AIR POLLUTION CONTROL REGULATION NO. 22
AIR TOXICS

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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR AND HAZARDOUS MATERIALS
AIR POLLUTION CONTROL REGULATION NO. 22

AIR TOXICS

22. Air Toxics

22.1 Definitions

As used in these regulations, the following terms shall, where the context permits, be construed as follows:

22.1.1 "Listed Toxic Substance" means any substance which has been shown to induce mutagenic, carcinogenic, fetotoxic, or other acute or chronic toxic effects and is listed in Table I.

22.1.2 "Listed Toxic Air Contaminant" means any listed toxic substance emitted to the atmosphere as dust, fume, gas, mist, smoke, vapor, or soot.

22.1.3 "Acceptable Ambient Level" is the maximum allowable ambient air concentration of a listed toxic air contaminant contributed by a stationary source, at or beyond that facility's property line, as delineated in Tables I and II.

22.1.4 "Facility" means all pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "major group" (i.e. which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office Stock Nos. 4101-0066 and 003-005-00176-0, respectively).

22.1.5 "Lowest Achievable Emission Rate" (LAER) means, for any stationary source, the more stringent rate of emissions of listed substances based on the following:

(a) The most stringent emission limitation for a listed substance which is contained in the implementation plan or regulations of any state for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable with state-of-the-art technology; or

(b) The most stringent emission limitation for a listed substance which is achieved in practice by such class or category of stationary source. In no event shall the application of this term allow a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under applicable new source performance standards.

22.1.6 "Stationary Source" means any building, structure, facility, or installation which emits or may emit any regulated air pollutant.

22.1.7 "Existing Source" means a stationary source which is in existence on the effective date of this Regulation.

22.1.8 "Annual Solvent Usage" means the amount of new or purchased reprocessed solvent added to any degreaser or dryer at a facility during the previous calendar year.

22.1.9 "Perchloroethylene Dry Cleaning Facility" means a facility engaged in the cleaning of fabrics by means of one or more washes in perchloroethylene, extraction of excess perchloroethylene by spinning, and drying by tumbling in an airstream. The facility includes, but is not limited to, any washer, dryer, filter and purification system, waste disposal system, holding tank, pump, air pollution control equipment and attendant piping, valves and stacks.

22.1.10 "Azeotropic Device" is an air pollution control device wherein the dryer exhaust from a dry cleaning machine is routed to a tank where the perchloroethylene vapor is conditioned with water to form a low boiling point perchloroethylene/ water vapor azeotrope. The conditioned perchloroethylene/ water vapor stream is then ducted back to the dryer to increase perchloroethylene vaporization from the garments. The perchloroethylene vapor is then condensed by the dryer's cooling coils. The air stream is cycled between the azeotropic tank and the dryer for four to six minutes.

22.2 Applicability and Exemptions

22.2.1 Applicability

The provisions of this regulation shall apply to any stationary source using or generating a listed toxic substance in any process, unless exempted below.

22.2.2 Exemptions

(a) The following shall be exempt from the provisions of this regulation:

(1) The application of any pesticide or herbicide regulated under authority of the Federal Insecticide, Fungicide, Rodenticide Act (86 statute 973 et seq, as amended) or the Rhode Island Pesticide Control Act (23-25-1, et seq), with the exception of the use of ethylene oxide for fumigation or sterilization, shall be exempted from this regulation. It shall be the responsibility of the owner or operator of a source claiming to be exempt from the provisions of this regulation to demonstrate that the facility's use of a listed substance is regulated under the above-mentioned laws,

(2) Gasoline filling stations

(3) Fossil fuel burning solely for the use of producing heat.

(b) The following shall be exempt from Section 22.5 of this regulation:

(1) Dry cleaning facilities which use perchloroethylene as a solvent, and

(2) Organic solvent degreasing or drying sources with annual solvent usage less than 540 pounds of perchloroethylene, 3300 pounds of trichloroethylene, and 2200 pounds of methylene chloride.

(c) Any perchloroethylene drycleaning facility which is in operation on the effective date of this regulation can be exempted from the requirements in Subsections 22.6.2 and 22.6.3 if the owner of that facility can demonstrate, using the modelling techniques specified in the Rhode Island Guideline for Air Quality Modeling for Air Toxics Sources, that operation of the drycleaning machines at that facility will not violate the Acceptable Ambient Levels as specified in Table I.

