RULES
OF
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
BUREAU OF ENVIRONMENT
DIVISION OF AIR POLLUTION CONTROL

CHAPTER 1200-03-18
VOLATILE ORGANIC COMPOUNDS

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1200-03-18-.01 DEFINITIONS. For the purpose of this chapter, the following definitions apply:

(1) "Actual emissions" means the quantity of volatile organic compounds (VOC's) emitted from a source during a particular time period.

(Rule 1200-03-18-.01, continued)

(2) "Ambient air" means that portion of the atmosphere, external to buildings, to which the general public has access.

(3) "As applied" means including dilution solvents added before application of the coating.

(4) "Automobile" means a motor vehicle capable of carrying no more than 12 passengers.

(5) "Bulk gasoline plant" means a gasoline storage and distribution facility, other than a bulk gasoline terminal or a gasoline dispensing facility.

(6) "Bulk gasoline terminal" means a gasoline storage facility that receives gasoline from refineries, delivers gasoline to bulk gasoline plants or to commercial or retail accounts, and has a daily throughput of more than 76,000 L (20,000 gal) of gasoline on a 30-day rolling average.

(7) "Capture efficiency" means the weight per unit time of VOC entering a capture system and delivered to a control device divided by the weight per unit time of total VOC generated by a source of VOC, expressed as a percentage.

(8) "Capture system" means all equipment (including, but not limited to, hoods, ducts, fans, booths, ovens, dryers, etc.) that contains, collects, and transports an air pollutant to a control device.

(9) "Carbon adsorber" means a control device which uses activated carbon to adsorb volatile organic compounds from a gas stream.

(10) "Carbon adsorption system" means a carbon adsorber with an inlet and outlet for exhaust gases and a system to regenerate the saturated adsorbent.

(11) "Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealants, adhesives, maskants, and temporary protective coatings.

(12) "Coating line" means a series of one or more coating applicators and any associated drying area and/or oven wherein a coating is applied, dried, and/or cured. A coating line ends at the point where the coating is dried or cured, or prior to any subsequent application of a different coating. It is not necessary to have an oven or a flashoff area in order to be included in this definition. This definition does not apply to web coating.

(13) "Complying coating" means a coating which satisfies the VOC content or emission standard or formulation standard, as applied, specified in this chapter for its use.

(14) "Complying ink" means an ink which satisfies the VOC content or emission standard or formulation standard, as applied, specified in this chapter for its use.

(15) "Condensate" means volatile organic compound (VOC) liquid, separated from natural gas, that condenses due to changes in temperature and/or pressure and remains liquid at standard conditions.

(16) "Condenser" means any heat transfer device used to liquify vapors by removing their latent heats of vaporization. Such devices include, but are not limited to, shell and tube, coil, surface, or contact condensers.

(17) "Construction" means on-site fabrication, erection, or installation of a source, air pollution control or monitoring equipment, or a facility.

(Rule 1200-03-18-.01, continued)

(18) "Continuous vapor control system" means a vapor control system that treats vapors displaced from tanks during filling on a demand basis without intermediate accumulation.

(19) "Control device" means equipment (such as an incinerator or carbon adsorber) used to reduce, by destruction or removal, the amount of air pollutant(s) in an air stream prior to discharge to the ambient air.

(20) "Control system" means a combination of one or more capture system(s) and control device(s) working in concert to reduce discharges of pollutants to the ambient air.

(21) "Crude oil" means a naturally occurring mixture that consists of hydrocarbons and/or sulfur, nitrogen, and/or oxygen derivatives of hydrocarbons and that is liquid at standard conditions.

(22) "Day" means a period of 24 consecutive hours beginning at midnight local time, or beginning at a time consistent with a facility's operating schedule.

(23) "Destruction or removal efficiency" means the amount of VOC destroyed or removed by a control device expressed as a percent of the total amount of VOC entering the device.

(24) "Double block-and-bleed system" means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

(25) "Emission" means the release or discharge, at the facility, whether directly or indirectly, of VOC into the ambient air.

(26) Reserved.

(27) "External floating roof" means a cover over an open-top storage tank consisting of a double deck or pontoon single deck that rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

(28) "Facility" means any source or group of sources located within a contiguous area, and under common control.

(29) "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.

(30) "Flashoff area" means the space between the coating application area and the oven.

(31) "Gasoline" means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals (kPa) (8.15 inches of mercury [in. Hg]) or greater that is used as a fuel for internal combustion engines.

(32) "Gasoline dispensing facility" means any site where gasoline is transferred from a stationary storage tank to a motor vehicle gasoline fuel tank.

(33) "Gasoline tank truck" means a delivery tank truck used at bulk gasoline plants, bulk gasoline terminals, or gasoline dispensing facilities that is loading or unloading gasoline or that has loaded or unloaded gasoline on the immediately previous load.

(34) "Graphic arts" means an industry encompassing printing operations based on letterpress, offset lithography, screen, rotogravure, and flexography.

(35) "Heavy-duty truck" means any motor vehicle rated at more than 3,864 kg (8,500 lb) gross weight designed primarily to transport property.

(Rule 1200-03-18-.01, continued)

(36) "Incinerator" means a combustion apparatus in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned and from which the solid and gaseous residues contain little or no combustible material.

(37) "Ink" means a fluid composition consisting of colorant to provide optical contrast with a substrate, film formers to provide adhesion to the substrate, oils and/or solvents to provide fluidity and drying, and other functional additives.

(38) "Intermittent vapor control system" means a vapor control system that employs an intermediate vapor holder to accumulate vapors displaced from tanks during filling. The control device treats the accumulated vapors only during automatically controlled cycles.

(39) "Knife coating" means the application of a coating material to a substrate by means of drawing the substrate beneath a knife that spreads the coating evenly over the full width of the substrate.

(40) "Leak" means a VOC emission indicated by an instrument calibrated according to Method 21 using zero air (less than 10 parts per million [ppm] of hydrocarbon in air) and a mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane; by dripping liquid; or by calibrated sensor.

(41) "Lease custody transfer" means the transfer of produced crude oil condensate, after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

(42) "Light-duty truck" means any motor vehicle rated at 3,864 kg (8,500 lb) gross weight or less designed primarily to transport property.

(43) "Loading rack" means an aggregation or combination of gasoline loading equipment arranged so that all loading outlets in the combination can be connected to a tank truck or trailer parked in a specified loading space.

(44) "Lower explosive limit" (also denoted as LEL) means the concentration of a compound in air below which a flame will not propagate if the mixture is ignited.

(45) "Maximum theoretical emissions" means the quantity of VOC that theoretically could be emitted by a source without control devices based on the design capacity or maximum production capacity of the source and 8,760 hours of operation per year. The design capacity or maximum production capacity includes use of materials with the highest VOC content used in practice by the source for the 2 years preceding April 22, 1993, and anytime after.

(46) "Maximum true vapor pressure" means the equilibrium partial pressure exerted by a stored volatile organic liquid at the temperature equal to: (1) for liquids stored above or below the ambient temperature, the highest calendar-month average of the liquid storage temperature, or (2) for liquids stored at the ambient temperature, the local maximum monthly average temperature as reported by the National Weather Service. This pressure shall be determined:

(a) In accordance with methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From External Floating Roof Tanks;" (1962);

(b) By using standard reference texts;

(c) By ASTM D2879-83; or

(Rule 1200-03-18-.01, continued)

(d) By any other method approved as a revision to the State Implementation Plan.

(47) "Multicomponent coating" means a coating packaged in two or more parts, which parts are combined before application, and where a coreactant from one part of the coating chemically reacts, at ambient conditions, with a coreactant from another part of the coating.

(48) "Open-ended valve or line" means any valve, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

(49) "Operation" means an activity. For example, a prime coat operation is the activity of applying a prime coat.

(50) "Organic compound" means a chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

(51) "Oven" means a chamber which is used to bake, cure, polymerize, and/or dry a coating.

(52) "Overall emission reduction efficiency" means the weight per unit time of VOC removed or destroyed by a control device divided by the weight per unit time of VOC generated by a source, expressed as a percentage. The overall emission reduction efficiency can also be calculated as the product of the capture efficiency and the control device destruction or removal efficiency.

(53) "Owner or operator" means any person who owns, leases, controls, operates, or supervises a facility, existing source, new source, or control device.

(54) "Person" means any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, state government, the federal government, political subdivision, or any other legal entity, or their legal representative, agent, or assigns.

(55) "Petroleum" means crude oil and the oils derived from tar sands, shale, and coal.

(56) "Petroleum liquid" means crude oil, condensate, and any finished or intermediate product manufactured or extracted at a petroleum refinery, but not including Nos. 2 through 6 fuel oils as specified in ASTM D396-78; gas turbine fuel oils Nos. 2-GT through 4-GT as specified in ASTM D2880-78; or diesel fuel oils Nos. 2-d and 4-D, as specified in ASTM D975-78.

(57) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through the redistillation, cracking, or reforming of unfinished petroleum derivatives.

(58) "Plastisol" means a coating made of a mixture of finely divided resin and a plasticizer. Plastisol is applied as a thick gel that solidifies when heated.

(59) "Potential VOC emissions" means the maximum capacity to emit, without add-on emission controls, according to physical and operational design. Any physical or operational limitation, except concerning add-on emission controls, on the capacity to emit shall be treated as part of operational design for the purpose of determining potential emissions if the limitation is enforceable by the Administrator of the EPA and the Technical Secretary, including those under this Division 1200-03, the State Implementation Plan, and permit conditions established pursuant to Chapter 1200-03-09.

(60) "Pressure release" means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

(Rule 1200-03-18-.01, continued)

(61) "Prime coat" means the first of two or more coatings applied to a surface.

(62) "Printing" means the mechanical process used to reproduce images, patterns, and text through the transfer of ink to a substrate.

(63) "Printing press" means equipment used to apply words, pictures, or graphic designs to either a continuous substrate or a sheet. A continuous substrate consists of paper, plastic, or other material that is unwound from a roll, passed through coating or ink applicators and any associated drying areas. The press includes all coating and ink applicators, including applicators which apply coatings uniformly across the substrate, and drying areas between unwind and final drying of the continuous substrate. A sheet consists of paper, plastic, or other material that is conveyed through the process. The press includes all coating and ink applicators and drying operations between the time that the sheet is put into the press until it is taken off.

(64) "Process unit" means equipment assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the products.

(65) "Process unit shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.

(66) "Reference Method" means the method of sampling or analyzing described in Appendix A of 40 C.F.R. 60 as of July 1, 1991.

(67) "Reid vapor pressure" means the absolute vapor pressure of volatile crude oil and volatile non-viscous petroleum liquids, except liquified petroleum gases, as determined by ASTM D323-89.

(68) "Repaired" means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: a calibrated instrument reading of 10,000 parts per million (ppm) or greater, indication of liquids dripping, or indication by a calibrated sensor that a seal or barrier fluid system has failed.

(69) "Roll coating" means the application of a coating material to a moving substrate by means of hard rubber, elastomeric, or metal rolls.

(70) "Rotogravure coating" means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is recessed relative to the non-image area, and the coating material is picked up in these recessed areas and is transferred to the substrate.

(71) "Shutdown" means the cessation of operation of a facility or of its emission control or emission monitoring equipment.

(72) "Solvent" means a substance that is liquid at standard conditions and is used to dissolve or dilute another substance; this term includes, but is not limited to, organic materials used as dissolvers, viscosity reducers, degreasing agents, or cleaning agents.

(Rule 1200-03-18-.01, continued)

(73) "Source" means any building, structure, equipment, or installation that releases or discharges, or has the potential to release or discharge, VOC's into the ambient air.

(74) "Standard conditions" means a temperature of 20°C (68°F) and pressure of 760 mm Hg (29.92 in. Hg).

(75) "Startup" means the setting in operation of a source or of its emission control or emission monitoring equipment.

(76) "Submerged fill" means the method of filling a delivery vessel or storage vessel where product enters within 150 millimeters (mm) (5.9 inches [in]) of the bottom of the delivery or storage vessel. Bottom filling of delivery and storage vessels is included in this definition.

(77) "Substrate" means the surface onto which a coating is applied or into which a coating is impregnated.

(78) "Technical Secretary" means the Technical Secretary or his authorized representative.

(79) "Topcoat" means the final coating(s), as applied, in a multiple-coat operation.

(80) "Truck" means any motor vehicle designed primarily to transport property.

(81) "True vapor pressure" means the equilibrium partial pressure exerted by a volatile organic liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks," second edition, February 1980.

(82) "Vapor balance system" means a closed system that causes, by displacement during transfer of gasoline, the transfer of gasoline vapors from a tank being loaded to the tank being unloaded.

(83) "Vapor collection system" means all piping, seals, hoses, connections, pressure-vacuum vents, and other equipment between a gasoline tank truck and a vapor processing unit and/or a storage tank and vapor holder.

(84) "Vapor control system" means a system that limits or prevents release to the ambient air of vapors displaced from a tank during the transfer of gasoline.

(85) "Vapor recovery system" means a vapor gathering system capable of collecting VOC vapors generated during the operation of any transfer, storage, or process equipment.

(86) "Vapor-tight" means equipment that allows no excessive loss of vapors. Compliance with vapor-tight requirements can be determined by checking to ensure that the concentration at a potential leak source is not equal to or greater than 100 percent of the lower explosive limit (LEL) when measured with a combustible gas detector, calibrated with propane, at a distance of 2.54 centimeters (cm) (1 inch [in]) from the source.

(87) "Vapor-tight gasoline tank truck" means a gasoline tank truck that has demonstrated within the 12 preceding months that its product delivery tank will sustain a pressure change of not more than 75 mm (3.0 in) of water within 5 minutes (min) after it is pressurized to 450 mm (18 in) of water; or when evacuated to 150 mm (5.9 in) of water, the same tank will sustain a pressure change of not more than 75 mm (3.0 in) of water within 5 min. This capability is to be demonstrated using the test procedures specified in Reference Method 27.

(88) Reserved.

(Rule 1200-03-18-.01, continued)

(89) "Web coating line" means all of the coating applicator(s), drying area(s), or oven(s), located between an unwind station and a rewind station, that are used to apply coating onto a continuous strip of substrate (the web). A web coating line need not have a drying oven.

(90) "Weighted average VOC content" means the VOC content as calculated according to the specifications of Paragraph .82(1) of this chapter or according to the specifications of other rules of this chapter, as applicable.

NOTE: The definitions in Chapter 1200-03-02 apply for those terms not defined in Chapter 1200-03-18.

Authority: *T.C.A. §§ 4-5-201, et. seq., 4-5-202, and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed April 23, 1981; effective December 14, 1981. Amendment filed September 21, 1988; effective November 6, 1988. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed May 30, 1996; effective August 10, 1996. Amendment filed October 31, 1997; effective January 12, 1998. Amendment filed June 18, 1999; effective September 1, 1999. Amendments filed March 7, 2006; effective May 21, 2006. Amendments filed May 12, 2010; effective August 10, 2010. Amendments filed April 1, 2015; effective June 30, 2015.*

1200-03-18-.02 GENERAL PROVISIONS AND APPLICABILITY.

(1) It is the purpose of this chapter to establish emission standards and requirements for certain sources of volatile organic compounds for which applicability is specified in this chapter and other chapters of this division. In determining whether the sources of a source category at a facility satisfy the applicability standard of a specific rule, the potential VOC emissions from all sources of the source category shall be totaled.

(2) Upon mutual agreement of any air contaminant source and the Technical Secretary, an emission limit more restrictive than that otherwise specified in this chapter may be established. Also, upon mutual agreement of any air contaminant source and the Technical Secretary, operating hours, process flow rates, or any other operating parameter may be established as a limit which the source must adhere to. Any items mutually agreed to shall be stated as special conditions for any permit or order concerning the source. Violation of this mutual agreement shall result in enforcement action.

(3) Nothing in this chapter shall be construed to exempt sources from satisfying other applicable rules in this division and standards and requirements derived from or according to rules of this division, including, but not limited to, new source review requirements, permit conditions, and standards and requirements mutually agreed to or included in the State Implementation Plan.

(4) These regulations do not apply to any equipment used exclusively for chemical or physical analysis or determination of product quality and commercial acceptance provided the operation of the equipment is not an integral part of a production process and the total actual emissions from all such equipment at the facility do not exceed 204 kilograms (kg) (450 pounds [lb]) in any calendar month. Any facility availing of this exemption shall maintain the following records for at least 3 years and shall make those records available to the Technical Secretary upon request:

(a) Records to document the purpose of the equipment for which the exemption is claimed, and

(Rule 1200-03-18-.02, continued)

(b) Records to document the amount of each volatile organic compound (VOC)-containing material used in the equipment each calendar month and the VOC content of each material such that emissions can be determined for each calendar month.

(5) At any facility which contains sources subject to volatile organic compound content standards of this chapter, there shall be allowed a nonrenewable exemption from these standards for the use in these sources of a facility-wide aggregate of 55 gallons, as applied, of coatings and inks which exceed these standards during any rolling 12-month period if the following conditions are satisfied:

(a) No more than 55 gallons of these coatings and inks is used during any rolling 12-month period;

(b) The owner or operator of the facility makes application to the Technical Secretary for such exemption identifying the composition or percentage of solid and liquid components for each coating and ink to be included in the exemption;

(c) The exemption has been made a condition on a permit;

(d) Monthly recordkeeping, consistent with the procedures published in Recordkeeping Guidance Document for Surface Coating Operations and the Graphic Arts Industry, EPA 340/1-88-003, July 1989, is maintained; and

(e) After the exemption becomes effective, there is no instance of exceedance of the 55-gallon per rolling 12-month period limit.

(6) No owner or operator subject to these regulations may build, erect, install, or use any article, machine, equipment, process, or other method the use of which conceals emissions that would otherwise constitute non-compliance with an applicable regulation. This includes, but is not limited to, the use of gaseous diluents to achieve compliance, and the piecemeal carrying out of an operation to avoid coverage by a regulation that applies only to operations larger than a specified size.

(7) Source-specific standards and requirements, such as reasonably available control technology standards and requirements, may be established which differ from the standards and requirements specified in this chapter. Source-specific standards and requirements must be incorporated as revisions to the State Implementation Plan, unless otherwise provided for in this chapter or in Chapter 21 of this division. The owner or operator of a source for which legal notice must be published to effect source - specific standards and requirements, shall be responsible for all costs associated with publishing the required legal notice.

(8) The owner or operator of any facility in Davidson, Rutherford, Shelby, Sumner, Knox, Blount, Anderson, Williamson, or Wilson County which has actual emissions from stationary sources of 25 tons or more of volatile organic compounds (VOC's) and/or nitrogen oxides during a calendar year shall report to their permitting authority information and data concerning these emissions. This information and data shall be in the form prescribed by the Technical Secretary, and shall be submitted before March 31 of the year following the calendar year for which the information and data is reported. The first report shall be for the 1993 calendar year, and shall be submitted before March 31, 1994. Each report shall be signed by an official of the company, certifying that the information and data contained in the report is accurate to the best knowledge of the individual certifying the report.

