerate 25 tons or less of waste per year;

- A. No person shall operate a medical waste incinerator that incinerates 25 tons or less of waste per year unless the requirements specified in subsections (3.1)(B)(3), (3.1)(B)(4)(c), and (3.1)(B)(7) are met.
- B. The owner or operator of a medical waste incinerator that incinerates more than 10 but less than 25 tons of waste per year shall conduct one initial source test at the incinerator stack as specified in subsection (3.1)(B)(5)(b)(c)(d).

PART 4.0 ADMINISTRATIVE REQUIREMENTS

4.1 Compliance Schedule

- A. No later than July 4, 1992, the owner or operator of a medical waste incinerator that incinerates more than 25 tons of waste per year shall submit to the APCO an application for an Authority to Construct for the Construction or modification of any equipment necessary to meet the requirements of Parts (3.1)(A)(1) and (3.1)(A)(2) and no later than September 8, 1992, the owner or operator of a medical waste incinerator shall be in compliance with this regulation.
- B. The owner or operator of a medical waste incinerator that incinerates 25 tons or less of waste per year who intends to remain in operation shall notify the District by July 4, 1992 and be in compliance with this regulation by September 8, 1993.

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4.2 **Shutdown Notification**

Any person who intends to permanently cease operation of their medical waste incinerator shall notify the APCO of the shutdown date by July 4, 1992. The shutdown date shall be no later than October 8, 1992.