22.3 Requirements for Permits to Construct, Install or Modify

22.3.1 No person shall construct, install, or modify or cause construction, installation, or modification of any stationary source which has the potential to increase emissions of a listed toxic air contaminant by greater than the minimum quantity for that contaminant, as specified in

Table III, without first obtaining an approved construction permit from the Director.

22.3.2 All permits shall be issued in accordance with the provisions and limitations of Regulation No. 9.

22.3.3 No construction permit will be issued for sources other than drycleaners unless it can be demonstrated, in accordance with the procedures outlined in the Rhode Island Guideline for Air Quality Modeling for Air Toxics Sources, that:

(a) Emissions from the proposed facility shall not cause an increase in ground level concentration of a listed toxic air contaminant, at or beyond property line of that facility, in exceedance of the Acceptable Ambient Levels, delineated in Table I;

(b) The facility is designed to achieve LAER and emissions from that facility shall not cause an increase in ground level concentration at or beyond property line in exceedance of the Acceptable Ambient Levels with LAER, delineated in Table II.

22.3.4 Construction permits shall be issued for drycleaning machine installations only if it can be demonstrated that the proposed installation will be in compliance with requirements in Subsections 22.6.1, 22.6.5, and 22.6.7.

22.4 Requirement for Registration

22.4.1 Any stationary source which used or emitted greater than the minimum quantity, as specified in Table III, of any listed toxic substance in the previous calendar year or which intends to use or emit greater than the minimum quantity, as specified in Table III, of any listed toxic substance during the present calendar year must file a registration form with the Director within two months of the effective date of this Regulation, and on or before 1 March of each subsequent year.

22.4.2 Any stationary source which initiates use of greater than the minimum quantity, as specified in Table III, per year of a listed toxic substance must register with the Director prior to first use of that substance.

22.5 Requirement for Permits to Operate

22.5.1 No person shall operate a source of toxic air contaminants with the exception of those specified in Section 22.6, if:

(a) Application for an operating permit is not completed in accordance with the provisions of Subsection 22.5.2; or

(b) An operating permit is denied, following review of the Director; or

(c) An operating permit or provisional operating permit is revoked by the Director.

22.5.2 All facilities using or emitting a listed toxic air contaminant shall file a completed operating permit application with the Department within 60 days of written notice from the Director. Prioritization of facilities for operating permit requirements shall be in accordance with the Rhode Island Air Toxics Guidelines.

22.5.3 Operating permit requirements shall be in accordance with the provisions and limitations of Regulation No. 9.

22.5.4 The Director shall issue an operating permit to a facility if, after review of the application, associated inspection and emission test reports, and appropriate modeling results, it is determined that in addition to compliance with the provisions of Regulation No. 9:

(a) The emissions of any listed toxic air contaminant from that facility shall not cause an increase in the ground level ambient concentration of that substance at or beyond property line in excess of the Acceptable Ambient Levels, delineated in Table I; or

(b) LAER has been achieved for emissions of listed toxic substances and emissions from that facility will not cause an increase in ground level ambient concentration of that substance at or beyond property line in excess of the Acceptable Ambient Levels, with LAER, delineated in Table II.

22.5.5 If, upon review of an operating permit application and associated emissions tests and inspection reports, it is determined that the facility does not meet the requirements in Subsection 22.5.4, the Director may issue a provisional operating permit with the following requirements:

(a) The facility must be in compliance with the provisions of Subsection 22.5.4 within 18 months of the date of issuance of the provisional permit or another reasonable time period as specified by the Director. An additional six months may be allowed if the facility notifies the Department within 30 days of issuance of the provisional operating permit that reformulation will be attempted as a part of a strategy to reduce emissions; and

(b) The Director may allow a longer period of compliance if product or process substitutions necessary to achieve compliance with Acceptable Ambient Levels must first be approved by another governmental agency. Interim emission reduction measures may be required in such circumstances; and

(c) Quarterly reports must be submitted to the Department demonstrating progress towards compliance with Subsection 22.5.4.

22.5.6 If, after the review of an operating permit application and associated inspection and emissions tests reports, it is determined that emissions from a facility of a listed toxic air contaminant present an imminent threat to the surrounding community, the Director shall deny issuance of a provisional operating permit.