(9) For any source subject to this chapter in a county other than Davidson, Knox, Rutherford, Shelby, Sumner, Williamson, or Wilson County, requirements in permit conditions specifying data to be collected, records to be maintained, the period of time over which compliance is to be demonstrated, and reports to be submitted to the Technical Secretary shall take

(Rule 1200-03-18-.02, continued)

precedence over corresponding requirements in rules of this chapter. However the period of time over which compliance is to be demonstrated shall not be in excess of 30 days unless otherwise specified in this chapter.

(10) Multiple lines or operations of a source category which are served by a common control system may be treated as a single line or operation for the purposes of determining compliance with the standards of this chapter. In this case, the most stringent standard applicable to any of the lines or operations shall be the applicable standard for the purpose of compliance determination.

(11) Records required to be maintained shall be maintained within the state. If such records are maintained at a site other than the facility for which the records are generated, the Technical Secretary shall be informed of this. The notice informing the Technical Secretary shall contain, at a minimum, the following:

(a) Facility name;

(b) Facility physical address;

(c) Physical address where the records are maintained; and

(d) Name, phone number, and mailing address of the official responsible for maintenance of the records and from whom records may be obtained.

The Technical Secretary shall be informed of any change in the details listed above within 30 days following such change.

(12) Any facility that becomes or is currently subject to the provisions of a rule of this chapter by exceeding an applicability threshold will remain subject to these provisions even if its emissions, throughput, or capacity later fall below the applicability threshold.

(13) The owner or operator of any line or operation which achieves exemption from standards or requirements of this chapter shall maintain records that document the line or operation satisfies the applicable criteria for the exemption.

Authority: *T.C.A. §§ 4-5-201, et seq., 4-5-202, 68-201-101, et seq., and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed December 8, 1981; effective January 22, 1982. Amendment filed January 31, 1983; effective March 2, 1983. Amendment filed September 21, 1988; effective November 6, 1988. Amendment filed May 17, 1990; effective July 1, 1990. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed April 18 1994; effective July 2, 1994. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed September 19, 2014; effective December 18, 2014.*

1200-03-18-.03 COMPLIANCE CERTIFICATION, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR COATING AND PRINTING SOURCES.

(1) Certification, recordkeeping, and/or reporting requirements specified in source - category specific rules of this chapter shall take precedence over the requirements of this rule. To establish the records required under this rule, the volatile organic compound (VOC) content of each coating or ink, as applied, and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified and referenced in this chapter.

(2) Any owner or operator of a coating or printing line or operation that is exempt from emission limitations of this chapter because combined VOC emissions from otherwise - subject lines and operations at the facility are below the 6.8-kilograms (kg) (15-pounds (lb))-per-day

(Rule 1200-03-18-.03, continued)

applicability threshold specified in the applicable rule of this chapter, before the application of capture systems and control devices, shall comply with the following for each rule from which the owner or operator claims an exemption:

(a) By April 22, 1994, the owner or operator shall certify to the Technical Secretary that the facility is exempt by providing the following:

1. Name and location of the facility;

2. Address and telephone number of the person responsible for the facility;

3. A declaration that the facility is exempt from emission limitations of this chapter because combined VOC emissions from otherwise - subject lines and operations are below the appropriate applicability threshold before the application of capture systems and control devices; and

4. Calculations that demonstrate that the combined VOC emissions from otherwise - subject lines and operations for a day representative of current maximum production levels are 6.8 kilograms (kg) (15 pounds [lb]) or less before the application of capture systems and control devices. The following equation shall be used to calculate total VOC emissions for that day:

$$T = \sum_{i=1}^{n} A_i B_i$$

where:

T = Total VOC emissions from otherwise - subject lines and operations at the facility, before the application of capture systems and control devices, in units of kg/day (lb/day);

n = Number of different coatings or inks applied on each otherwise - subject line or operation at the facility;

i = Subscript denoting an individual coating or ink;

A_i = Mass of VOC per volume of coating or ink (i) (excluding water and/or exempt compounds), as applied, in units of kilograms VOC per liter (kg VOC/L) (pounds VOC per gallon [lb VOC/gal]); and

B_i = Volume of coating or ink (i) (excluding water and/or exempt compounds), as applied, in units of liters per day (L/day) (gallons per day [gal/day]). The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating or ink, as applied, used shall be described in the certification to the Technical Secretary.

(b) On and after April 22, 1994, the owner or operator shall collect and record the following information each day or, for an alternate longer period which has been approved by the Technical Secretary and the EPA during which the applicable threshold is not exceeded and maintain the information at the facility for a period of 3 years:

1. The name and identification number of each coating or ink, as applied;

(Rule 1200-03-18-.03, continued)

2. The mass of VOC per volume (excluding water and/or exempt compounds) and the volume of coating or ink (i) (excluding water and/or exempt compounds), as applied; and

3. The total VOC emissions as calculated using the equation in Part (a)4 of this paragraph.

(c) On and after April 22, 1994, the owner or operator shall notify the Technical Secretary of any record showing that combined VOC emissions exceed 6.8 kg (15 lb) on any day, before the application of capture systems and control devices. A copy of such record shall be sent to the Technical Secretary within 30 calendar days after the exceedance occurs.

(3) Any owner or operator of a coating line or operation subject to the limitations of this chapter and complying by means of the use of complying coatings or inks shall comply with the following:

(a) By April 22, 1994, or upon startup of a new line or operation, or upon changing the method of compliance for a subject line or operation from daily-weighted averaging or control devices to the use of complying coatings, the owner or operator shall certify to the Technical Secretary that the line or operation is in compliance with the requirements of the applicable rule. Such certification shall include:

1. The name and location of the facility;

2. The address and telephone number of the person responsible for the facility;

3. Identification of subject sources;

4. The name and identification number of each coating or ink in use, as applied; and

5. The mass of VOC per volume of each coating or ink in use (excluding water and/or exempt compounds), as applied.

(b) On and after April 22, 1994, or on and after the initial startup date, the owner or operator shall maintain for each subject line or operation for a period of 3 years information as follows:

1. The name and identification number of each coating or ink used, as applied, and

2. The mass of VOC per volume of each coating or ink (excluding water and/or exempt compounds), used, as applied.

(c) On and after April 22, 1994, the owner or operator shall notify the Technical Secretary in the following instances:

1. Any record showing use of any non-complying coatings and/or inks shall be reported by sending a copy of such record to the Technical Secretary within 30 calendar days following that use, and

2. At least 30 calendar days before changing the method of compliance from the use of complying coatings and/or inks to daily-weighted averaging or control devices, the owner or operator shall comply with all requirements of Subparagraph (4)(a) or (5)(a) of this rule, respectively.

(Rule 1200-03-18-.03, continued)

(4) Any owner or operator of a coating or printing line or operation subject to the limitations of this chapter and complying by means of weighted averaging on that line or operation shall comply with the following:

(a) By April 22, 1994, or upon startup of a new line or operation, or upon changing the method of compliance for a subject line or operation from the use of complying coatings and/or inks or control devices to daily-weighted averaging, the owner or operator shall certify to the Technical Secretary that the line or operation is in compliance with the requirements of this paragraph. Such certification shall include:

1. The name and location of the facility;

2. The address and telephone number of the person responsible for the facility;

3. Identification of subject sources;

4. The name and identification number of each line or operation which will comply by means of weighted averaging;

5. The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating and/or ink (excluding water and/or exempt compounds), as applied, used each day on each line or operation;

6. The method by which the owner or operator will create and maintain records as required in Subparagraph (b) of this paragraph, with an example of the format in which these records will be kept;

7. Calculation of the weighted average for a day representative of current or projected maximum production levels; and

8. The time at which the facility's "day" begins if a time other than midnight local time is used to define a "day".

(b) On and after April 22, 1994, or on and after the initial startup date, the owner or operator shall collect and record all of the following information each day for each subject line or operation and maintain the information for a period of 3 years;

1. The name and identification number of each coating and/or ink, as applied;

2. The mass of VOC per volume (excluding water and/or exempt compounds) and the volume of each coating and/or ink (excluding water and/or exempt compounds), as applied, used; and

3. The weighted average VOC content of all coatings and/or inks, as applied, calculated according to the procedure in Paragraph .82(1) of this chapter.

(c) On and after April 22, 1994, the owner or operator shall notify the Technical Secretary in the following instances:

1. Any record showing noncompliance with the applicable daily-weighted average requirements shall be reported by sending a copy of the record to the Technical Secretary within 30 calendar days following the occurrence, and

2. At least 30 calendar days before changing the method of compliance from daily-weighted averaging to the use of complying coatings and/or inks or control

(Rule 1200-03-18-.03, continued)

devices, the owner or operator shall comply with all requirements of Subparagraph (3)(a) or (5)(a) of this rule, respectively.

(5) Any owner or operator of a coating or printing line or operation subject to the limitations of this chapter and complying by means of control devices shall comply with the following:

(a) By April 22, 1994, less otherwise specified in this chapter, or upon startup of a new line or operation, or upon changing the method of compliance for any existing line or operation from the use of complying coatings or inks or weighted averaging to control devices, the owner or operator of the subject line or operation shall have performed or shall perform, as applicable, a compliance test. Testing shall have been performed or shall be performed pursuant to the procedures specified and referenced in this chapter. No later than 60 days after completion of the performance test, the owner or operator of the subject line or operation shall submit to the Technical Secretary results of all tests and calculations necessary to demonstrate that the subject line or operation is in compliance with the applicable rule of this chapter.

(b) On and after April 22, 1994, or on and after the initial startup date, the owner or operator shall collect and record the following information each day for each line or operation and maintain the information for a period of 3 years:

1. The name and identification number of each coating or ink used if necessary to calculate the required overall emission reduction efficiency;

2. The mass of VOC per unit volume of coating or ink solids, as applied, the volume solids content, as applied, and the volume, as applied, of each coating or ink used if necessary to calculate the required overall emission reduction efficiency;

3. The maximum VOC content (mass of VOC per unit volume of solids, as applied) or the weighted average VOC content (mass of VOC per unit volume of solids, as applied) of the coatings or inks used if necessary to calculate the required overall emission reduction efficiency;

4. The required overall emission reduction efficiency as determined in the applicable rule of this chapter;

5. The actual overall emission reduction efficiency achieved;

6. Control device monitoring data, e.g. incinerator temperature;

7. A log of operating time for the capture system, control device, monitoring equipment, and the associated line or operation;

8. A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

9. For thermal incinerators, all 3-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance;

10. For catalytic incinerators:

(i) Continuous records of the temperature of the gas stream both upstream and downstream of the incinerator;

(Rule 1200-03-18-.03, continued)

(ii) Records of all 3-hour periods of operation for which the average temperature measured befoe the catalyst bed is more than 28°C (50°F) below the gas stream temperature measured before the catalyst bed during the most recent determination of destruction efficiency of the catalytic incinerator that demonstrated that the facility was in compliance; and

(iii) Records of all 3-hour periods for which the average temperature difference across the catalyst bed is less than 80 percent of the temperature difference measured during the most recent determination of the destruction efficienct of the catalytic incinerator that demonstrated that the facility was in compliance.

11. For carbon adsorbers, all 3-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the removal efficiency of the carbon adsorber that demonstrated that the facility was in compliance. This specification applies only to carbon adsorbers for which stack emission testing is required to demonstrate compliance with a standard of this chapter.

(c) On and after April 22, 1994, the owner or operator shall notify the Technical Secretary of an instance of noncompliance with the applicable requirements for control devices, such instance of noncompliance including any period of operation during which the parameter boundaries established during the most recent performance test are exceeded as specified in Parts (b) 9, 10, and 11 of this paragraph, by sending a copy of that notice to the Technical Secretary within 30 calendar days following the occurrence.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed December 8, 1981; effective January 22, 1982. Amendment filed January 31, 1983; effective March 2, 1983. Amendment filed September 21, 1988; effective November 6, 1988. Amendment filed May 17, 1990; effective July 1, 1990. Repeal filed April 23, 1992; effective July 7, 1992. New rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.04 COMPLIANCE CERTIFICATION, RECORDKEEPING, AND REPORTING REQUIREMENTS FOR NON-COATING AND NON-PRINTING SOURCES.

(1) The owner or operator of any facility containing sources subject to this rule shall submit to the Technical Secretary an initial compliance certification by April 22, 1994, or , for any facility in Shelby County, within 180 calendar days after the facility becomes subject to this rule, whichever is later. However, if another compliance date is specified for the source, initial compliance certification shall be submitted to the Technical Secretary within 30 days after that date, unless otherwise specified. The owner or operator of any facility containing new sources that become subject to this rule after April 22, 1994, shall submit an initial compliance certification within 180 days after the start-up of each source unless another time for such certification is specified on the construction permit for the source. Certification shall include the following:

(a) For initial compliance certification, as a minimum:

1. Name and location of the facility.

2. Address and telephone number of the person responsible for the facility.

(Rule 1200-03-18-.04, continued)

3. Identification of subject sources.

(b) For each subject source, as a minimum:

1. The applicable emission limitation, equipment specification, or work practice;

2. The method of compliance;

3. For each source subject to numerical emission limitations, the estimated emissions without control;

4. The control system(s) in use;

5. The design performance efficiency of the control system;

6. For each source subject to numerical emission limitations, the estimated emissions after control;

7. Certification that each subject source at the facility is in compliance with the applicable emission limitation, equipment specification, or work practice; and

8. The time at which the facility's "day" begins if a time other than midnight local time is used to define a "day".

(2) The owner or operator of any facility containing sources subject to this rule shall, for each occurrence of excess emissions, within 30 calendar days of becoming aware of such occurrence, supply the Technical Secretary with the following information:

(a) The name and location of the facility;

(b) The subject sources that caused the excess emissions;

(c) The time and date of first observation of the excess emissions;

(d) The cause and expected duration of the excess emissions;

(e) For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and

(f) The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

(3) The following requirements for sources using control devices apply:

(a) By April 22, 1994, or upon startup of a new source, or upon changing the method of compliance for an existing source, or, for any source in Shelby County, within 180 calendar days after the source becomes subject to this rule, whichever is later, the owner or operator of the subject source shall have performed or shall perform, as applicable, all tests. No later than 60 days after the completion of testing, the owner or operator of the subject source shall have submitted to the Technical Secretary the results of all tests and calculations necessary to demonstrate that the subject source is in compliance with the applicable rule of this chapter.

(b) Recordkeeping shall be as follows:

(Rule 1200-03-18-.04, continued)

1. Each owner or operator of a source subject to this rule shall maintain up-to-date, continuous records of any equipment operating parameters specified to be monitored in the applicable rule of this chapter as well as up-to-date records of periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. Exceedances as specified below shall constitute noncompliance. These records shall be maintained for at least 3 years, unless otherwise specified or provided for in this chapter. The Technical Secretary may at any time require a report of these data. Periods of operation during which the parameter boundaries established during the most recent performance test are exceeded are defined as follows:

   (i) For thermal incinerators, all 3-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance.

   (ii) For catalytic incinerators:

      (I) Continuous records of the temperature of the gas stream both upstream and downstream of the incinerator;

      (II) Records of all 3-hour periods of operation for which the average temperature measured before the catalyst bed is more than 28°C (50°F) below the gas stream temperature measured before the catalyst bed during the most recent determination of destruction efficiency of the catalytic incinerator that demonstrated that the facility was in compliance; and

      (III) Records of all 3-hour periods for which the average temperature difference across the catalyst bed is less than 80 percent of the temperature difference measured during the most recent determination of the destruction efficienct of the catalytic incinerator that demonstrated that the facility was in compliance.

   (iii) For carbon adsorbers, all 3-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the removal efficiency of the carbon adsorber that demonstrated that the facility was in compliance. This specification applies only to carbon adsorbers for which stack emission testing is required to demonstrate compliance with a standard of this chapter.

2. A log of operating time for the capture system, control device, monitoring equipment, and the associated source; and

3. A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

(4) Provisions of this rule apply only to sources identified as subject to those specific provisions of this rule by other rules of this chapter.

Authority: *T.C.A. §§ 68-201-105 and 4-5-202.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed December 8, 1981; effective January 22, 1982.*

(Rule 1200-03-18-.04, continued)

Amendment filed January 31, 1983; effective March 2, 1983. Amendment filed September 21, 1988; effective November 6, 1988. Amendment filed May 17, 1990; effective July 1, 1990. Repeal filed April 23, 1992; effective June 7, 1992. New rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed May 16, 1997; effective July 30, 1997.

1200-03-18-.05 RESERVED.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed December 8, 1981; effective January 22, 1982. Amendment filed January 31, 1983; effective March 2, 1983. Amendment filed September 21, 1988; effective November 6, 1988. Amendment filed May 17, 1990; effective July 1, 1990. Amendment filed April 23, 1992; effective June 7, 1992. Repeal filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.06 HANDLING, STORAGE, USE, AND DISPOSAL OF VOLATILE ORGANIC COMPOUNDS (VOC'S).

(1) Applicability of this rule is as follows:

(a) This rule applies to all facilities in Davidson, Rutherford, Shelby, Sumner, Williamson, or Wilson County which contains any source which is subject to standards and requirements in Rules 1200-03-18-.11 through .21 and .24 through .79 of this chapter other than only those requirements for demonstration of exemption or for maintenance of records to document exemption is achieved, for example, a threshold of material use or VOC emission per unit of time has not been exceeded.

(b) This rule does not apply to:

1. Any VOC or material containing VOC emitted in compliance with any other VOC standard under this chapter;

2. Waste paint (sludge) handling systems, water treatment systems, and other similar operations at coating and printing facilities using complying coatings and/or inks; and

3. Sources for which the applicable requirements in Rules 1200-03-18-.11 through .21 and .24 through .79 are only for demonstration of exemption or for maintenance of records to document exemption is achieved, for example, a threshold of material use or VOC emission per unit of time has not been exceeded.

(2) "Minimum reasonably attainable emissions" is the minimum quantity of VOC's which is emitted when utilizing all reasonable techniques for controlling evaporation during handling of materials for storage and disposal. Prevention of any evaporation of VOC's from storage and disposal techniques is considered minimum reasonably attainable.

(3) Standards as follow apply:

(a) No owner or operator of a source subject to this rule may cause, allow, or permit the disposal of more than 5 kilograms (kg) (11 pounds [lb]) of any volatile organic compound (VOC), or of any materials containing more than 5 kg (11 lb) of any VOC's, in any 1 day in a manner that would permit the evaporation from the facility of that VOC into the ambient air in excess of the minimum reasonably attainable.

(b) No owner or operator of a source subject to this rule shall use open containers for the storage or disposal of materials impregnated with VOC's that are used for surface

(Rule 1200-03-18-.06, continued)

preparation, cleanup, coating removal, or facility or equipment cleaning or maintenance.

(c) No owner or operator of a source subject to this rule shall store in open containers spent or fresh VOC to be used for surface preparation, cleanup, coating removal, or facility or equipment cleaning or maintenance except as otherwise provided for in this rule, such as in Subparagraph (d) of this paragraph.

(d) No owner or operator of a source subject to this rule shall use VOC for the cleanup of tools and process equipment, such as spray equipment, unless equipment is used to collect the cleaning compounds and to reasonably minimize their evaporation to the atmosphere.

(e) The owner or operator of a source subject to this rule and utilizing all reasonable techniques for controlling evaporation during handling, storage, use, and disposal of materials shall be considered to have achieved the minimum reasonably attainable VOC emissions required in Subparagraph (a) of this paragraph and to have reasonably minimized VOC emissions as required in Subparagraph (d) of this paragraph. Of course, prevention of any evaporation of VOC's from handling, storage, use, and disposal shall be considered achievement of minimum reasonably attainable and to reasonably minimize emissions. Such prevention of any evaporation shall be accepted as a method of achieving compliance with the requirements of Subparagraph (a) and (d) of this paragraph.

(4) {Reserved}

(5) {Reserved}

(6) By July 1, 1996, the owner or operator of an existing source as of August 11, 1996, and subject to this rule shall submit to the Technical Secretary a plan acceptable to the Technical Secretary specifying the methods that will be implemented to achieve compliance with the requirements of Subparagraph (3)(a) and (d) of this rule, along with details of records to be kept demonstrating compliance is maintained.

(7) With respect to compliance certification, initiation of recordkeeping and reporting, and completion of control system compliance testing of a source, the owner or operator of that source shall comply with the requirements of Rule 1200-03-18-.04 of this chapter, except that the applicable date for initial compliance and certification and performance testing shall be November 15, 1996 rather than April 22, 1994. Records demonstrating compliance with the requirements of Paragraph (3) of this rule shall be maintained for a minimum of 3 years and shall be made available to the Technical Secretary upon request.

(8) With respect to petitioning for a source-specific compliance schedule according to and as provided for in Rule 1200-03-18-.07 of this chapter, the owner or operator of an existing source as of August 11, 1996, shall insure the petition is received by the Technical Secretary no later than July 1 1996, rather than October 22, 1993.

(9) For any source which is subject to any Rule 1200-03-18-.11 through .21 or .24 through .79 of this chapter and which handles, stores, uses, or disposes of volatile organic compounds, the standards and requirements of that rule with respect to handling, storage, use, or disposal shall take precedence over standards and requirements in this Rule 1200-03-18-.06 with respect to handling, storage, use, and disposal.

Authority: *T.C.A. §§ 4-5-202, et seq. and 68-201-105.* ***Administrative History:*** *Original rule certified July 10, 1979; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal*

(Rule 1200-03-18-.06, continued)
and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed May 31, 1996; effective August 11, 1996. Amendment filed May 16, 1997; effective July 30, 1997.

1200-03-18-.07 SOURCE-SPECIFIC COMPLIANCE SCHEDULES.

(1) The owner or operator of an existing source or a source having a State or local agency's construction permit before April 22, 1993, and subject to a standard in this chapter may petition for a source-specific compliance schedule differing from the schedules specified in other rules in this chapter according to the criteria as follow:

(a) One or more of the following conditions are satisfied:

1. The facility demonstrates that it is physically impossible for the source in question to comply with the dates in the categorical schedule;

2. That, by allowing additional time, innovative technology will be applied and the reductions to be achieved will be significantly greater than that from the applicable emission standard. That the facility agrees that this revised value will be contained on the permit as a condition of source operation;

3. (Reserved); or

4. The facility in question is a part of a statewide or multistate program to prioritize the sequence of installing controls at a number of similar sources owned or controlled by the same company, and the overall compliance program is as expeditious as practicable.

(b) Source-specific compliance schedules approved under this rule must propose to achieve final compliance with the specified emission standard as expenditiously as possible, and contain the increments of progress listed below:

1. Date control plan will be submitted,

2. Date contract will be awarded,

3. Date initial construction will commence,

4. Date construction will be completed, and

5. Date final compliance will be achieved.

(c) Source-specific compliance schedules approved under this rule will be subjected to a public hearing and incorporated as a revision to the State Implementation Plan. The facility requesting such source-specific compliance schedule shall be responsible for all costs associated with the required legal notices.

(d) No source-specific compliance schedule will be granted if such a revised schedule will interfere with reasonable further progress in nonattainment areas.

(e) The petition for the source-specific compliance schedule must be received by the Technical Secretary in the Nashville office prior to the first date contained in the compliance schedule specified for the source in other rules of this chapter or October 22, 1993, whichever is earlier.

(Rule 1200-03-18-.07, continued)

(2) For any source, the provisions of this rule may be availed of only for achieving compliance with a standard or requirement specified in this chapter which the source was not subject to before April 22, 1993.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed July 21, 1980; effective September 8, 1980. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.08 THROUGH 1200-03-18-.10 RESERVED.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Repeal and new rule filed August 26, 1980; effective October 10, 1980. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.11 AUTOMOBILE AND LIGHT-DUTY TRUCK COATING OPERATIONS.

(1) Applicability of this rule is as follows:

(a) This rule applies to operations in Davidson, Hamilton, Knox, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties.

(b) This rule applies to the following coating operations in an automobile or light-duty truck assembly plant: each prime coat operation, each electrodeposition (EDP) prime coat operation, each primer surfacer operation, each topcoat operation, and each final repair operation.

(c) Antichip coatings, as applied to automobile and light-duty truck components such as, but not limited to, rocker panels, the bottom edge of doors and fenders, and the leading edge of the hood or roof, are considered primer surfacers.

(d) Application to metal parts of underbody antichip coatings (e.g., underbody plastisol) and coatings other than prime, primer surfacer, topcoat, and final repair shall be subject to the requirements of Rule .20 of this chapter (Coating of Miscellaneous Metal Parts).

(e) The requirements in Paragraph (3) of this rule do not apply to automobile and light-duty truck assembly plants whose plant-wide, actual emissions without control devices are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day.

(2) For the purpose of this rule, the following definitions apply:

(a) "Application area" means the area where a coating is applied by dipping or spraying.

(b) "Automobile and light-duty truck body" means the exterior and interior surfaces of an automobile or light-duty truck including, but not limited to, hoods, fenders, cargo boxes, doors, grill opening panels, engine compartment, all or portions of the passenger compartment, and trunk interior.

(c) "Electrodeposition (EDP)" means a method of applying a prime coat by which the automobile or light-duty truck body is submerged in a tank filled with coating material and an electrical field is used to effect the deposition of the coating material on the body.

(Rule 1200-03-18-.11, continued)

(d) "Final repair operation" means the application area(s), flashoff area(s), and oven(s) used to apply and dry or cure coatings that are used to repair topcoat on fully assembled automobile or light-duty truck bodies from a single assembly line.

(e) "Prime coat operation" means the application area(s), flashoff area(s), and oven(s) that are used to apply and dry or cure the prime coat on components of automobile and light-duty truck bodies on a single assembly line.

(f) "Primer surfacer operation" means the application area(s), flashoff area(s), and oven(s) that are used to apply and dry or cure primer surfacer between the prime coat and the topcoat operations on components of automobile and light-duty truck bodies on a single assembly line. The primer surfacer coat is also referred to as the "guidecoat".

(g) "Solids turnover ratio (R_T)" means the ratio of total volume of coating solids that is added to the EDP system in a calendar month divided by the total volume design capacity of the EDP system.

(h) "Topcoat operation" means the application area(s), flashoff area(s), and oven(s) used to apply and dry or cure topcoat on components of automobile and light-duty truck bodies on a single assembly line.

(i) "Topcoat protocol" means the EPA document "Protocol for Determining the Daily VOC Emission Rate of Automobile and Light-Duty Truck Topcoat Operations," EPA 450/3-88-018, December 1988, and as revised to include procedures for testing VOC emissions from primer surfacer operations and a procedure for calculating credit for spray booth control.

(j) "Volume design capacity" means for the EDP system the total liquid volume that is contained in the EDP system (tanks, pumps, recirculating lines, filters, etc.) at the system's designed liquid operating level. The EDP system volume design capacity is designated L_E.

(3) Standards as follow apply:

(a) No owner or operator of an automobile or light-duty truck prime coat, EDP prime coat, or final repair operation subject to this rule shall cause or allow the application of any coating on that operation with VOC content, as applied, that exceeds the emission limits as follow:

1. 0.14 kilograms per liter (kg/L) (1.2 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied, from any prime coat operation.

2. 0.58 kg/L (4.8 lb/gal) of coating, excluding water and/or exempt compounds, as applied, from any final repair operation.

3. 0.17 kg/L (1.4 lb/gal) of coating solids from any EDP prime coat operation when the solids turnover ratio (R_T) is 0.16 or greater. R_T shall be calculated as follows:

$$R_T = \frac{T_V}{L_E}$$

where:

(Rule 1200-03-18-.11, continued)

T_V = total volume of coating solids that is added to the EDP system in a calendar month (liters); and

L_E = volume design capacity of the EDP system (liters).

4. $0.17 \times 350^{(0.160 - R_T)}$ kg/L ($1.4 \times 350^{(0.160 - R_T)}$ lb/gal) of coating solids from any EDP prime coat operation when R_T is greater than or equal to 0.040 and less than 0.160.

5. When R_T is less than 0.040 for any EDP prime coat operation, there is no emission limit. When R_T is less than 0.040, the owner or operator shall comply with the certification, recordkeeping, and reporting requirements in Subparagraph (8)(e) of this rule.

(b) For topcoat and primer surfacer operations:

1. No owner or operator of an automobile or light-duty truck topcoat operation or primer surfacer operation subject to this rule may cause or allow on any day emissions which exceed 1.8 kg/L (15.1 lb/gal) of solids deposited, or

2. In the alternative, no owner or operator of an automobile or light-duty truck topcoat or primer surfacer operation shall cause or allow the application of any topcoat or primer surfacer on that operation with VOC content in excess of 0.34 kilograms per liter (kg/L) (2.8 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied.

(c) As an alternative to compliance with the emission limits in Parts (3)(a)1 and 2 of this rule for prime coat and final repair operations, respectively, and Subparagraph (3)(b) of this rule for primer surfacer operations, an owner or operator may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator subject to this rule shall apply coatings in any nonelectrodeposition prime coat, final repair or primer surfacer operation, during any day, whose weighted average VOC content exceeds the applicable emission limits in Parts (3)(a)1 and 2 and Subparagraph (3)(b) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator subject to this rule shall comply with the applicable emission limits for any prime coat, final repair, or primer surfacer operation by:

1. Installing and operating a capture system and a control device on that operation;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator subject to this rule shall ensure that:

(Rule 1200-03-18-.11, continued)

1. A capture system and control device are operated at all times the coating operation is in use, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

(6) The following compliance procedures for EDP prime coat operations apply:

(a) For any EDP prime coat operation that does not comply with the emission limit in Part (3)(a)3 or 4 of this rule by using a capture system and control device to reduce emissions, the owner or operator shall use the procedures in 40 C.F.R. 60.393(c)(1) as of July 1, 1991, to determine compliance.

(b) The owner or operator shall use the procedures in 40 C.F.R. 60.393(c)(2) as of July 1, 1991, to determine compliance if a capture system and a control device that destroys VOC are used to comply with the emission limit in Part (3)(a)3 or 4 of this rule.

(c) The owner or operator shall use the procedures in 40 C.F.R. 60.393(c)(3) as of July 1, 1991, to determine compliance if a capture system and a control device that recovers the VOC are used to comply with the emission limit in Part (3)(a)3 or 4 of this rule.

(7) (Reserved)

(8) The following recordkeeping and reporting requirements for prime coat and final repair operations apply:

(a) through (d) (Reserved)

(e) An owner or operator of an automobile or light-duty truck EDP prime coat operation subject to this rule and complying with the requirements in Part (3)(a)3 or 4 of this rule shall:

1. By April 22, 1994, or upon startup of a new EDP prime coat operation, certify to the Technical Secretary that the coating line or operation is in compliance with the requirements in Parts (3)(a)3 or 4 of this rule. Such certification shall include:

(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) Identification of subject sources; and

(iv) A copy of the calculations performed to determine R_T and the calculations performed pursuant to Paragraph (6) of this rule to demonstrate compliance for the EDP prime coat operation for the month prior to submittal of the certification.

2. On and after April 22, 1994, or on and after the initial startup date of a new EDP prime coat operation, collect and record the following information for each EDP prime coat operation. These records shall be maintained at the facility for at

(Rule 1200-03-18-.11, continued)

least 3 years and shall be made available to the Technical Secretary upon request:

(i) For each month, the total volume of coating solids that is added to the EDP system;

(ii) For each month, calculation of R_T using the equation in Part (3)(a)3 of this rule; and

(iii) For each month, the calculations used in the compliance determinations specified in Paragraph (6) of this rule.

3. On and after April 22, 1994, notify the Technical Secretary in the following instances:

(i) Any record showing noncompliance with the appropriate emission limit for the EDP prime coat operation; and

(ii) At least 30 calendar days before changing the method of compliance from one of the procedures in Paragraph (6) of this rule to another of the procedures in Paragraph (6), the owner or operator shall comply with the certification requirements in Part (8)(e)1 of this rule.

(9) The following recordkeeping and reporting requirements for topcoat and primer surfacer operations apply:

(a) An owner or operator of an automobile or light-duty truck coating operation subject to this rule and complying with Subparagraph (3)(b) of this rule shall comply with the following requirements:

1. At least 180 days prior to the initial compliance date, the owner or operator of a coating operation subject to the topcoat and primer surfacer limit shall have submitted to the Technical Secretary a detailed proposal specifying the method of demonstrating how the compliance test will be conducted according to the topcoat protocol.

2. The proposal shall include a comprehensive plan (including a rationale) for determining the transfer efficiency at each booth through the use of in-plant or pilot testing; the selection of coatings to be tested (for the purpose of determining transfer efficiency) including the rationale for coating groupings; and a method for tracking coating usage during the transfer efficiency test.

3. Upon approval by the Technical Secretary, the owner or operator may proceed with the compliance demonstration.

(b) The owner or operator shall maintain at the source for a period of 3 years or until a new test is performed all test results, data, and calculations used to determine VOC emissions from each topcoat and each primer surfacer operation according to the topcoat protocol.

(c) If control devices are used to control emissions from an automobile or light-duty truck topcoat or primer surfacer operation, the owner or operator shall maintain records according to Parts .03(5)(b)6 through 11 of this chapter.

(Rule 1200-03-18-.11, continued)

(d) Any instance of noncompliance with the emission limit in Subparagraph (3)(b) shall be reported to the Technical Secretary within 30 calendar days.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.12 CAN COATING.

(1) Applicability of this rule is as follows:

(a) This rule applies to any can coating line used to apply the following coatings: sheet base coat, exterior base coat, interior body spray coat, overvarnish, side seam spray coat, exterior end coat, and end sealing compound coat.

(b) The emission limits of this rule do not apply to can coating lines within any facility:

1. In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all can coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all can coating lines within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

2. In Hamilton or Shelby County whose potential VOC emissions from all can coating lines within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

3. In any other county whose potential VOC emissions from all can coating lines within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(c) An owner or operator of a facility which achieves exemption by having emissions below the 6.8 kg (15 lb)-per-day applicability threshold in Part (b)1 of this paragraph shall comply with the certification, recordkeeping, and reporting requirements of Paragraph .03(2) of this chapter.

(2) For the purpose of this rule, the following definitions apply:

(a) "Can" means any cylindrical single walled container, with or without a top, cover, spout, and/or handle, that is manufactured from metal sheets thinner than 29 gauge (0.0141 inches [in]) and into which solid or liquid materials are packaged.

(b) "Can coating line" means a coating line in which any coating is applied onto the surface of cans or can components.

(c) "End sealing compound coat" means a compound applied onto can ends that functions as a gasket when the end is assembled onto the can.

(d) "Exterior base coat" means a coating applied to the exterior of a two-piece can body to provide protection to the metal or to provide background for any lithographic or printing operation.

(e) "Interior body spray coat" means a coating applied to the interior of the can body to provide a protective film between the product and the can.

(Rule 1200-03-18-.12, continued)

(f) "Overvarnish" means a coating applied directly over a design coating or directly over ink to reduce the coefficient of friction, to provide gloss, and to protect the finish against abrasion and corrosion.

(g) "Sheet basecoat" means a coating applied to metal in sheet form to serve as either the exterior or interior of two-piece or three-piece can bodies or can ends.

(h) "Side-seam spray coat" means a coating applies to the seam of a three-piece can.

(i) "Three-piece can" means a can that is made by rolling a rectangular sheet of metal into a cylinder that is soldered, welded, or cemented at the seam and attaching two ends.

(j) "Two-piece can" means a can whose body and one end are formed from a shallow cup and to which the other end is later attached.

(k) "Two-piece can exterior end coat" means a coating applied by roller coating or spraying to the exterior end of a two-piece can to provide protection to the metal.

(3) Standards as follow apply:

(a) No owner or operator of a can coating line subject to this rule shall cause or allow the application of any coating on that line with VOC content, as applied, that exceeds the following limits:

		kg/L	lb/gal[a]
1.	Sheet basecoat and sheet overvarnish	0.34	2.8
2.	Exterior basecoat and overvarnish (two-piece can)	0.34	2.8
3.	Interior body spray coat	0.51	4.2
4.	Two-piece can exterior end coat	0.51	4.2
5.	Side seam spray coat	0.66	5.5
6.	End sealing compound coat	0.44	3.7

[a]VOC content values are expressed in units of mass of VOC (kg, lb) per volume of coating (liter [L], gallon [gal]), excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limits in Subparagraph (a) of this paragraph, an owner or operator of a can coating line may comply with the requirements of this rule by meeting the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a can coating line subject to this rule shall apply coatings on that line, during any day, whose weighted average VOC content exceeds the emission limits in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(Rule 1200-03-18-.12, continued)

(a) An owner or operator of a can coating line subject to this rule may comply with Subparagraph (3)(b) of this rule by:

1. Installing and operating a capture system and a control device on that line;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a can coating line subject to this rule shall ensure that:

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed June 15, 1981; effective July 31, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.13 COIL COATING.

(1) Applicability of this rule is as follows:

(a) This rule applies to any coil coating operation.

(b) This rule does not apply to any coil coating operation within a facility:

1. In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all coil coating operations within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all coil coating operations within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

2. In Hamilton or Shelby County whose potential VOC emissions from all coil coating operations within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

3. In any other county whose potential VOC emissions from all coil coating operations within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Coil" means any continuous metal strip with thickness of 0.15 millimeter (mm) (0.006 inch [in]) or more that is packaged in a roll or coil.

(Rule 1200-03-18-.13, continued)

(b) "Coil coating line" means a web coating line where coating is applied to coil.

(c) "Coil coating operation" means a coating application station and its associated flashoff area, drying area, and/or drying oven wherein coating is applied and dried or cured on a coil coating line. A coil coating line may include more than one coil coating operation.

(3) Standards as follow apply:

(a) No owner or operator of a coil operation subject to this rule shall cause or allow the application of any coating on that operation with VOC content in excess of 0.31 kilograms per liter (kg/L) (2.6 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a coil coating operation may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a coil coating operation subject to this rule shall apply coatings on that operation, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a coil coating operation subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that operation;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a coil coating operation subject to this rule shall ensure that:

1. A capture system and control device are operated at all times the coating operation is in use, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.14 PAPER AND RELATED COATING.

(1) Applicability of this rule is as follows:

(a) This rule applies to any paper coating operation which is not part of a printing press.