22.6 Requirements for Perchloroethylene Dry Cleaning Facilities

22.6.1 Any perchloroethylene dry cleaning machine installed after 1 August 1988 must be equipped with a totally enclosed refrigerated condenser system which does not require venting to the atmosphere. Perchloroethylene dry cleaning machines installed prior to 1 August 1988 that are shut down for a period longer than three months after 1 August 1988 must also comply with the requirements of this Subsection. Compliance with this requirement must be achieved upon start-up. The door of a totally enclosed unit must not be opened until the air-vapor stream temperature in the refrigerated condenser is less than or equal to 40^{o}F (4.4^{o}C).

22.6.2 All perchloroethylene dry cleaning machines installed on or before 1 August 1988 must be equipped with one of the following control devices on or before 1 January 1989:

(a) A carbon adsorber, provided that perchloroethylene emissions from the carbon adsorber do not exceed 100 ppmv at any time. After 19 May 1993 perchloroethylene emissions from carbon adsorption units shall not exceed 20 ppmv. The dryer exhaust, washing door loading vents, chemical separator vents, and floor vents must be ducted to the carbon adsorber. If distillation units and storage tanks are equipped with exhaust systems, these exhausts must also be ducted to the carbon adsorber; or

(b) A refrigerated condenser system, provided that the condenser system is closed to the atmosphere except when articles are being loaded or unloaded and that the temperature at the condenser outlet is less than or equal to 45°F. After 19 May 1993 the temperature at the condenser outlet shall be less than or equal to 40°F; or

(c) An azeotropic device which includes a carbon canister afterfilter to control washer door loading vents. After 19 May 1993 perchloroethylene emissions from carbon canister afterfilters must not exceed 20 ppmv. Venting of perchloroethylene containing exhaust shall occur only when the machine door is opened to load or unload articles; or

(d) Another system, demonstrated to have a control efficiency equivalent to or greater than that required of the refrigerated condenser system required in Subsection 22.6.2 (b) and approved by the Department.

22.6.3 On or before 1 February 1989, emissions from all perchloroethylene dry cleaning machines, with the exception of those equipped with a totally enclosed refrigerated condenser system, must be vented through a vertical stack which extends at least 6 feet above the building's roof line. The stack must not be equipped with a cap, elbow or another device that would interfere with the vertical discharge of the exhaust. The Director may require that a stack be extended higher than six feet or that the location of a stack on a roof be changed if the stack location causes excessive exposure to neighbors. Facilities located in buildings which are higher than two stories may apply to the Director for an exemption from this requirement.

22.6.4 Any facility which uses a carbon adsorber to comply with the provisions in Subsection 22.6.2 must comply with the following requirements:

(a) The carbon bed must be regenerated at least once each time the dry cleaning machines vented to that carbon bed process the number of pounds of articles calculated by the following equation:

pounds of articles = (5 x #lbs of carbon in bed) ÷ 3

(b) Desorption must be performed with a steam pressure of 8 - 10 pounds per square inch (PSI); and

(c) No bypass to the atmosphere shall be permitted during the steam phase of the desorption cycle.

22.6.5 Any facility which uses a refrigerated condenser to comply with the provisions in Subsection 22.6.1 or 22.6.2 must install and operate a temperature gauge to monitor the temperature of the cooled gas stream. Compliance with the provisions of this Subsection must be achieved by 19 May 1993. Temperature gauges must be installed as follows:

(a) For drycleaning machines which vent to the atmosphere, the temperature gauge must be installed at the condenser outlet, in order to monitor the temperature of the gas exit stream. A hole must also be provided at the outlet for testing by the Division. This hole must be covered at all times except during tests.

(b) For drycleaning machines which are totally enclosed and do not require venting to the atmosphere, the temperature gauge must be installed immediately after the condensing coils. The gauge must measure the air-vapor temperature within the drycleaning machine.

22.6.6 Any facility which uses an azeotropic device to comply with the provisions in Subsection 22.6.2 must comply with the following requirements:

(a) The dryer or dry to dry cleaning machine shall be equipped with temperature gauges at the condensing coil which measure the inlet and outlet temperature of

the condensing water. The temperature difference shall conform to manufacturer's specifications.

(b) The dryer or dry to dry cleaning machine shall be equipped with a temperature gauge on the lint trap door. The temperature shall conform to manufacturer's specifications.