(Rule 1200-03-18-.14, continued)

(b) This rule does not apply to any paper coating operation within a facility:

1. In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all paper coating operations within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all paper coating operations within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

2. In Hamilton or Shelby County whose potential VOC emissions from all paper coating operations within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

3. In any other county whose potential VOC emissions from all paper coating operations within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Paper coating line" means a web coating line where coating is applied to paper and pressure sensitive tapes regardless of the substrate. Printing presses are not considered paper coating lines. Products produced on a paper coating line include, but are not limited to, adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, and pressure sensitive tapes. Paper coating lines include, but are not limited to, application by impregnation or saturation or by the use of roll, knife, or rotogravure coating. A paper coating line may include more than one paper coating operation.

(b) "Paper coating operation" means a coating application station and its associated flashoff area, drying area, and/or oven wherein coating is applied uniformly across the web and dried or cured on a paper coating line.

(3) Standards as follow apply:

(a) No owner or operator of a paper coating operation subject to this rule shall cause, allow, or permit the application of any coating on that operation with VOC content in excess of 0.35 kilograms per liter (kg/L) (2.9 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a paper coating operation subject to this rule may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a paper coating operation subject to this rule shall apply coatings on that operation, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a paper coating operation subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that operation;

(Rule 1200-03-18-.14, continued)

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a paper coating operation subject to this rule shall ensure that:

1. A capture system and control device are operated at all times the coating operation is in use, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.15 FABRIC COATING.

(1) Applicability of this rule is as follows:

(a) This rule applies to any fabric coating operation.

(b) This rule does not apply to any fabric coating operation within a facility:

1. In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all fabric coating operations within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all fabric coating operations within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

2. In Hamilton or Shelby County whose potential VOC emissions from all fabric coating operations within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

3. In any other county whose potential VOC emissions from all fabric coating operations within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Fabric coating line" means a web coating line where coating is applied to fabric. A fabric printing line is not considered a fabric coating line.

(b) "Fabric coating operation" means a coating application station and its associated flashoff area, drying area, and/or oven wherein coating is applied and dried or cured in a fabric coating line. A fabric coating line may include more than one fabric coating operation.

(Rule 1200-03-18-.15, continued)

(3) Standards as follow apply:

(a) No owner or operator of a fabric coating operation subject to this rule shall cause or allow the application of any coating on that operation with VOC content in excess of 0.35 kilogram per liter (kg/L) (2.9 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a fabric coating operation subject to this rule may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a fabric coating operation subject to this rule shall apply coatings on that operation, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a fabric coating operation subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that operation;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a fabric coating operation subject to this rule shall ensure that:

1. A capture system and control device are operated at all times the coating operation is in use, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1992; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.16 VINYL COATING.

(1) Applicability of this rule is as follows:

(a) This rule applies to any vinyl coating operation.

(b) This rule does not apply to:

1. Application of vinyl plastisol to fabric to form the substrate that is subsequently coated; and

(Rule 1200-03-18-.16, continued)

2. Any vinyl coating line within a facility:

(i) In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all vinyl coating operations within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all vinyl coating operations within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

(ii) In Hamilton or Shelby County whose potential VOC emissions from all vinyl coating operations within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

(iii) In any other county whose potential VOC emissions from all vinyl coating operations within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, "Vinyl coating line" means a web coating line where a decorative, functional, or protective coating is applied to a continuous web of vinyl or vinyl-coated fabric. Lines used for coating and/or printing on vinyl and coating and/or printing on urethane are considered vinyl coating lines.

(3) Standards as follow apply:

(a) No owner or operator of a vinyl coating line subject to this rule shall cause or allow the application of any coating or ink on that line with VOC content in excess of 0.45 kilograms per liter (kg/L) (3.8 pounds per gallon [lb/gal]) of coating or ink, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a vinyl coating line subject to this rule may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a vinyl coating line subject to this rule shall apply coatings or inks on any such line, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a vinyl coating line subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that line;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a vinyl coating line subject to this rule shall ensure that:

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule

(Rule 1200-03-18-.16, continued)

through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.17 COATING OF METAL FURNITURE.

(1) Applicability of this rule is as follows:

(a) This rule applies to any metal furniture coating line.

(b) This rule does not apply to any metal furniture coating line within a facility:

1. In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all metal furniture coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all metal furniture coating lines within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

2. In Hamilton or Shelby County whose potential VOC emissions from all metal furniture coating lines within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

3. In any other county whose potential VOC emissions from all metal furniture coating lines within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Metal furniture" means any furniture piece made of metal or any metal part that will be assembled with other metal, wood, fabric, plastic, or glass parts to form a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, and room dividers. This definition shall not apply to the coating of miscellaneous metal parts or products.

(b) "Metal furniture coating line" means a coating line in which a protective, decorative, or functional coating is applied onto the surface of metal furniture.

(3) Standards as follow apply:

(a) No owner or operator of a metal furniture coating operation line subject to this rule shall cause or allow the application of any coating on that line with VOC content in excess of 0.36 kilograms per liter (kg/L) (3.0 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a metal furniture coating line may meet the requirements of Paragraph (4) or (5) of this rule.

(Rule 1200-03-18-.17, continued)

(4) No owner or operator of a metal furniture coating line subject to this rule shall apply coatings on that operation, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a metal furniture coating line subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that line;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a metal furniture coating line subject to this rule shall ensure that:

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.18 COATING OF LARGE APPLIANCES.

(1) Applicability of this rule is as follows:

(a) This rule applies to any large appliance coating line.

(b) This rule does not apply to:

1. The use of quick-drying lacquers for repair of scratches and nicks that occur during assembly, provided the volume of coating does not exceed 0.95 liter (L) (0.25 gallon [gal]) in any 8-hour period, and

2. Any large appliance coating line within a facility:

(i) In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all large appliance coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all large applicance coating lines within the

(Rule 1200-03-18-.18, continued)

facility are less than 10 tons of volatile organic compounds (VOC's) per year;

(ii) In Hamilton or Shelby County whose potential VOC emissions from all large appliance coating lines within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

(iii) In any other county whose potential VOC emissions from all large appliance coating lines within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

"Large appliance" means any residential or commercial washer, dryer, range, refrigerator, freezer, water heater, dishwasher, trash compactor, air conditioner, or other similar products under Standard Industrial Classification Code 363.

"Large appliance coating line" means a coating line in which any protective, decorative, or functional coating is put onto the surface of component metal parts (including, but not limited to, doors, cases, lids, panels, and interior parts) of large appliances.

(3) Standards as follow apply:

(a) No owner or operator of a large appliance coating line subject to this rule shall cause or allow the application of any coating on that line with VOC content in excess of 0.34 kilograms per liter (kg/L) (2.8 pounds per gallon [lb]) of coating, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a large appliance coating line, during any day, subject to this rule may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a large appliance coating line subject to this rule shall apply coatings on that line, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a large appliance coating line subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that line;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a large appliance coating line subject to this rule shall ensure that:

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrate compliance with this rule

(Rule 1200-03-18-.18, continued)

through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in Subparagraph .83(2)(b) of this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed October 29, 1981; effective December 29, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.19 COATING OF MAGNET WIRE.

(1) Applicability of this rule is as follows:

(a) This rule applies to any magnet wire coating line.

(b) This rule does not apply to any magnet wire coating line within a facility:

1. In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose emissions without control devices from all magnet wire coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all magnet wire coating lines within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

2. In Hamilton or Shelby County whose potential VOC emissions from all magnet wire coating lines within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

3. In any other county whose potential VOC emissions from all magnet wire coating lines within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, "Magnet wire coating line" means a coating line in which an electrically insulating varnish or enamel is applied onto the surface of wire for use in electrical machinery.

(3) Standards as follow apply:

(a) No owner or operator of a magnet wire coating line subject to this rule shall cause or allow the use of any coating with VOC content in excess of 0.20 kilograms per liter (kg/L) (1.7 pounds per gallon [lb/gal]) of coating, excluding water and/or exempt compounds, as applied.

(b) As an alternative to compliance with the emission limit in Subparagraph (a) of this paragraph, an owner or operator of a magnet wire coating line subject to this rule may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a magnet wire coating line subject to this rule shall apply coatings on that line, during any day, whose weighted average VOC content exceeds the emission limit in Subparagraph (3)(a) of this rule.

(5) Control device requirements as follow apply:

(Rule 1200-03-18-.19, continued)

(a) An owner or operator of a magnet wire coating line subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that line;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a magnet wire coating line subject to this rule shall ensure that:

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency determination methods specified in this chapter, and;

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed October 29, 1981; effective December 14, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.20 COATING OF MISCELLANEOUS METAL PARTS.

(1) Applicability of this rule is as follows:

(a) This rule applies to any miscellaneous metal parts and products coating line.

(b) This rule does not apply:

1. To the coating of the following metal parts and products that are covered by other rules of this chapter:

(i) Automobiles and light-duty trucks;

(ii) Metal cans;

(iii) Flat metal sheets and strips in the form of rolls or coils;

(iv) Magnet wire for use in electrical machinery;

(v) Metal furniture; and

(vi) Large appliances.

2. To the coating operations in the following:

(i) Coating the exterior of completely assembled aircraft;

(Rule 1200-03-18-.20, continued)

(ii) Coating the exterior of major aircraft subassemblies, if approved as revisions to the State Implementation Plan;

(iii) Automobile and truck refinishing;

(iv) Customized top coating of automobiles and trucks, if production is less than 35 vehicles per day;

(v) Coating the exterior of completely assembled marine vessels;

(vi) Coating the exterior of major marine vessel subassemblies if approved as revisions to the state implementation plan; and

(vii) (Repealed)

3. With respect to the emission limits in this rule to any coating line within a facility:

(i) In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all miscellaneous metal parts and products coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all miscellaneous metal parts and products coating lines within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

(ii) In Hamilton or Shelby County whose potential VOC emissions from all miscellaneous metal parts and products coating lines within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

(iii) In any other county whose potential VOC emissions from all miscellaneous metal parts and products coating lines within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(c) In lieu of satisfying the standards and requirements of this rule, the owner or operator of a heavy-duty truck electrodeposition prime coat operation shall satisfy the standards and requirements of Rule .11 of this chapter for that operation.

(2) For the purpose of this rule, the following definitions apply:

(a) "Air-dried coating" means a coating that is dried by the use of air or forced warm air at temperatures up to 90°C (194°F).

(b) "Clear coating" means a coating that:

1. Either lacks color and opacity or is transparent; and

2. Uses the surface to which it is applied as a reflective base or undertone color.

(c) "Drum" means any cylindrical metal shipping container of 13- to 110-gallon capacity.

(d) "Extreme environmental conditions" means any of the following: the weather all of the time, temperatures frequently above 95°C (203°F), detergents, abrasive and scouring agents, solvents, corrosive atmospheres, or similar environmental conditions.

(Rule 1200-03-18-.20, continued)

(e) "Extreme performance coatings" means coatings intended for exposure to extreme environmental conditions.

(f) "Heavy-duty truck touch-up" means air-dried coatings used to repair scratches and/or blemishes in the coating of newly manufactured heavy-duty trucks.

(g) "High performance architectural coating" means a coating:

1. Applied to extruded aluminum architectural subsections intended for use on exteriors of buildings of more than one story;

2. Satisfying the Architectural Aluminum Manufacturer's Association publication number AAMA 605.2-1980; and

3. (Repealed).

(h) "Miscellaneous metal parts and products coating line" means a coating line in which a coating is applied to any miscellaneous metal parts and products.

(i) "Miscellaneous metal parts and products" means any metal part or metal product, even if attached to or combined with a nonmetal part or product. Miscellaneous metal parts and products include, but are not limited to:

1. Large farm machinery (harvesting, fertilizing and planting machines, tractors, combines, etc);

2. Small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.);

3. Small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.);

4. Commercial machinery (office equipment, computers and auxiliary equipment, typewriters, calculators, vending machines, etc.);

5. Industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.);

6. Fabricated metal products (metal covered doors, frames, etc.);

7. Any other industrial category that coats metal parts or products under the Standard Industrial Classification Codes of Major Group 33 (primary metal industries), Major Group 34 (fabricated metal products), Major Group 35 (nonelectric machinery), Major Group 36 (electrical machinery), Major Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), and Major Group 39 (miscellaneous manufacturing industries); and

8. Application of underbody antichip materials (e.g., underbody plastisol) and coating application operations other than prime, primer surface, topcoat, and final repair operations at automobile and light-duty truck assembly plants.

(j) "Pail" means any cylindrical metal shipping container of 1- to 12-gallon capacity and constructed of 29-gauge and heavier material.

(k) "Refinishing" means the repainting of used equipment.

(3) Standards as follow apply:

(Rule 1200-03-18-.20, continued)

(a) No owner or operator of a miscellaneous metal parts and products coating line subject to this rule may cause or allow the application of any coating with VOC content in excess of the emission limits in Subparagraph (b) of this paragraph.

(b) If more than one emission limit in this subparagraph applies to a specific coating, then the least stringent emission limit shall be applied.

		kg/L[a]	lb/gal[a]
1.	High performance architectural coating	0.75	6.2
2.	Heavy-duty truck touch-up	0.58	4.8
3.	Clear coating	0.52	4.3
4.	Steel pail and drum interior	0.52	4.3
5.	Air-dried coating	0.42	3.5
6.	Extreme performance coating	0.42	3.5
7	All other coatings	0.36	3.0

[a]VOC content values are expressed in units of mass of VOC (kg, lb) per volume of coating (liter [L], gallon [gal]), excluding water and/or exempt compounds, as applied.

(c) As an alternative to compliance with the emission limits in Subparagraph (b) of this paragraph, an owner or operator of a miscellaneous metal parts and products coating line may meet the requirements of Paragraphs (4) or (5) of this rule.

(4) No owner or operator of a miscellaneous metal parts and products coating line that applies multiple coatings during the same day shall apply coatings on that line during any day whose weighted average VOC content exceeds the weighted average VOC content limit calculated using VOC content factors from Subparagraph (3)(b) of this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a miscellaneous metal parts and products coating line subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that line;

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a miscellaneous metal parts and products coating line subject to this rule shall ensure that:

(Rule 1200-03-18-.20, continued)

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter, and;

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

Authority: *T.C.A. §§ 4-5-201, et.seq.. and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 19891; effective May 7, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed November 12, 1998; effective January 26, 1999.*

1200-03-18-.21 COATING OF FLAT WOOD PANELING.

(1) Applicability of this rule is as follows:

(a) This rule applies to all flat wood paneling coating lines.

(b) This rule does not apply to:

1. Class I hardwood panels, particle board used in furniture, insulation board, exterior siding, tileboard, and softwood plywood coating lines; or

2. Any flat wood paneling coating line within any facility:

(i) In Davidson, Rutherford, Sumner, Williamson, or Wilson County whose actual emissions without control devices from all flat wood paneling coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOC's) per day or whose maximum theoretical emissions from all flat wood paneling coating lines within the facility are less than 10 tons of volatile organic compounds (VOC's) per year;

(ii) In Hamilton or Shelby County whose potential VOC emissions from all flat wood paneling coating lines within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

(iii) In any other county whose potential VOC emissions from all flat wood paneling coating lines within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

"Class II hardboard paneling finish" means finishes that meet the specifications of Voluntary Product Standard PS-59-73 as approved by the American National Standards Institute.

"Flat wood paneling coating line" means a coating line used in manufacturing to apply and dry or cure coatings applied to flat wood panels including: printed interior panels made of hardwood plywood and thin particle board (i.e., less than or equal to 0.64 centimeters (cm) (0.25 inches [in]) in thickness); natural finish hardwood plywood panels; and hardwood paneling with Class II finishes.

(Rule 1200-03-18-.21, continued)

"Hardboard" is a panel manufactured primarily from interfelted ligno-cellulosic fibers that are consolidated under heat and pressure in a hot press.

"Hardwood plywood" is plywood whose surface layer is a veneer of hardwood.

"Natural finish hardwood plywood panels" means panels whose original grain pattern is enhanced by essentially transparent finishes frequently supplemented by fillers and toners.

"Printed interior panels" means panels whose grain or natural surface is obscured by fillers and basecoats upon which a simulated grain or decorative pattern is printed.

"Thin particleboard" is a manufactured board that is 0.64 cm (0.25 in) or less in thickness made of individual wood particles that have been coated with a binder and formed into flat sheets by pressure.

"Tileboard" means paneling that has a colored, waterproof surface coating.

(3) Standards as follow apply:

(a) No owner or operator of a flat wood paneling coating line subject to this rule shall cause or allow VOC emissions from the coating of any flat wood paneling product in excess of the following emission limits:

	kg/100 m^2[a]	lb/1,000 ft^2[a]
1. Printed interior panels	2.9	6.0
2. Natural finish hardwood plywood panels	5.8	12.0
3. Class II finish on hardwood panels	4.8	10.0

[a]VOC content values are expressed in units of mass of VOC (kg, lb) per volume of surface to which the coating is applied (100 square meters [m^2], 1,000 square feet [ft^2]).

(b) As an alternative to compliance with the emission limits in Subparagraph (a) of this paragraph, an owner or operator of a flat wood paneling coating line may meet the requirements of Paragraph (4) or (5) of this rule.

(4) No owner or operator of a flat wood paneling coating line subject to this rule shall apply coatings on that line, during any day, whose weighted average VOC content, calculated in accordance with the procedure in this rule, exceeds the emission limits in this rule.

(5) Control device requirements as follow apply:

(a) An owner or operator of a flat wood paneling coating line subject to this rule may comply with this rule by:

1. Installing and operating a capture system and a control device on that line;

(Rule 1200-03-18-.21, continued)

2. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this rule or 95 percent; and

3. Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

(b) An owner or operator of a flat wood paneling coating line subject to this rule shall ensure that:

1. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

(6) The test methods found in this chapter and in this paragraph as follow shall be used to determine compliance:

(a) The weighted average VOC content, in units of mass of VOC per area of surface coated, of the coatings used on a day on a flat wood paneling coating line shall be calculated using the following equation:

$$VOC_w = \frac{\sum_{i-1}^{n} ViCi}{a}$$

where

VOC_w = The weighted average VOC content of the coatings, as applied, used in units of kg VOC/100 m^2 (lb VOC/1,000 ft^2);

n = The number of different coatings, as applied, each day;

V_i = The volume of each coating applied in units of L (gal), each day; and

C_i = The VOC content of each coating, as applied, in units of kg VOC/L of coating (lb VOC/gal);

a = Constant = 100 m^2 if using metric units; and
=1,000 ft^2 if using english units.

(b) Calculate the required overall emission reduction efficiency of the control system for the day according to the following equation:

$$E = \frac{(VOCa - S)}{VOCa} \times 100$$

where:

(Rule 1200-03-18-.21, continued)

E = The required overall emission reduction efficiency of the control system;

VOC_a = The maximum VOC content of the coatings, as applied, used each day in units of kg VOC/100 m^2 of surface area coated (lb VOC/1,000 ft^2), as determined by the applicable test methods and procedures; or the weighted average VOC content, as applied, of the coatings used each day in units of kg VOC/100 m^2 of surface area coated (lb VOC/1,000 ft^2); and

S = VOC emission limitation in terms of kg VOC/100 m^2 of surface area coated (lb VOC/1,000 ft^2).