(c) The lint bag must be changed each time the dry cleaning machine processes three loads of garments.

22.6.7 All new and existing perchloroethylene dry cleaning facilities shall be in compliance with the following requirements on or before 1 August 1988;

(a) The residue from any diatomaceous earth filter must be cooked or treated so that wastes do not contain more than 25 kilograms (55 lb.) of perchloroethylene per 100 kilograms (220 lb.) of wet waste material; and

(b) The residue from a solvent-still must not contain more than 60 kilograms (132 lb.) of perchloroethylene per 100 kilograms (220 lb.) of wet waste material; and

(c) Filtration cartridges must be drained in the filter housing for at least 24 hours or vented to the control device for 12 hours before being disposed of; and

(d) All perchloroethylene containing waste must be stored in sealed containers; and

(e) The dry cleaning facility must be maintained so as to prevent the leaking of liquid perchloroethylene and prevent vapor losses. The owner or operator of a perchloroethylene dry cleaning facility shall inspect the facility for leaks at least once per week. Liquid leaks shall be detected by means of a visual inspection and vapor leaks shall be detected using a portable halogenated-hydrocarbon detector. The following components must be included in such inspections:

(1) Hose connections, unions, couplings and valves;

(2) Machine door gaskets and seatings;

(3) Filter head gasket and seating;

(4) Pumps;

(5) Base tanks and storage containers;

(6) Water separators;

(7) Filter sludge recovery;

(8) Distillation unit;

(9) Saturated lint from lint basket;

(10) Cartridge filters.

(f) All leaks of perchloroethylene liquid or vapor must be repaired immediately upon detection if no new parts are needed. If parts are needed, a purchase order for parts shall be issued within 3 working days and the repair made as expeditiously as possible; and

(g) Any liquid perchloroethylene that is drained from water separators on reclaimers, dry to dry units or carbon adsorbers must be collected through a collection tube in containers which have a single small hole for the collection tube and that do not have other gaps or holes; and

(h) Diverter valves and dampers must be inspected monthly to ensure proper containment of perchloroethylene vapors.

22.6. 8 Compliance with this section shall be determined as follows:

(a) Compliance with the emission limits in Subsection 22.6.2 (a) and (c) shall be determined by Division personnel using test methods specified in EPA Guideline Series document, "Measurement of Volatile Organic Compounds," EPA-450/2-78-041 or another methodology specified in the Rhode Island Air Toxics Guidelines; and

(b) Compliance with the provisions of Subsections 22.6.7 (a) and (b) shall be determined using test methods described in the Rhode Island Air Toxics Guidelines.

22.6.9 Each owner or operator of a perchloroethylene drycleaning facility subject to this Subsection shall maintain the following records in a readily accessible location for at least 5 years and shall make these records available to the Department upon verbal or written request:

(a) The amount of perchloroethylene used per year; and

(b) The amount of garments processed per year; and

(c) The results of weekly inspections, conducted under Subsection 22.6.7 (e), and records of the date when each leak was detected, the date when each leak was repaired, and purchase orders for repair parts to demonstrate compliance with Subsection 22.6.6 (f); and

(d) The frequency and period of each desorption and the pounds of clothes cleaned during each adsorption to show compliance with Subsection 22.6.4 (a); and

(e) A record of control equipment maintenance, such as replacement of the carbon in a carbon adsorption unit; and

(f) The results of all tests conducted in accordance with the requirements described in Subsection 22.6.7.

22.6.10 The owner or operator of any perchloroethylene dry cleaning facility which installs or modifies emission control equipment and/or replaces or modifies process equipment to comply with this regulation shall certify in writing to the Chief of the Division of Air and Hazardous Materials that compliance has been achieved within five (5) days of the listed deadlines.

TABLE I- ACCEPTABLE AMBIENT LEVELS ($\mu g/m^3$)

	1 Hour Avg.	24 Hour Avg.	1 Year Avg.
Acrylonitrile			0.01
Aniline		3	0.6
o-Anisidine		1	0.02
Antimony dust & fumes			40
Arsenic			0.0002
Benzene			0.1
Benzidine			0.00002
Benzotrichloride			0.0003
Benzyl chloride	20		0.02
Cadmium & cadmium compounds			0.0006
Carbon tetrachloride			0.07
Chloroform			0.04
Chromium & chromium compounds			0.00009
3,3'-Dichlorobenzidine			0.008
Dioctyl phthalate (DOP, DEHP)		200	0.3
Diphenyl (biphenyl)		7	0.4
Diphenylamine			200
Epichlorohydrin		200	0.8
Ethylene dichloride (1,2-dichloroethane)			0.04
Ethylene oxide			0.01
Hydrazine			0.0002
Hydrogen chloride	2000	600	
Hydrogen fluoride	30		
Manganese & manganese compounds	2		
Methyl cellosolve		100	
Methylene bisphenyl isocyanate (MDI)		0.2	
4,4'-Methylene bis (2-chloroaniline) (MOCA)		1	
Methylene chloride (dichloromethane)			2
Nickel & nickel compounds			0.002
5-Nitro (o-anisidine)			0.08
2-Nitropropane			0.2
Perchloroethylene (tetrachloroethylene)			0.05
Styrene			30
Toluene		2000	400
Toluene-2,4-diisocyanate		0.2	0.03
o-Toluidine			0.04
1,1,2-Trichloroethane			7
Trichloroethylene			0.3
Triethylamine		300	20
Xylenes		700	

TABLE II- ACCEPTABLE AMBIENT LEVELS WITH LAER ($\mu g/m^3$)

	1 Hour Avg.	24 Hour Avg.	1 Year Avg.
Acrylonitrile			0.1
Aniline		3	
o-Anisidine		1	0.2
Antimony dust & fumes			40
Arsenic			0.002
Benzene			1
Benzidine			0.0002
Benzotrichloride			0.003
Benzyl chloride	20		0.2
Cadmium & cadmium compounds			0.006
Carbon tetrachloride			0.7
Chloroform			0.4
Chromium & chromium compounds			0.0009
3,3'-Dichlorobenzidine			0.08
Dioctyl phthalate (DOP, DEHP)		200	3
Diphenyl (biphenyl)		7	0.4
Diphenylamine			200
Epichlorohydrin		200	8
Ethylene dichloride (1,2-dichloroethane)			0.4
Ethylene oxide			0.1
Hydrazine			0.002
Hydrogen chloride	2000	600	
Hydrogen fluoride	30		
Manganese & manganese compounds	2		
Methyl cellosolve		100	
Methylene bisphenyl isocyanate (MDI)		0.2	
4,4'-Methylene bis (2-chloroaniline) (MOCA)		1	
Methylene chloride (dichloromethane)			20
Nickel & nickel compounds			0.02
5-Nitro (o-anisidine)			0.8
2-Nitropropane			0.2
Perchloroethylene (tetrachloroethylene)			0.5
Styrene			30
Toluene			400
Toluene-2,4-diisocyanate		0.2	
o-Toluidine			0.4
1,1,2-Trichloroethane			7
Trichloroethylene			3
Triethylamine		300	20
Xylenes		700	

TABLE III- MINIMUM QUANTITIES

	Minimum Quantity (pounds/year)
Acrylonitrile	5
Aniline	300
o-Anisidine	10
Antimony & antimony compounds	10,000
Arsenic & arsenic compounds	0
Benzene	50
Benzidine	0
Benzotrichloride	0
Benzyl chloride	10
Cadmium & cadmium compounds	0
Carbon tetrachloride	23
Chloroform	20
Chromium & chromium compounds	0
3,3'-Dichlorobenzidine	4
Dioctyl phthalate (DOP, DEHP)	180
Diphenyl (biphenyl)	200
Diphenylamine	10,000
Epichlorohydrin	400
Ethylene dichloride (1,2-dichloroethane)	20
Ethylene oxide	5
Hydrazine	0
Hydrogen chloride	10,000
Hydrogen fluoride	1,000
Manganese & manganese compounds	100
Methyl cellosolve	10,000
Methylene bisphenyl isocyanate (MDI)	30
4,4'-Methylene bis (2-chloroaniline) (MOCA)	500
Methylene chloride (dichloromethane)	1,000
Nickel & nickel compounds	1
5-Nitro (o-anisidine)	40
2-Nitropropane	100
Perchloroethylene (tetrachloroethylene)	20
Styrene	10,000
Toluene	10,000
Toluene-2,4-diisocyanate	10
o-Toluidine	20
1,1,2-Trichloroethane	3,000
Trichloroethylene	200
Triethylamine	10,000
Xylenes	10,000