(7) Recordkeeping and reporting requirements of this chapter and as follow apply:

(a) (Reserved)

(b) An owner or operator of a flat wood paneling coating line subject to this rule and complying with Paragraph (3) of this rule by means of the use of complying coatings shall comply with the following:

1. By April 22, 1994, or upon startup of a new coating line, or upon changing the method of compliance for a subject line from daily-weighted averaging or control devices to the use of complying coatings, the owner or operator shall certify to the Technical Secretary that the coating line is in compliance. Such certification shall include:

(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) Identification of subject sources;

(iv) The name and identification number of each coating, as applied; and

(v) The mass of VOC per area of surface to which the coating is applied in terms of kg VOC/100 m^2 (lb VOC/1,000 ft^2) and the surface area coated.

2. On and after April 22, 1994, or on and after the initial startup date, the owner or operator shall collect and record the following information each day and maintain the information for a period of 3 years:

(i) The name and identification number of each coating, as applied; and

(ii) The mass of VOC per area of surface to which the coating is applied for each coating used each day in terms of kg VOC/100 m^2 (lb VOC/1,000 ft^2).

3. On and after April 22, 1994, the owner or operator shall notify the Technical Secretary in the following instances:

(Rule 1200-03-18-.21, continued)

(i) Any record showing use of any non-complying coatings shall be reported by sending a copy of such record to the Technical Secretary within 30 calendar days following that use, and

(ii) At least 30 calendar days before changing the method of compliance from the use of complying coatings to daily-weighted averaging or control devices, the owner or operator shall comply with all requirements of Part (c)1 or (d)1 of this paragraph, respectively.

(c) An owner or operator of a flat wood paneling coating line subject to this rule and complying with Paragraph (3) of this rule by means of weighted averaging on that line shall comply with the following:

1. By April 22, 1994, or upon startup of a new flat wood paneling coating line, or upon changing the method of compliance for a flat wood paneling coating line from the use of complying coatings or control devices to daily-weighted averaging, the owner or operator shall certify to the Technical Secretary that the coating line is in compliance with this subparagraph. Such certification shall include:

(i) The name and location of the facility.

(ii) The address and telephone number of the person responsible for the facility.

(iii) Identification of subject sources.

(iv) The name and identification number of each coating line which will comply by means of weighted averaging;

(v) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating (excluding water and/or exempt compounds), as applied, used each day on each coating line;

(vi) The method by which the owner or operator will create and maintain records as required in Part 2 of this subparagraph, with an example of the format in which the records will be kept; and

(vii) Calculation of the weighted average, using the procedure in Subparagraph (6)(a) of this rule, for a day representative of current or projected maximum production levels.

2. On and after April 22, 1994, or on and after the initial startup date, the owner or operator shall collect and record all of the following information each day for each subject coating line and maintain the information for a period of 3 years:

(i) The name and identification number of each coating, as applied;

(ii) The mass of VOC per volume (excluding water and/or exempt compounds) and the volume of each coating (excluding water and/or exempt compounds), as applied, used each day; and

(iii) The weighted average VOC content of all coatings, as applied, calculated according to the procedure in Subparagraph (6)(a) of this rule.

(Rule 1200-03-18-.21, continued)

3. On and after April 22, 1994, the owner or operator shall notify the Technical Secretary in the following instances:

(i) Any record showing noncompliance with the applicable daily-weighted average requirements shall be reported by sending a copy of the record to the Technical Secretary within 30 calendar days following the occurrence.

(ii) At least 30 calendar days before changing the method of compliance from daily-weighted averaging to the use of complying coatings or control devices, the owner or operator shall comply with all requirements of Part (b)1 or (d)1 of this paragraph, respectively.

(d) Any owner or operator of a flat wood paneling coating line subject to this rule and complying with Paragraph (3) of this rule by the use of control devices shall comply with the following:

1. By April 22, 1994, or upon startup of a new coating line, or upon changing the method of compliance for an existing coating line from the use of complying coatings or weighted averaging to control devices, the owner or operator of the subject coating line shall perform or shall have performed, as applicable, a compliance test. Testing shall be pursuant to the procedures in this chapter and Paragraph (6) of this rule. No later than 60 days after the completion of the performance testing, the owner or operator of the subject coating line shall submit to the Technical Secretary the results of all tests and calculations necessary to demonstrate that the subject coating line is in compliance.

2. On and after April 22, 1994, or on and after the initial startup date, the owner or operator shall collect and record all of the following information each day for each coating line and maintain the information for a period of 3 years:

(i) The name and identification number of each coating used;

(ii) The mass of VOC per area of surface to which the coating is applied in terms of kg VOC/100 m^2 (lb VOC/1,000 ft^2), and the surface area coated;

(iii) The maximum VOC content (mass of VOC per area of surface to which the coating is applied in terms of kg VOC/100 m^2 [lb VOC/1,000 ft^2] or the weighted average VOC content (mass of VOC per area of surface to which the coating is applied in terms of kg VOC/100 m^2 [lb VOC/1,000 ft^2]) of the coatings used;

(iv) The required overall emission reduction efficiency as determined in Subparagraph (6)(b) of this rule;

(v) The actual overall emission reduction efficiency achieved as determined in this chapter;

(vi) Control device monitoring data;

(vii) A log of operating time for the capture system, control device, monitoring equipment, and the associated coating line;

(Rule 1200-03-18-.21, continued)

(viii) A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

(ix) For thermal incinerators, all 3-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance;

(x) For catalytic incinerators:

(I) Continuous records of the temperature of the gas stream both upstream and downstream of the incinerator;

(II) Records of all 3-hour periods of operation for which the average temperature measured befoe the catalyst bed is more than 28°C (50°F) below the gas stream temperature measured before the catalyst bed during the most recent determination of destruction efficiency of the catalytic incinerator that demonstrated that the facility was in compliance; and

(III) Records of all 3-hour periods for which the average temperature across the catalyst bed is less than 80 percent of the temperature difference measured during the most recent determination of the destruction efficiency of the catalytic incinerator that demonstrated that the facility was in compliance.

(xi) For carbon adsorbers, all 3-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the recovery efficiency of the carbon adsorber that demonstrated that the facility was in compliance. This specification applies only to carbon adsorbers for which stack emission testing was required to demonstrate compliance with a standard of this chapter.

3. On and after April 22, 1994, the owner or operator shall notify the Technical Secretary of any instance of noncompliance with the applicable requirements for control devices, such instance of noncompliance including any period of operation during which the parameter boundaries established during the most recent performance test are exceeded as specified in Subparts 2(ix), (x), and (xi) of this subparagraph, by sending a copy of that notice to the Technical Secretary within 30 calendar days following the occurrence.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1992; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed January 19, 1983; effective February 18, 1983. Amendment filed September 26, 1986; effective November 10, 1986. Amendment filed September 21, 1988; effective November 6, 1988. Amendment filed September 22, 1989; effective November 11, 1989. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995.*

1200-03-18-.22 BULK GASOLINE PLANTS.

(1) Applicability of this rule is as follows:

(Rule 1200-03-18-.22, continued)

(a) This rule applies to all unloading, loading, and storage operations at bulk gasoline plants in Anderson, Blount, Carter, Cheatham, Davidson, Dickson, Fayette, Hamilton, Hawkins, Haywood, Jefferson, Knox, Loudon, Marion, Meigs, Montgomery, Putnam, Robertson, Rutherford, Sevier, Shelby, Sullivan, Sumner, Tipton, Unicoi, Union, Washington, Williamson, and Wilson Counties and to gasoline tank trucks delivering or receiving gasoline at these bulk gasoline plants.

(b) The following are subject only to the requirements of Parts (3)(c)7, 8, and 9 of this rule:

1. Any stationary storage tank of 2,082 liters (L) (550 gallons [gal]) capacity or less notwithstanding Rule .06 of this chapter; or

2. Any bulk gasoline plant with an average daily throughput of gasoline of less than 15,000 L (4,000 gal) on a monthly average provided that records are maintained according to the requirements in Subparagraph (5)(a) of this rule. Any plant that becomes or is currently subject to all of the provisions of this rule by exceeding this applicability threshold will remain subject to these provisions even if its throughput later falls below the applicability threshold.

(2) (Reserved)

(3) Standards as follow apply:

(a) Each bulk gasoline plant subject to this rule shall be equipped with a vapor balance system between the gasoline storage vessel and the incoming gasoline tank truck designed to capture and transfer vapors displaced during filling of the gasoline storage vessel. These lines shall be equipped with fittings that are vapor tight and that automatically and immediately close upon disconnection.

(b) Each bulk gasoline plant subject to this rule shall be equipped with a vapor balance system between the gasoline storage vessel and the outgoing gasoline tank truck designed to capture and transfer vapors displaced during the loading of the gasoline tank truck. The vapor balance system shall be designed to prevent any vapors collected at one loading rack from passing to another loading rack.

(c) Each owner or operator of a bulk gasoline plant subject to this rule and owner or operator of each tank truck delivering or receiving gasoline at a plant subject to this rule, as applicable, shall act to ensure that the procedures described below are followed during all loading, unloading, and, with respect to the owner or operator of the plant, storage operations:

1. The vapor balance system shall be connected between the tank truck and storage vessel during all gasoline transfer operations;

2. All storage vessel openings, including inspection hatches and gauging and sampling devices shall be vapor tight when not in use;

3. The gasoline tank truck compartment hatch covers shall not be opened during the gasoline transfer;

4. All vapor balance systems shall be designed and operated at all times to prevent gauge pressure in the gasoline tank truck from exceeding 450 millimeters (mm) (18 inches [in]) of water and vacuum from exceeding 150 mm (5.9 in) of water during product transfers;

(Rule 1200-03-18-.22, continued)

5. No pressure vacuum relief valve in the bulk gasoline plant vapor balance system shall begin to open at a system pressure of less than 450 mm (18 in) of water or at a vacuum of less than 150 mm (5.9 in) of water;

6. All product transfers involving gasoline tank trucks at bulk gasoline plants subject to this rule shall be limited to vapor-tight gasoline tank trucks;

7. Filling of storage vessels shall be restricted to submerged fill;

8. Loading of outgoing gasoline tank trucks shall be limited to submerged fill; and

9. Owners or operators of bulk gasoline plants or owners or operators of tank trucks shall observe all parts of the transfer and shall discontinue transfer if any leaks are observed.

(d) Each calendar month, the vapor balance systems and each loading rack handling gasoline shall be inspected for liquid or vapor leaks during gasoline transfer operations. For purposes of this subparagraph, detection methods incorporating sight, sound, or smell are acceptable. Each leak that is detected shall be repaired within 15 calendar days after it is detected. Dripping liquid resulting upon disconnect following gasoline transfer shall not constitute a leak.

(4) A pressure measurement device (liquid manometer, magnehelic gauge, or equivalent instrument) capable of measuring 500 mm (20 in) of water gauge pressure within a ±2.5 mm (0.098 in) of water precision, shall be calibrated and installed on the bulk gasoline plant vapor balance system at a pressure tap, located as close as possible to the connection with the gasoline tank truck, to allow determination of compliance with Part (3)(c)4 of this rule.

(5) The owner or operator of a facility subject to this rule shall maintain the following records for at least 3 years and shall make these records available to the Technical Secretary upon request:

(a) Daily records showing the quantity of gasoline loaded into gasoline tank trucks; and

(b) A record of each monthly leak inspection kept on file at the plant. Inspection records shall include, as a minimum, the following information:

1. Date of inspection;

2. Findings (may indicate no leaks discovered or location, nature, and severity of each leak);

3. Leak determination method;

4. Corrective action (date each leak repaired; reasons for any repair interval in excess of 15 calendar days); and

5. Inspector name and signature.

(6) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in paragraphs .04(1) and (2) of this chapter, except that for any bulk gasoline plant in Anderson, Blount, Carter, Cheatham, Dickson, Fayette, Hamilton, Hawkins, Haywood, Jefferson, Knox, Loudon, Marion, Meigs, Montgomery, Putnam, Robertson, Sevier, Sullivan, Tipton, Unicoi, Union, or Washington County that is an existing source on December 29, 2004 the initial compliance certification required in paragraph .04(1) shall be submitted by May 1, 2006 instead of the date specified in this paragraph .04(1).

(Rule 1200-03-18-.22, continued)

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed January 31, 1983; effective March 2, 1983. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed October 15, 2004; effective December 29, 2004.*

1200-03-18-.23 BULK GASOLINE TERMINALS.

(1) Applicability of this rule is as follows:

(a) This rule applies to all loading racks at any bulk gasoline terminal which deliver liquid product into gasoline tank trucks and to gasoline tank trucks while loading at a terminal subject to this rule.

(b) Any facility that becomes or is currently subject to the provisions of this rule by exceeding the throughput specified in the definition of bulk gasoline terminal in Rule .01 of this chapter will remain subject to these provisions even if its throughput later falls below the applicability threshold.

(2) Standards as follow apply:

(a) Each loading rack at a bulk gasoline terminal subject to this rule shall be equipped with a vapor collection system designed to collect the total volatile organic compound (VOC) vapors displaced from tank trucks during product loading.

(b) Each vapor collection system shall be designed to prevent any VOC vapors collected at one loading rack from passing to another loading rack.

(c) In Davidson, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties, loadings of liquid product into gasoline tank trucks shall be limited to vapor-tight gasoline tank trucks using the following procedures:

1. The owner or operator shall obtain the vapor-tightness documentation described in Subparagraphs (4)(a) and (b) of this rule for each gasoline tank truck that is to be loaded at the bulk gasoline terminal loading rack subject to this rule;

2. The owner or operator shall require the tank identification number, which allows for verification of vapor-tightness documentation, to be recorded as each gasoline tank truck is loaded at the terminal;

3. The owner or operator shall cross-check each tank identification number with the file of tank vapor-tightness documentation within 2 weeks after the corresponding tank is loaded;

4. The terminal owner or operator shall notify the owner or operator of each non-vapor-tight gasoline tank truck loaded at the bulk gasoline terminal loading rack that the truck is not vapor-tight subject to this rule within 3 weeks after the loading has occurred; and

5. The terminal owner or operator shall insure that the non-vapor-tight gasoline tank truck will not be reloaded at the bulk gasoline terminal loading rack subject to this rule until vapor-tightness documentation for that tank is obtained.

(d) The terminal owner or operator or tank truck owner or operator shall ensure that loadings of any gasoline tank truck at the bulk gasoline terminal loading rack subject to

(Rule 1200-03-18-.23, continued)

this rule is made only into a tank equipped with vapor collection equipment that is compatible with the terminal's vapor collection system.

(e) The terminal owner or operator or tank truck operator shall ensure that the terminal's and the tank truck's vapor collection systems are connected during each loading of a gasoline tank truck at the bulk gasoline terminal loading racks subject to this rule.

(f) The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the tank truck from exceeding 4,500 Pascals (Pa) (450 millimeters [mm] of water) during product loading. This level shall not be exceeded when measured by the procedures specified in Subparagraph (3)(a) of this rule.

(g) No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than 4,500 Pa (450 mm of water).

(h) Each calendar month, the vapor collection system, the vapor control system, and each loading rack handling gasoline shall be inspected during the loading of gasoline tank trucks for liquid or vapor leaks. For purposes of this subparagraph, detection methods incorporating sight, sound, or smell are acceptable. Each detection of a leak shall be recorded and the source of the leak repaired within 15 calendar days after it is detected. Dripping liquid resulting upon disconnect following gasoline transfer shall not constitute a leak.

(i) Emissions to the atmosphere from the vapor collection system due to the loading of gasoline tank trucks shall not exceed 80 milligrams per liter (mg/L) (4.7 grains per gallon [grain/ga]) of gasoline loaded.

(j) Loading of outgoing gasoline tank trucks shall be restricted to the use of submerged fill, with all hatches on the gasoline tank truck kept closed and securely fastened during loading.

(3) Test methods and procedures as follow apply:

(a) For the purpose of determining compliance with Subparagraph (2)(f) of this rule, the following procedures shall be used:

1. Calibrate and install a pressure measurement device (liquid manometer, magnehelic gauge, or equivalent instrument) capable of measuring up to 500 mm (20 inches [in]) of water gauge pressure with $\pm$2.5 mm (0.098 in) of water precision.

2. Connect the pressure measurement device to a pressure tap in the terminal's vapor collection system, located as close as possible to the connection with the gasoline tank truck.

3. During the performance test, record the pressure every 5 minutes (min) while a gasoline tank truck is being loaded, and record the highest instantaneous pressure that occurs during each loading. Every loading position shall be tested at least once during the performance test.

(b) For the purpose of determining compliance with the mass emission limitations of Subparagraph (2)(i) of this rule, the following reference methods shall be used:

1. For the determination of volume at the exhaust vent:

(i) Reference Method 2B for combustion vapor processing systems; and

(ii) Reference Method 2A for all other vapor processing systems.

2. For the determination of total organic compounds concentration at the exhaust vent, Reference Method 25A or 25B. The calibration gas shall be either propane or butane.

(c) Immediately prior to a performance test required for determination of compliance with Subparagraphs (2)(f) and (i) of this rule, all potential sources of vapor leakage in the terminal's vapor collection system equipment shall be monitored for leaks according to the procedures in Rule .85 of this chapter. The monitoring shall be conducted only while a gasoline tank truck is being loaded. A reading of 10,000 parts per million by volume (ppmv) or greater as methane shall be considered a leak. All leaks shall be repaired prior to conducting the performance test.

(d) The test procedure for determining compliance with Subparagraphs (2)(f) and (i) of this rule is as follows:

1. All testing equipment shall be prepared and installed as specified in the appropriate test methods;

2. The time period for a performance test shall be not less than 6 hours, during which at least 300,000 liters (L) (80,000 gallons [gal]) of gasoline are loaded. If the throughput criterion is not met during the initial 6 hours, the test may be either continued until the throughput criterion is met, or resumed the next day with another complete 6 hours of testing. As much as possible, testing should be conducted during the 6-hour period in which the highest throughput normally occurs;

3. For intermittent vapor processing systems:

(i) The vapor holder level shall be recorded at the start of the performance test. The end of the performance test shall coincide with a time when the vapor holder is at its original level; and

(ii) At least two startups and shutdowns of the vapor processor shall occur during the performance test. If this does not occur under automatically controlled operation, the system shall be manually controlled.

4. The volume of gasoline dispensed during the performance test period at all loading racks whose vapor emissions are controlled by the vapor processing system being tested shall be determined. This volume may be determined from terminal records or from gasoline dispensing meters at each loading rack;

5. An emission testing interval shall consist of each 5-minute period during the performance test. For each interval:

(i) The reading from each measurement instrument shall be recorded; and

(ii) The volume exhausted and the average total organic compounds concentration in the exhaust vent shall be determined, as specified in the appropriate test method. The average total organic compounds concentration shall correspond to the volume measurement by taking into account the sampling system response time;

6. The mass emitted during each testing interval shall be calculated as follows:

(Rule 1200-03-18-.23, continued)

$$M_{ei} = 10^{-6} K V_{es} C_e$$

where:

M_{ei} = Mass of total organic compounds (milligrams [mg]) emitted during testing interval i;

V_{es} = Volume of air-vapor mixture exhausted (cubic meters [m^3]), at standard conditions;

C_e = Total organic compounds concentration (measured as carbon) at the exhaust vent (ppmv);

K = Density of calibration gas (milligrams/cubic meter [mg/m^3]) at standard conditions;

= 1.83×10^6 for propane;

= 2.41×10^6 for butane; and

s = Standard conditions, 20°C and 760 millimeters of mercury (mm Hg); and

7. The total organic compounds mass emissions shall be calibrated as follows:

$$E = \frac{\sum_{i=1}^{n} M_{ei}}{L}$$

where:

E = mass of total organic compounds emitted per volume of gasoline loaded, mg/L;

M_{ei} = mass of total organic compounds emitted during testing interval i, mg;

L = total volume of gasoline loaded, L; and

n = number of testing intervals.

(e) The owner or operator may adjust the emission results to exclude the methane and ethane content in the exhaust vent by any method approved by the Technical Secretary and the EPA.

(4) The owner or operator of a facility subject to the requirements of this rule shall maintain the following records for at least 3 years and shall make these records available to the Technical Secretary upon request:

(Rule 1200-03-18-.23, continued)

(a) The tank truck vapor-tightness documentation required under Subparagraph (2)(c) of this rule shall be kept on file at the terminal in a permanent form available for inspection.

(b) The documentation file for each gasoline tank truck shall be updated at least once per year to reflect current test results as determined by Reference Method 27. This documentation shall include, as a minimum, the following information:

1. Test title: Gasoline Delivery Tank Pressure Test--Reference Method 27;

2. Tank owner and address;

3. Tank identification number;

4. Testing location;

5. Date of test;

6. Tester name and signature;

7. Witnessing inspector, if any: Name, signature, and affiliation; and

8. Test results: Actual pressure change in 5 min, mm of water (average for two runs).

(c) A record of each monthly leak inspection required under Subparagraph (2)(h) of this rule shall be kept on file at the terminal. Inspection records shall include, as a minimum, the following information:

1. Date of inspection;

2. Findings (may indicate either no leaks discovered or the location, nature, and severity of each leak);

3. Leak determination method;

4. Corrective action (date each leak repaired, reasons for any repair interval in excess of 15 calendar days; and

5. Inspector name and signature.

(d) The terminal owner or operator shall keep documentation of all notifications required under Part (2)(c)4 of this rule on file at the terminal.

(e) Daily records shall be maintained of gasoline throughput.

(5) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995.*

1200-03-18-.24 GASOLINE DISPENSING FACILITIES.

(1) The provisions of 40 CFR 63 Subpart CCCCCC (National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities) are hereby adopted by reference as published in the July 1, 2014 edition of the Code of Federal Regulations (CFR), except as provided in subparagraphs (a) through (d) of this paragraph.

(a) Any reference contained in 40 CFR 63 Subpart CCCCCC to the:

1. Administrator shall instead be a reference to the Technical Secretary;

2. Applicable EPA regional office for the State of Tennessee shall instead be a reference to the EPA Region IV office; and

3. Delegated State authority shall instead be a reference to the Technical Secretary.

(b) If your gasoline dispensing facility (GDF) has a monthly throughput of less than 10,000 gallons of gasoline, and is located in Anderson, Blount, Carter, Cheatham, Davidson, Dickson, Fayette, Hamilton, Hawkins, Haywood, Jefferson, Knox, Loudon, Marion, Meigs, Montgomery, Putnam, Robertson, Rutherford, Sevier, Shelby, Sullivan, Sumner, Tipton, Unicoi, Union, Washington, Williamson, or Wilson Counties, you must also comply with the requirements in 40 CFR § 63.11117(b) and (c).

(c) If your GDF has a monthly throughput of 10,000 gallons of gasoline or more and is located in Anderson, Blount, Carter, Cheatham, Davidson, Dickson, Fayette, Hamilton, Hawkins, Haywood, Jefferson, Knox, Loudon, Marion, Meigs, Montgomery, Putnam, Robertson, Rutherford, Sevier, Shelby, Sullivan, Sumner, Tipton, Unicoi, Union, Washington, Williamson, or Wilson Counties, you must comply with the requirements in 40 CFR § 63.11118.

(d) For any GDF otherwise exempt from subparagraph (c) of this paragraph based on monthly throughput, if the GDF ever exceeds the applicability threshold specified in subparagraph (c) of this paragraph, it shall be subject to the requirements of subparagraph (c) of this paragraph and shall remain subject to those requirements even if its throughput later falls below the threshold. The owner or operator shall inform the Technical Secretary within 30 days following the exceedance.

(e) The owner or operator of any GDF in Davidson, Rutherford, Shelby, Sumner, Knox, Blount, Anderson, Williamson, or Wilson County which has actual emissions from stationary sources of 25 tons or more of volatile organic compounds (VOC) during a calendar year shall report to their permitting authority in accordance with paragraph (8) of Rule 1200-03-18-.02.

(2) Stage II vapor recovery requirements for GDF in Davidson, Rutherford, Sumner, Williamson, and Wilson counties.

(a) This paragraph applies only to GDF located in Davidson, Rutherford, Sumner, Williamson, and Wilson counties.

(b) Any GDF with an existing Stage II vapor recovery system shall decommission and remove the system no later than July 14, 2019, and no GDF shall install a Stage II vapor recovery system on or after such date.

(Rule 1200-03-18-.24, continued)

(c) On and after July 14, 2016, no GDF shall be required to install a Stage II vapor recovery system and a GDF may decommission and remove the GDF's existing Stage II vapor recovery system.

(d) Any GDF that decommissions and removes a Stage II vapor recovery system shall conduct the decommissioning and removal in accordance with Petroleum Equipment Institute (PEI) guidance, "Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-09" for removal, notification, and certification.

(e) Any GDF that has a Stage II vapor recovery system must comply with all applicable provisions of subparagraph (f) of this paragraph until the system is decommissioned and removed.

(f) Stage II vapor recovery.

1. Definitions.

(i) "Vacuum assist system" means the gasoline vapor recovery system that employs a vacuum generating device to effect transfer of gasoline vapor displaced in fueling a vehicle tank to a gasoline storage tank, vapor storage tank, or vapor processing unit.

(ii) "Motor vehicle" means any self-propelled vehicle used to carry people or property on a street or highway.

(iii) "Stage II vapor recovery system" means a system to recover gasoline vapors displaced during dispensing to motor vehicle fuel tanks.

(iv) "Storage tank or storage vessel" means any stationary tank, reservoir or container used for the storage of a volatile organic liquid.

(v) "Volatile organic liquid" means any substance which is liquid at storage conditions and which contains volatile organic compounds.

2. The owner or operator of each GDF subject to this subparagraph shall comply with the following requirements:

(i) The Stage II vapor recovery system must be approved by the Technical Secretary; certified by the California Air Resources Board; designed, installed, operated, and maintained to recover gasoline vapors displaced during dispensing to motor vehicle fuel tanks; and accessible for inspection and testing.

(ii) The Stage II vapor recovery system shall include for any dispenser and system the following:

(I) Vapor-tight coaxial hose to conduct vapors captured during dispensing, except on new vehicle fueling lines at motor vehicle assembly plants where vapor-tight dual hose on vacuum assist systems may be employed in lieu of vapor-tight coaxial hose;

(II) For balance systems:

(Rule 1200-03-18-.24, continued)

I. Installation of piping between the dispenser and the vapor collection tank which precludes liquid blockage in the piping; and

II. No device which inhibits immediate testing for dynamic backpressure;

(III) For vacuum assist systems, sufficient vacuum to prevent escape of gasoline vapors during dispensing;

(IV) Vapor-tight piping, fittings, caps, couplers, and adapters; and

(V) Maintenance of vapor tightness throughout the vapor recovery system, except during facility storage tank loading, gauging, and sampling and during maintenance and testing necessitating disruption in the integrity of the system.

(iii) Use of any aftermarket or rebuilt parts is restricted to parts approved by the California Air Resources Board.

(iv) Gasoline shall not be dispensed from a dispensing unit served by or permitted to be served by a component which does not satisfy the following:

(I) Each component required for operation of the system is in place and, to the extent it can be confirmed by sensory inspection, is unimpaired and operational;

(II) Each nozzle boot is not torn in either of the following manners:

I. Triangular - shaped or similar tear 1/2 inch or more to a side, or hole 1/2 inch or more in length; or

II. Slit 1 inch or more in length.

(III) Each faceplate or flexible cone is not damaged in the following manner:

I. For balance nozzles and nozzles for aspirator and eductor assist type systems, damage such that the capability to achieve a seal with a fillpipe interface is diminished for an accumulated total of 1/4 of the circumference of the faceplate; or

II. For nozzles for vacuum assist systems, more than 1/4 of the flexible cone is missing;

(IV) Each nozzle shutoff mechanism is operational;

(V) Each vacuum producing unit is operational;

(VI) Each vapor processing unit is operational;

(VII) Each fitting, cap, coupler, and adapter is vapor-tight; and

(Rule 1200-03-18-.24, continued)

(VIII) Each pressure/vacuum relief valve, vapor check valve, and dry break is operational.

(v) The owner or operator shall conspicuously display fueling instructions and information in the gasoline dispensing area. These instructions and this information shall describe to customers clearly the proper procedure to be used for fueling vehicles from the dispenser. These instructions and this information shall include instruction about the proper method of reporting system defects first to facility management, and, then if defects are not corrected, to the Technical Secretary. The notice of the method of reporting to the Technical Secretary shall be displayed no earlier than 3 months after and no later than 6 months after the display of the other instructions and information listed above.

3. Test methods as follow apply:

(i) The test methods found in Appendix J, Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities, Volume II, EPA - 450/3-91-022b (November 1991), to determine compliance with applicable requirements specified in part (2)(f)2 of this rule; or

(ii) Other methods necessary for demonstration of compliance approved by the Technical Secretary and the EPA.

4. Notification requirements – Each owner or operator of any facility containing sources subject to this subparagraph shall provide the Technical Secretary written notice of any compliance demonstration testing. This notice shall be provided to the Technical Secretary such that the Technical Secretary is informed of the proposed testing at least 14 days before the proposed date of testing, thereby providing the Technical Secretary opportunity to observe the testing.

5. Recordkeeping requirements -- Each owner or operator of any facility containing sources subject to this subparagraph shall, except as provided otherwise in this chapter, maintain required permits and required logs of maintenance at the facility for which the permits are issued and the logs created for a minimum of 3 years. Such records shall be made available to the Technical Secretary upon request.

6. Excess Emissions Report - The owner or operator of any facility containing sources subject to this subparagraph shall comply with the requirements in paragraph (2) of Rule 1200-03-18-.04.

7. Compliance Demonstration Testing - The owner or operator of any facility containing sources subject to the provisions of this subparagraph shall:

(i) Within 30 days following the occurrence of an incident which could reasonably be expected to have adversely affected the performance of the system, such as excavation near system piping or following replacement of the system, perform applicable testing to demonstrate compliance is maintained; and

(ii) Within 5 years following any compliance demonstration for the complete system, demonstrate the system maintains compliance.

(Rule 1200-03-18-.24, continued)

Authority: *T.C.A. §§ 4-5-201 et seq., 4-5-202 et seq., 68-201-101 et seq., and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Stay for rules 1200-03-18-.24(1)(d), 1200-03-18-.24(2), 1200-03-18-.24(3)(c), 1200-03-18-.24(4)(b), 1200-03-18-.24(6)(c), 1200-03-18-.24(d) and 1200-03-18-.24(7) filed April 16, 1993; effective June 21, 1993. Amendment filed April 16, 1993; effective June 21, 1993. Amendment filed May 30, 1996; effective August 10, 1996. Amendment filed December 23, 2003; effective March 7, 2004. Amendments filed October 15, 2004; effective December 29, 2004. Repeal and new rule filed February 14, 2006; effective April 30, 2006. Amendments filed April 15, 2016; effective July 14, 2016. Amendments filed June 2, 2017; effective August 31, 2017.*

1200-03-18-.25 LEAKS FROM GASOLINE TANK TRUCKS.

(1) This rule applies to any gasoline tank truck equipped for gasoline vapor collection. No exemptions are allowable based on number of gasoline tank trucks or total quantity of volatile organic compound (VOC) emissions.

(2) Each owner or operator of a gasoline tank truck subject to this rule shall ensure that the gasoline tank truck:

(a) Is a vapor-tight gasoline tank truck as demonstrated by Reference Method 27.

(b) Operates with hatches open only during measurement of product level or maintenance, with no product loading or unloading conducted during this measurement or maintenance.

(c) Retests for vapor-tightness documentation not more than 12 months from the month of the last vapor-tightness test.

(3) Monitoring for leaks from gasoline tank trucks shall be as follows:

(a) The Technical Secretary may, at any time, monitor a gasoline tank by the procedure referenced in Subparagraph (b) of this paragraph to confirm continuing compliance with this rule.

(b) Monitoring to confirm the continuing existence of leak-tight conditions shall be performed according to the procedures described in Appendix B of the OAQPS Guideline Series document, Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems, EPA-450/2-78-051.

(c) Within 30 days of detection of a leak, the owner or operator shall certify in writing to the Technical Secretary that repairs have been made.

(4) The test procedure to determine compliance with Subparagraph (2)(a) of this rule shall be Reference Method 27.

(5) Recordkeeping and reporting requirements as follow apply:

(a) The owner or operator of a gasoline tank truck subject to this rule shall maintain records of all certification, testing, and repairs concerning vapor-tightness and leaks. The records shall identify the gasoline tank truck, the date of the tests or repair, and, if applicable, the type of repair and the date of retest. The records shall be maintained for at least 3 years after the date the testing or repair is completed. These records shall be made available to the Technical Secretary upon request.

(b) The records required by Subparagraph (a) of this paragraph with respect to vapor-tightness shall, as a minimum, contain:

(Rule 1200-03-18-.25, continued)

1. The gasoline tank truck vessel tank identification number (serial number);

2. The initial test pressure;

3. The test pressure after 5 minutes;

4. The initial test vacuum;

5. The test vacuum after 5 minutes;

6. The testing company name and the date and location of the test; and

7. The signature of person conducting the test.

(c) The owner or operator of a gasoline tank truck subject to this rule shall certify and report to the Technical Secretary annually that the gasoline tank truck has been tested by Reference Method 27 as specified in Paragraph (4) of this rule. The certification shall include:

1. The name and address of the company and the name and telephone number of the responsible company representative under whose signature the certification is submitted; and

2. A copy of the information recorded to comply with Subparagraph (b) of this paragraph.

(d) Copies of all records and reports under this rule shall be made available to the Technical Secretary upon request.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.26 PETROLEUM REFINERY SOURCES.

(1) Applicability of this rule is as follows:

(a) This rule applies to any vacuum-producing system, wastewater separator, and process unit turnaround at petroleum refinery sources. No exemptions are allowable based on size or throughput of a facility.

(b) This rule does not apply to segregated storm water run-off drain systems or to non-contact cooling water systems.

(2) For the purpose of this rule, the following definitions apply:

"Accumulator" means the reservoir of a condensing unit receiving the condensate from the condenser.

"Firebox" means the chamber or compartment of a boiler or furnace in which materials are burned but does not mean the combustion chamber of an incinerator.

"Forebays" means the primary sections of a wastewater separator.

(Rule 1200-03-18-.26, continued)

"Hot well" means the reservoir of a condensing unit receiving the warm condensate from the condenser.

"Refinery fuel gas" means any gas that is generated by a petroleum refinery process unit and that is combusted, including any gaseous mixture of natural gas and fuel gas.

"Turnaround" means the procedure of shutting a refinery unit down after a run to perform necessary maintenance and repair work and returning the unit to operation.

"Vacuum producing system" means any reciprocating, rotary, or centrifugal blower or compressor, or any jet ejector or device that takes suction from a pressure below atmospheric and discharges against atmospheric pressure.

"Wastewater (oil/water) separator" means any device or piece of equipment that utilizes the difference in density between oil and water to remove oil and associated chemicals from water, or any device, such as a flocculation tank, clarifier, etc., that removes petroleum-derived compounds from wastewater.

(3) Standards as follow apply:

(a) No person shall permit the emission of any uncondensed volatile organic compound (VOC) from the condensers, hot wells, or accumulators of any vacuum producing system at a petroleum refinery. The standard shall be achieved by:

1. Piping the uncondensed vapors to a firebox or incinerator, or

2. Compressing the vapors and adding them to the refinery fuel gas.

(b) The owner or operator of any wastewater (oil/water) separator at a petroleum refinery shall:

1. Provide covers and seals on all separators and forebays, and

2. Equip all openings in covers, separators, and forebays with lids or seals and keep the lids or seals in the closed position at all times except when in actual use.

(c) The owner or operator of a petroleum refinery shall provide for the following during process unit turnaround:

1. Depressurization venting of the process unit or vessel to a vapor recovery system, flare, or firebox;

2. No emission of VOC from a process unit or vessel until its internal pressure is 136 kiloPascals (kPa) (19.7 pounds per square inch atmospheric [psia]) or less; and,

3. Recordkeeping of the following items:

(i) Date of every process unit or vessel turnaround; and

(ii) The internal pressure of the process unit or vessel immediately prior to venting to the atmosphere.

(Rule 1200-03-18-.26, continued)

(4) The owner or operator of a petroleum refinery shall maintain the records required by Part (3)(c)3 of this rule for at least 3 years and shall make these records available to the Technical Secretary upon request.

(5) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.27 LEAKS FROM PETROLEUM REFINERY EQUIPMENT.

(1) Applicability of this rule is as follows:

(a) This rule applies to all equipment in volatile organic compound (VOC) service in any process unit at a petroleum refinery, regardless of size or throughput.

(b) The requirements of Paragraphs (4) through (8) of this rule do not apply to:

1. Any equipment in vacuum service;

2. Any pressure relief valve that is connected to an operating flare header or vapor recovery device;

3. Any liquid pump that has a dual mechanical pump seal with a barrier fluid system;

4. Any compressor with a degassing vent that is routed to an operating VOC control device; and

5. Pumps and valves in heavy liquid service except that if evidence of a leak is found by visual, audible, olfactory, or other detection method, the owner or operator shall confirm the presence of a leak using the methods specified in Rule .85 of this chapter. If a leak is confirmed, the owner or operator shall repair the leak as specified in Paragraph (7) of this rule.

(2) For the purpose of this rule, the following definitions apply:

(a) "[In] gas/vapor service" means that the piece of equipment in VOC service contains process fluid that is in the gaseous state at operating conditions.

(b) "[In] heavy liquid service" means that the piece of equipment in VOC service is not in gas/vapor service or in light liquid service.

(c) "[In] light liquid service" means that the piece of equipment in VOC service contains a liquid that meets the following conditions:

1. The vapor pressure of one or more of the components is greater than 0.3 kPa (0.044 in Hg) at 20°C (68°F) (standard reference texts or ASTM D2879 shall be used to determine the vapor pressures);

2. The total concentration of the pure components having a vapor pressure greater than 0.3 kPa (0.044 in. Hg) at 20°C (68°F) is equal to or greater than 20 percent by weight; and

(Rule 1200-03-18-.27, continued)

3. The fluid is a liquid at operating conditions.

(d) "[In] vacuum service" means that the equipment in VOC service is operating at an interval pressure which is at least 5 kPa below ambient pressure.

(e) "[In] VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight. The provisions of Subparagraph (9)(b) of this rule specify how to determine that a piece of equipment is not in VOC service.

(3) The owner or operator of a petroleum refinery complex subject to this regulation shall ensure that:

(a) Any open-ended line or valve is sealed with a second valve, blind flange, cap, or plug except during operations requiring process fluid flow through the open-ended line or valve;

(b) When a second valve is used, each open-ended line or valve equipped with a second valve is operated in such a manner that the valve on the process fluid end is closed before the second valve is closed; and

(c) When a double block-and-bleed system is used, the bleed valve or line is open only during operations that require venting of the line between the block valves and is closed at all other times.

(4) Equipment inspection program standards as follow apply:

(a) The owner or operator of a petroleum refinery shall conduct quarterly monitoring of each:

1. Compressor;

2. Pump in light liquid service;

3. Valve in light liquid service, except as provided in Paragraphs (5) and (6) of this rule;

4. Valve in gas/vapor service, except as provided in Paragraphs (5) and (6) of this rule; and

5. Pressure relief valve in gas/vapor service, except as provided in Paragraphs (5) and (6) of this rule.

(b) The owner or operator of a petroleum refinery shall conduct a weekly visual inspection of each pump in light liquid service;

(c) The owner or operator of a petroleum refinery shall monitor each pressure relief valve after each overpressure relief to ensure that the valve has properly reseated and is not leaking;

(d) When an instrument reading of 10,000 parts per million (ppm) or greater is measured, it shall be determined that a leak has been detected;

(e) If there are indications of liquid dripping from the equipment, it shall be determined that a leak has been detected; and

(Rule 1200-03-18-.27, continued)

(f) When a leak is detected, the owner or operator shall affix a weatherproof, readily visible tag in a bright color such as red or yellow bearing the equipment identification number and the date on which the leak was detected. This tag shall remain in place until the leaking equipment is repaired. The requirements of this subparagraph apply to any leak detected by the equipment inspection program and to any leak from any equipment that is detected on the basis of sight, sound, or smell.

(5) Alternative standards for skip period leak detection and repair apply as follows:

(a) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in Paragraph (4) of this rule.

(b) After two consecutive quarterly leak detection periods with the percent of valves leaking equal or less than 2.0, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(c) After five consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(d) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in Paragraph (4) of this rule but can again elect to use the requirements in Paragraph (5) of this rule.

(e) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this rule.

(f) An owner or operator shall keep a record of the percent of valves found leaking during each leak detection period.

(6) Alternative standards for unsafe-to-monitor valves and difficult-to-monitor valves apply as follow:

(a) Any valve that is designated, as described in Part (10)(e)1 of this rule, as an unsafe-to-monitor valve is exempt from the requirements of Paragraph (4) if:

1. The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with Paragraph (4); and

2. The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(b) Any valve that is designated, as described in Part (10)(e)2, as a difficult-to-monitor valve is exempt from the requirements of Paragraph (4) if:

1. The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters (m) (6.6 feet [ft]) above a support surface; and

2. The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

(7) The owner or operator of a petroleum refinery shall:

(Rule 1200-03-18-.27, continued)

(a) Make a first attempt at repair for any leak not later than 5 calendar days after the leak is detected; and

(b) Repair any leak as soon as practicable, but not later than 15 calendar days after it is detected except as provided in Paragraph (8) of this rule.

(8) Delay of repair standards apply as follow:

(a) Delay of repair of equipment for which a leak has been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of such equipment shall occur before the end of the next process unit shutdown.

(b) Delay of repair of equipment will be allowed for equipment that is isolated from the process and that does not remain in VOC service.

(c) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(9) Test methods and procedures apply as follow:

(a) In conducting the tests required to comply with Paragraph (4) of this rule, the owner or operator shall use the test methods specified in Rule .85 of this chapter.

(b) The owner or operator shall test each piece of equipment as required under Paragraph (4) of this rule unless it is demonstrated that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

1. Procedures that conform to the general methods in ASTM E260, E168, and E169 shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment;

2. Where the test methods in Part 1 of this subparagraph also measure exempt compounds, these compounds may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid; and

3. Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in VOC service. If the Technical Secretary disagrees with the judgment, Parts 1 and 2 of this subparagraph shall be used to resolve the disagreement.

(c) The owner or operator shall demonstrate that a piece of equipment is in light liquid service by showing that:

1. All of the following conditions apply:

(i) The vapor pressure of one or more of the components is greater than 0.3 kiloPascals (kPa) at 20°C (0.09 inches of Mercury [in Hg] at 68°F); standard reference texts or ASTM D2879 shall be used to determine the vapor pressures;

(Rule 1200-03-18-.27, continued)

(ii) The total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20°C (0.09 in Hg at 68°F) is equal to or greater than 20 percent by weight; and

(iii) The fluid is a liquid at operating conditions.

2. The percent VOC evaporated is greater than 10 percent at 150°C (302°F) as determined by ASTM D86.

(d) Samples used in conjunction with Subparagraphs (b) and (c) of this paragraph shall be representative of the process fluid that is contained in or contacts the equipment.

(10) Recordkeeping requirements apply as follow:

(a) Each owner or operator subject to the provisions of this rule shall comply with the recordkeeping requirements of this rule. Except as noted, these records will be maintained for a minimum of 3 years and shall be made available to the Technical Secretary upon request.

(b) An owner or operator of more than one affected facility subject to the provisions of this rule may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(c) When each leak is detected as specified in Paragraph (4) of this rule, the following information shall be recorded in a log and shall be kept for 3 years:

1. The instrument and operator identification numbers and the equipment identification number;

2. The date the leak was detected and the dates of each attempt to repair the leak;

3. The repair methods employed in each attempt to repair the leak;

4. The notation “Above 10,000” if the maximum instrument reading measured by the methods specified in Rule .85 of this chapter after each repair attempt is equal to or greater than 10,000 ppm;

5. The notation “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;

6. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown;

7. The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days;

8. The dates of process unit shutdowns that occur while the equipment is unrepaired; and

9. The date of successful repair of the leak.

(d) A list of identification numbers of equipment in vacuum service shall be recorded in a log that is kept.

(e) The following information pertaining to all valves subject to the requirements of Paragraph (6) of this rule shall be recorded in a log that is kept for 3 years:

(Rule 1200-03-18-.27, continued)

1. A list of identification numbers for valves that are designated as unsafe-to-monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve; and

2. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve.

(f) The following information for valves complying with Paragraph (5) of this rule shall be recorded in a log that is kept for 3 years:

1. A schedule of monitoring; and

2. The percent of valves found leaking during each monitoring period as noted in Subparagraph (5)(f) of this rule.

(g) Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept 3 years in a readily accessible location for use in determining exemptions as provided in Paragraph (1) of this rule.

(11) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.28 PETROLEUM LIQUID STORAGE IN EXTERNAL FLOATING ROOF TANKS.

(1) Applicability of this rule is as follows:

(a) This rule applies to any petroleum liquid storage tank that is equipped with an external floating roof and that has a capacity greater than 150,000 liters (L) (40,000 gallons [gal]).

(b) This rule does not apply to any petroleum liquid storage tank that:

1. Is used to store waxy, heavy pour crude oil;

2. Has a capacity less than 1,600,000 L (420,000 gal) and is used to store produced crude oil and condensate prior to lease custody transfer;

3. Contains a petroleum liquid with a maximum true vapor pressure less than 10.5 kiloPascals (kPa) (1.5 pounds per square inch atmospheric [psia]) provided that records are kept consistent with Subparagraph (4)(b) of this rule;

4. Contains a petroleum liquid with a maximum true vapor pressure less than 27.6 kPa (4.0 psia); and

(i) Is of welded construction, and

(ii) Presently possesses a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid-filled type seal, or other closure device of demonstrated equivalence approved as a revision to the State Implementation Plan; or

(Rule 1200-03-18-.28, continued)

5. Is of welded construction, equipped with a metallic-type shoe primary seal and has a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal).

(2) For the purpose of this rule, the following definitions apply:

(a) "Liquid-mounted seal" means a primary seal mounted in continuous contact with the liquid between the tank wall and the floating roof around the circumference of the tank.

(b) "Vapor-mounted seal" means a primary seal mounted so there is an annular vapor space underneath the seal. The annual vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

(c) "Waxy, heavy-pour crude oil" means a crude oil with a pour point of 10°C (50°F) or higher as determined by the American Society for Testing and Materials Standard D97-66, "Test for Pour Point of Petroleum Oils".

(3) No owner of a petroleum liquid storage vessel subject to this rule shall store a petroleum liquid in that tank unless:

(a) The tank has been fitted with:

1. A continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal); or

2. A closure or other device that controls VOC emissions with an effectiveness equal to or greater than a seal required under Part 1 of this subparagraph and is approved as a revision to the State Implementation Plan.

(b) All seal closure devices meet the following requirements:

1. There are no visible holes, tears, or other openings in the seal(s) or seal fabric;

2. The seal(s) are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall; and

3. For vapor-mounted primary seals, the accumulated area of gaps exceeding 0.32 centimeters (cm) (0.125 inches [in]) in width between the secondary seal and the tank wall shall not exceed 21.2 square centimeters per meter (cm^2/m) (1.0 square inches per foot [in^2/ft]) of tank diameter, as determined by the method in Paragraph (6) of this rule.

(c) All openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, are:

1. Equipped with covers, seals, or lids in the closed position except when the openings are in actual use; and

2. Equipped with projections into the tank that remain below the liquid surface at all times.

(d) Automatic bleeder vents are closed at all times except when the roof is being floated off or being landed on the roof leg supports.

(Rule 1200-03-18-.28, continued)

(e) Rim vents are set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting.

(f) Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least 90 percent of the area of the opening.

(4) The owner or operator of a petroleum liquid storage tank with an external floating roof subject to this rule shall:

(a) Perform routine inspections semi-annually in order to ensure compliance with Paragraph (3) of this rule (the inspections shall include a visual inspection of the secondary seal gap); and

(b) Measure the secondary seal gap annually in accordance with Paragraph (6) of this rule when the floating roof is equipped with a vapor-mounted primary seal.

(5) Recordkeeping requirements apply as follow:

(a) The owner or operator of any petroleum liquid storage tank with an external floating roof subject to this rule shall maintain the following records for at least 3 years and shall make copies of the records available to the Technical Secretary upon request:

1. Records of the types of volatile petroleum liquids stored;

2. Records of the maximum true vapor pressure of the liquid as stored; and

3. Records of the results of the inspections performed in accordance with Paragraph (4) of this rule.

(b) The owner or operator of a petroleum liquid storage vessel with an external floating roof exempted from this rule by Part (1)(b)3, but containing a petroleum liquid with a true vapor pressure greater than 7.0 kPa (1.0 psi), shall maintain the following records for at least 3 years and shall make copies of the records available to the Technical Secretary upon request:

1. Records of the average monthly storage temperature;

2. Records of the type of liquid stored; and

3. Records of the maximum true vapor pressure for all petroleum liquids with a true vapor pressure greater than 7.0 kPa (1.0 psia).

(c) The Technical Secretary may, upon written notice, require more frequent inspections or modify the monitoring and recordkeeping requirements, when necessary to accomplish the purposes of this regulation.

(6) Compliance with Part (3)(b)3 of this rule shall be determined by:

(a) Physically measuring the length and width of all gaps around the entire circumference of the secondary seal in each place where a 0.32 cm (0.125 in) uniform diameter probe passes freely (without forcing or binding against the seal) between the seal and tank wall; and

(b) Summing the area of the individual gaps.

(Rule 1200-03-18-.28, continued)

(7) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 7, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.29 PETROLEUM LIQUID STORAGE IN FIXED ROOF TANKS.

(1) Applicability of this rule is as follows:

(a) This rule applies to any fixed roof petroleum liquid storage tank with a capacity greater than 150,000 liters (L) (40,000 gallons [gal]).

(b) This rule does not apply to any petroleum liquid storage tank that:

1. Has a capacity of less than 1,600,000 L (420,000 gal) and is used to store produced crude oil and condensate prior to lease custody transfer;

2. Is a horizontal underground storage tank used to store JP-4 jet fuel; or,

3. Contains a petroleum liquid with a maximum true vapor pressure less than 10.5 kiloPascals (kPa) (1.5 pounds per square inch atmospheric [psia]), provided that records are maintained consistent with Subparagraph (5)(b) of this rule.

(2) For the purpose of this rule, “Internal floating roof” means a cover or roof in a fixed roof tank that rests upon or is floated upon the petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

(3) No owner or operator of a petroleum liquid storage tank subject to this rule shall store petroleum liquid in that tank unless:

(a) The tank is equipped with:

1. An internal floating roof equipped with a closure seal or seals to close the space between the roof edge and tank wall; or

2. An equally effective alternative control, approved as a revision to the State Implementation Plan.

(b) The tank is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.

(c) All openings, except stub drains, are equipped with covers, lids, or seals such that:

1. The cover, lid, or seal is in the closed position at all times except when in actual use;

2. Automatic bleeder vents are closed at all times except when the roof is being floated off or being landed on the roof leg supports; and

3. Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer’s recommended setting.

(Rule 1200-03-18-.29, continued)

(4) The owner or operator of a petroleum liquid storage tank with a fixed roof subject to this rule shall:

(a) Perform routine, semi-annual, visual inspections of the internal floating roof and its closure seal or seals through roof hatches; and

(b) Perform a complete inspection of the cover and seal whenever the tank is emptied and degassed or at least every 10 years, whichever is more frequent. To qualify for the 10 year inspection interval, the primary seal must be either a liquid-mounted or mechanical shoe primary seal. Otherwise if the above mentioned controls are not in place, a complete inspection of the cover and seal must be performed whenever the tank is emptied and degassed or at least every 5 years, whichever is more frequent.

(5) Recordkeeping requirements apply as follows:

(a) The owner or operator of a petroleum liquid storage tank with a fixed roof subject to this rule shall maintain the following records for at least 3 years and shall make copies of the records available to the Technical Secretary upon request:

1. Records of the types of volatile petroleum liquids stored in that tank;

2. Records of the maximum true vapor pressure of the liquid as stored; and

3. Records of the results of the inspections required in Paragraph (4) of this rule.

(b) The owner or operator of a petroleum liquid storage tank with a fixed roof exempted from this rule by Subparagraph (1)(b), but containing a petroleum liquid with a true vapor pressure greater than 7.0 kPa (1.0 psia), shall maintain the following records for at least 3 years and shall make copies of the records available to the Technical Secretary upon request:

1. Records of the average monthly storage temperature;

2. Records of the type of liquid stored; and

3. Records of the maximum true vapor pressure for any petroleum liquid with a true vapor pressure greater than 7.0 kPa (1.0 psia).

(6) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-201, et seq., 4-5-202, 68-201-101, et seq., and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed March 23, 1981; effective May 1, 1981. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1993; effective April 22, 1993. Amendment filed May 25, 2011; effective August 23, 2011.*

1200-03-18-.30 LEAKS FROM NATURAL GAS/GASOLINE PROCESSING EQUIPMENT.

(1) Applicability of this rule is as follows:

(a) This rule applies to all equipment in volatile organic compound (VOC) service in any process unit at any on-shore natural gas/gasoline processing facility in Davidson, Rutherford, Shelby, Sumner, Williamson, or Wilson County.

(b) This rule does not apply to:

(Rule 1200-03-18-.30, continued)

1. Any equipment in vacuum service;

2. Any equipment in heavy liquid service; or

3. Wet gas reciprocating compressors in plants that do not have a VOC control device, such as a flare or a continuously burning process heater or boiler.

(c) The equipment inspection requirements in Paragraph (4) of this rule do not apply to:

1. Any natural gas/gasoline processing facility with a design field gas capacity of less than 2.8×10^5 standard cubic meters (10×10^6 standard cubic feet) per day that does not fractionate natural gas liquids;

2. Any pump with dual pump seals;

3. Any pressure relief valve that is connected to an operating flare header or vapor recovery device; or

4. Any compressor with a degreasing vent that is routed to an operating VOC control device.

(2) For the purpose of this rule, the following definitions apply:

(a) “Equipment” means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service or in wet gas service and any devices or systems required by this rule.

(b) “Field gas” means feedstock gas entering the natural gas processing plant.

(c) “[In] gas/vapor service” means that the piece of equipment in VOC service contains process fluid that is in the gaseous state at operating conditions.

(d) “[In] heavy liquid service” means that the piece of equipment in VOC service is not in gas/vapor service or in light liquid service.

(e) “[In] light liquid service” means that the piece of equipment in VOC service contains a liquid that meets the following conditions:

1. The vapor pressure of one or more of the components is greater than 0.3 kPa (0.044 in. Hg) at 20°C (68°C) (standard reference texts or ASTM D2879 shall be used to determine the vapor pressures);

2. The total concentration of the pure components having a vapor pressure greater than 0.3 kPa (0.044 in. Hg) at 20°C (68°F) is equal to or greater than 20 percent by weight; and

3. The fluid is a liquid at operating conditions.

(f) “Liquids dripping” means any visible leakage from a seal including spraying, misting, clouding, and ice formation.

(g) “Natural gas liquids” means the hydrocarbons, such as ethane, propane, butane, and pentane, that are extracted from field gas.

(Rule 1200-03-18-.30, continued)

(h) "Natural gas processing plant" (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both.

(i) "Nonfractionating plant" means any gas plant that does not fractionate mixed natural gas liquids into natural gas products.

(j) "On-shore" means all facilities except those that are located in the territorial seas or on the outer continental shelf.

(k) "Process unit" means equipment assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the products.

(l) "Reciprocating compressor" means a piece of equipment that increases the pressure of a process gas by positive displacement, employing linear movement of the driveshaft.

(m) "[In] vacuum service" means that the equipment in VOC service is operating at an internal pressure which is at least 5 kPa below ambient pressure.

(n) "[In] VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 1 percent VOC by weight. The provisions of Subparagraph (9)(b) of this rule specify how to determine that a piece of equipment is not in VOC service.

(o) "[In] wet gas service" means that a piece of equipment contains or contacts the field gas before the extraction step in the process.

(3) The owner or operator of a natural gas/gasoline processing facility subject to this rule shall ensure that:

(a) Any open-ended line or valve is sealed with a second valve, blind flange, cap, or plug except during operations requiring process fluid flow through the open-ended line or valve;

(b) When a second value is used, each open-ended line or valve equipped with a second valve is operated in such a manner that the valve on the process fluid end is closed before the second valve is closed; and

(c) When a double block-and-bleed system is used, the bleed valve or line is open only during operations that require venting of the line between the block valves and is closed at all other times.

(4) Equipment inspection program standards as follow apply:

(a) The owner or operator of a natural gas/gasoline processing facility subject to this rule shall conduct quarterly monitoring of each:

1. Compressor;

2. Pump in light liquid service;

3. Valve in light liquid service, except as provided in Paragraphs (5) and (6) of this rule;

(Rule 1200-03-18-.30, continued)

4. Valve in gas/vapor service, except as provided in Paragraphs (5) and (6) of this rule; and

5. Pressure relief valve in gas/vapor service, except as provided in Paragraphs (5) and (6) of this rule.

(b) The owner or operator of a natural gas/gasoline processing facility subject to this rule shall conduct a weekly visual inspection of each pump in light liquid service.

(c) The owner or operator of a natural gas/gasoline processing facility subject to this rule shall monitor each pressure relief valve within 5 days after each overpressure relief to ensure that the valve has properly reseated and is not leaking.

(d) Pressure relief device requirements apply as follow:

1. Any pressure relief device that is located in a nonfractionating plant that is monitored only by non-plant personnel may be monitored after a pressure release the next time the monitoring personnel are on-site, instead of within 5 days; but

2. No pressure relief device described in Part 1 of this subparagraph shall be allowed to operate for more than 30 days after a pressure release without monitoring.

(e) Leak provisions apply as follow:

1. When an instrument reading of 10,000 parts per million (ppm) or greater is measured, it shall be determined that a leak has been detected; or

2. If there are indications of liquid dripping from the equipment, it shall be determined that a leak has been detected.

(f) When a leak is detected, the owner or operator shall affix a weatherproof, readily visible tag in a bright color such as red or yellow, bearing the equipment identification number and the date on which the leak was detected. This tag shall remain in place until the leaking equipment is repaired. The requirements of this subparagraph apply to any leak detected by the equipment inspection program and to any leak from any equipment that is detected on the basis of sight, sound, or smell.

(5) Alternative standards for skip period leak detection and repair apply as follows:

(a) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in Paragraph (4) of this rule.

(b) After two consecutive quarterly leak detection periods with the percent of valves leaking equal or less than 2.0, an owner or operator may skip one of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(c) After five consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(d) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in Paragraph (4) of this rule but can again elect to use the requirements in Paragraph (5) of this rule.

(Rule 1200-03-18-.30, continued)

(e) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this rule.

(f) An owner or operator shall keep a record of the percent of valves found leaking during each leak detection period.

(6) Alternative standards for valves that are unsafe or difficult to monitor apply as follow:

(a) Any valve that is designated, as described in Part (10)(e)1 of this rule, as an unsafe-to-monitor valve is exempt from the requirements of Paragraph (4) if:

1. The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with Paragraph (4); and

2. The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(b) Any valve that is designated, as described in Part (10)(e)2, as a difficult-to-monitor valve is exempt from the requirements of Paragraph (4) if:

1. The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters (m) (6.6 feet [ft]) above a support surface; and

2. The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

(7) The owner or operator of a natural gas/gasoline processing facility shall:

(a) Make a first attempt at repair for any leak not later than 5 calendar days after the leak is detected; and

(b) Repair any leak as soon as practicable, but not later than 15 calendar days after it is detected except as provided in Paragraph (8) of this rule.

(8) Delay of repair standards apply as follow:

(a) Delay of repair of equipment for which a leak has been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of such equipment shall occur before the end of the next process unit shutdown.

(b) Delay of repair of equipment will be allowed for equipment that is isolated from the process and that does not remain in VOC service.

(c) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(9) Test methods and procedures apply as follow:

(Rule 1200-03-18-.30, continued)

(a) In conducting the tests required to comply with Paragraph (4) of this rule, the owner or operator shall use the test methods specified in Rule .85 of this chapter.

(b) The owner or operator shall test each piece of equipment unless it is demonstrated that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 1 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

1. Procedures that conform to the general methods in ASTM E260, E168 and E169 shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment;

2. Where the test methods in Part 1 of this subparagraph also measure exempt compounds, these compounds may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid; and

3. Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in VOC service. If the Technical Secretary disagrees with this judgment, Parts 1 and 2 of this subparagraph shall be used to resolve the disagreement.

(c) The owner or operator shall demonstrate that a piece of equipment is in light liquid service by showing that all of the following conditions apply:

1. The vapor pressure of one or more of the components is greater than 0.3 kilopascal (kPa) at 20°C (0.09 inches of mercury [in. Hg] at 68°F). Standard reference texts or ASTM D2879 shall be used to determine the vapor pressures;

2. The total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20°C (0.09 in. Hg at 68°F) is equal to or greater than 20 percent by weight; and

3. The fluid is a liquid at operating conditions.

(d) Samples used in conjunction with Subparagraphs (b) and (c) of this paragraph shall be representative of the process fluid that is contained in or contacts the equipment.

(10) Recordkeeping requirements apply as follow:

(a) Each owner or operator subject to the provisions of this rule shall comply with the recordkeeping requirements of this rule.

(b) An owner or operator of more than one facility subject to the provisions of this rule may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by facility.

(c) When each leak is detected as specified in Paragraph (4) of this rule, the following information shall be recorded in a log and shall be kept for 3 years in a readily accessible location:

1. The instrument and operator identification numbers and the equipment identification number;

2. The date the leak was detected and the dates of each attempt to repair the leak;

3. The repair methods employed in each attempt to repair the leak;

(Rule 1200-03-18-.30, continued)

4. The notation “Above 10,000” if the maximum instrument reading measured by the methods specified in Rule .85 of this chapter after each attempt is equal to or greater than 10,000 ppm;

5. The notation “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;

6. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown;

7. The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days;

8. The dates of process unit shutdowns that occur while the equipment is unrepaired; and

9. The date of successful repair of the leak.

(d) A list of identification numbers of equipment in vacuum service shall be recorded in a log that is kept in a readily accessible location.

(e) The following information pertaining to all valves subject to the requirements of Paragraph (6) of this rule shall be recorded in a log that is kept for 3 years in a readily accessible location:

1. A list of identification numbers for valves that are designated as unsafe-to-monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve; and

2. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve.

(f) The following information pertaining to all valves complying with Paragraph (5) of this rule shall be recorded in a log that is kept for 3 years in a readily accessible location:

1. A schedule of monitoring; and

2. The percent of valves found leaking during each monitoring period.

(g) The following information shall be recorded in a log that is kept for 3 years in a readily accessible location for use in determining exemptions as provided in Paragraph (1) of this rule:

1. An analysis demonstrating the design capacity of the affected facility;

2. Information and data used to demonstrate that a piece of equipment is not in VOC service; and

3. Information and data used to demonstrate that a reciprocating compressor is in wet gas service.

(11) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in rule 1200-03-18-.04(1) and (2) of this chapter.

(Rule 1200-03-18-.30, continued)

Authority: *T.C.A. §§ 4-5-201, et seq. and 68-201-105.* ***Administrative History:*** *Original rule certified March 2, 1983. Repeal filed April 23, 1992; effective June 7, 1992. New rule filed March 8, 1993; effective April 22, 1993. Amendment filed May 16, 1997; effective July 30, 1997.*

1200-03-18-.31 SOLVENT METAL CLEANING.

(1) This rule applies to all solvent metal cleaning sources with the following exemptions:

(a) Any open top vapor degreasing operation with an open area smaller than 1 square meter (m^2) (10.8 square feet [ft^2]) is exempt from Subparts (3)(b)3(ii) and (iv) of this rule;

(b) Any conveyorized degreaser with an air/solvent interface smaller than 2.0 m^2 (21.5 ft^2) is exempt from Part (3)(c)2 of this rule; and

(c) Sources within a facility:

1. In Hamilton or Shelby County whose potential VOC emissions from all solvent metal cleaning within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

2. In any county other than Davidson, Hamilton, Rutherford, Shelby, Sumner, Williamson, or Wilson County whose potential VOC emissions from all solvent metal cleaning within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Air/solvent interface" means the surface area defined by points of contact between the solvent liquid or vapor in the cleaner/degreaser and the surrounding air.

(b) "Cold cleaning" means the batch process of cleaning and removing soils from a metal surface by spraying, brushing, flushing, or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.

(c) "Conveyorized degreasing" means the process of cleaning and removing soils from a continuous stream of metal parts using either cold or vaporized solvents.

(d) "Freeboard height" means, for a cold cleaner, the distance from the liquid solvent level in the degreaser tank to the lip of the tank. For an open-top vapor degreaser, it is the distance from the vapor level in the tank during idling to the lip of the tank. For a vapor-conveyorized degreaser, it is the distance from the vapor level to the bottom of the entrance or exit opening, whichever is lower. For a cold-conveyorized degreaser, it is the distance from the liquid solvent level to the bottom of the entrance or exit opening, whichever is lower.

(e) "Freeboard ratio" means the freeboard height divided by the smaller interior dimension (length, width, or diameter) of the degreaser tank.

(f) "Open-top vapor degreasing" means the process using condensation of hot solvent vapor to clean and remove soils from a batch of metal parts.

(g) "Refrigerated chiller" means a device mounted above both the water jacket and the primary condenser coils which carries a refrigerant that provides a chilled air blanket above the solvent vapor, thereby reducing emissions from the degreaser bath.

(Rule 1200-03-18-.31, continued)

(h) "Solvent metal cleaning" means the process of cleaning soils from metal surfaces by cold cleaning, open-top vapor degreasing, or conveyorized degreasing.

(3) Standards as follow apply:

(a) The owner or operator of a cold cleaning facility shall:

1. Equip the cleaner with a cover that is easily operated with one hand, if:

(i) The solvent true vapor pressure is greater than 2 kiloPascals (kPa) (15 millimeters of Mercury [mm Hg] or 0.3 pounds per square inch [psi]) measured at 38C (100°F) by ASTM D323-89;

(ii) The solvent is agitated; or

(iii) The solvent is heated;

2. Equip the cleaner with an internal drainage facility so that parts are enclosed under the cover while draining if the solvent true vapor pressure is greater than 4.3 kPa (32 mm Hg or 0.6 psi) measured at 38°C (100°F) by ASTM D323-89, except that the drainage facility may be external for applications where an internal type cannot fit into the cleaning system;

3. Implement one of the following control measures if the solvent true vapor pressure is greater than 4.3 kPa (32 mm of mercury or 0.6 psi) measured at 38°C (100°F) by ASTM D323-89, or if the solvent is heated above 50°C (120°F):

(i) Freeboard that gives a freeboard ratio greater than or equal to 0.7; or

(ii) Water cover at least 2.54 centimeters (1 inch) in depth (solvent shall be insoluble in and heavier than water); or

(iii) Another system of equivalent control, such as a refrigerated chiller or a arbon adsorber, approved as a revision to the State Implementation Plan;

4. Provide a permanent, legible, conspicuous label, summarizing the operating requirements;

5. Store waste solvent in covered containers;

6. Close the cover whenever parts are not being handled in the cleaner;

7. Drain the cleaned parts until dripping ceases;

8. If used, supply a solvent spray that is a solid fluid stream (not a fine, atomized, or shower-type spray) at a pressure that does not exceed 10 pounds per square inch gauge (psig); and

9. Degrease only materials that are neither porous nor absorbent.

(b) The owner or operator of an open top vapor degreaser shall:

1. Equip the vapor degreaser with a cover that can be opened and closed easily without disturbing the vapor zone;

(Rule 1200-03-18-.31, continued)

2. Provide the following safety switches:

   (i) A vapor level thermostat that shuts off the sump heat if the condenser coolant is either not circulating or too warm; and

   (ii) A spray safety switch that shuts off the spray pump if the vapor level drops more than 10 centimeters (cm) (4 inches [in]);

3. Implement one of the following control measures:

   (i) Freeboard ratio greater than or equal to 0.75 and, if the degreaser opening is greater than 1 m^2 (10.8 ft^2), a powered cover;

   (ii) Refrigerated chiller;

   (iii) Enclosed design (cover or door opens only when the dry part is actually entering or exiting the degreaser);

   (iv) Carbon adsorption system, with ventilation greater than or equal to 15 cubic meters per minute per square meter ($m^3/min/m^2$) (50 cubic feet per minute per square foot [$ft^3/min/ft^2$]) of air/solvent interface (when cover is open), and exhausting less than 25 parts per million (ppm) of solvent averaged over one complete adsorption cycle, or 24 hours, whichever is less; or

   (v) A control system, demonstrated to have a capture efficiency equivalent to or greater than any of the above and approved as a revision to the State Implementation Plan;

4. Keep the cover closed at all times except when processing work loads through the degreaser;

5. Minimize solvent carryout by:

   (i) Racking parts so that solvent will drain freely and not be trapped;

   (ii) Moving parts in and out of the degreaser at less than 3.3 meters per minute (m/min) (11 feet per minute [ft/min]);

   (iii) Holding the parts in the vapor zone at least 30 seconds or until condensation ceases, whichever is longer;

   (iv) Tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and

   (v) Allowing parts to dry within the degreaser for at least 15 seconds or until visually dry, whichever is longer.

6. Degrease only materials that are neither porous nor absorbent;

7. Occupy no more than one-half of the degreaser's open top area with a workload;

8. Always spray within the vapor level;

(Rule 1200-03-18-.31, continued)

9. Repair solvent leaks immediately, or shut down the degreaser;

10. Store waste solvent only in covered containers;

11. Operate the cleaner such that water cannot be visually detected in solvent exiting the water separator;

12. Use no ventilation fans near the degreaser opening;

13. When the cover is open, not expose the open top vapor degreaser to drafts greater than 40 m/min (131 ft/min), as measured between 1 and 2 m upwind and at the time elevation as the tank lip;

14. If a lip exhaust is used on the open top vapor degreaser, not use a ventilation rate that exceeds 20 $m^3/min/m^2$ (65 $ft^3/min/ft^2$) of degreaser open area, unless a higher rate is necessary to meet OSHA requirements; and

15. Provide a permanent, conspicuous label, summarizing the operating procedures of Parts 4 through 14 of this subparagraph.

(c) The owner or operator of a conveyorized degreaser shall:

1. Use no workplace fans near the degreaser opening, and ensure that exhaust ventilation does not exceed 20 $m^3/min/m^2$ (65 $ft^3/min/ft^2$) of degreaser opening, unless a higher rate is necessary to meet OSHA requirements;

2. Install one of the following control devices:

(i) Refrigerated chiller;

(ii) Carbon adsorption system, with ventilation greater than or equal to 15 $m^3/min/m^2$ (50 $ft^3/min/ft^2$) of air/solvent interface (when downtime covers are open), and exhausting less than 25 ppm of solvent by volume averaged over one complete adsorption cycle, or 24 hours, whichever is less; or

(iii) A system demonstrated to have a capture efficiency equivalent to or greater than the device listed in Subpart 2(i) or (ii) of this subparagraph and approved as a revision to the State Implementation Plan;

3. Equip the cleaner with equipment, such as a drying tunnel or rotating (tumbling) basket, sufficient to prevent cleaned parts from carrying out solvent liquid or vapor;

4. Provide the following safety switches:

(i) A condenser flow switch and thermostat that shut off the sump heat if the condenser coolant is either not circulating or too warm;

(ii) A spray safety switch which shuts off the spray pump or the conveyor if the vapor level drops more than 10 cm (4 in); and

(iii) A vapor level control thermostat that shuts off the pump heat when the vapor level rises too high;

(Rule 1200-03-18-.31, continued)

5. Minimize openings during operation so that entrances and exits will silhouette workloads with an average clearance between the parts and the edge of the degreaser opening of less than 10 cm (4 in) or less than 10 percent of the width of the opening;

6. Provide downtime covers for closing off the entrance and exit during shutdown hours;

7. Minimize carryout emissions by:

   (i) Racking parts so that solvent will drain freely from parts and not be trapped; and

   (ii) Maintaining the vertical conveyor speed at less than 3.3 m/min (11 ft/min);

8. Store waste solvent only in covered containers;

9. Repair solvent leaks immediately, or shut down the degreaser;

10. Operate the cleaner such that water cannot be visually detected in solvent exiting the water separator;

11. Place downtime covers over entrances and exits of the conveyorized degreaser at all times, except during maintenance activities on the degreaser, when the conveyors and exhausts are not being operated; and

12. Degrease only materials that are neither porous nor absorbent.

(4) Compliance with Parts (3)(a)1 through 3, Subpart (3)(b)3(iv), Parts (3)(b)7 through 14, Part (3)(c)1, and Subpart (3)(c)2(ii) of this rule shall be determined by applying the following test methods, as appropriate:

   (a) Reference Methods 1-4 for determining flow rates.

   (b) Reference Method 18 for determining gaseous organic compound emissions by gas chromatography.

   (c) Reference Method 25 for determining total gaseous non-methane organic emissions as carbon.

   (d) Reference Method 25A or 25B for determining total gaseous organic concentrations using flame ionization or non-dispersive infrared analysis.

   (e) ASTM D323-89 for measuring solvent true vapor pressure.

(5) Each owner or operator of a solvent metal cleaning source subject to this rule shall maintain the following records for at least 3 years and shall make these records available to the Technical Secretary upon request:

   (a) A record of central equipment maintenance, such as replacement of the carbon in a carbon adsorption unit.

   (b) The results of all tests conducted in accordance with the requirements in Paragraph (4) of this rule.

(Rule 1200-03-18-.31, continued)

(6) The owner or operator of any facility containing sources subject to this rule shall:

(a) Comply with the initial compliance certification requirements of Paragraph .04(1) of this chapter;

(b) Comply with the requirements of Paragraph .04(2) of this chapter regarding reports of excess emissions; and

(c) Comply with the requirements of Paragraph .04(3) of this chapter for excess emissions related to any control devices used to comply with Subparts (3)(a)3(iii), (3)(b)3(iv) or (v), and (3)(c)1(ii) or (iii) of this rule.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.32 CUTBACK AND EMULSIFIED ASPHALT.

(1) This rule applies to the manufacture, mixing, storage, use, and application of cutback and emulsified asphalts. No exemptions are allowable based on the size or throughput of an operation.

(2) For the purpose of this rule, the following definitions apply:

(a) "Asphalt" means a dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) of which the main constituents are bitumens that occur naturally or are a residue of petroleum refining.

(b) "Cutback asphalt" means asphalt cement that has been liquefied by blending with petroleum solvents (diluents). Upon exposure to atmospheric conditions, the diluents evaporate, leaving the asphalt cement to perform its function.

(c) "Emulsified asphalt" means an emulsion of asphalt cement and water that contains a small amount of an emulsifying agent; it is a heterogeneous system containing two normally immiscible phases (asphalt and water) in which the water forms the continuous phase of the emulsion, and minute globules of asphalt form the discontinuous phase.

(d) "Penetrating prime coat" means an application of low-viscosity liquid asphalt to an absorbent surface. It is used to prepare an untreated base for an asphalt surface. The prime coat penetrates the base, plugs the voids, and hardens and helps bind the top of the overlying asphalt course. The penetrating prime coat also reduces the necessity of maintaining an untreated base course prior to placing the asphalt pavement.

(3) Standards as follow apply:

(a) No person shall cause, allow, or permit the manufacture, mixing, storage, use, or application of cutback asphalts April 1 through October 31, except:

1. For long-life stockpile storage; and

2. When the cutback asphalt is to be used solely as a penetrating prime coat.

(b) April 1 through October 31, no person shall cause, allow, or permit the manufacturing, mixing, storage, or use of emulsified asphalt that contains more than 3 percent by volume of volatile organic compounds (VOC) which evaporate at 260 °C (500 °F) as determined by ASTM Method D244-92.

(Rule 1200-03-18-.32, continued)

(4) The owner or operator of any facility subject to this rule shall maintain records of the manufacture, mixing, storage, use, or application of any asphalt containing VOC April 1 through October 31. These records shall be maintained for a minimum of 3 years and shall be made available to the Technical Secretary upon request.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed June 10, 2010; effective September 8, 2010.*

1200-03-18-.33 MANUFACTURING OF SYNTHESIZED PHARMACEUTICAL PRODUCTS.

(1) Applicability of this rule is as follows:

(a) This rule applies to the following sources of volatile organic compounds (VOC) at synthesized pharmaceutical manufacturing facilities:

1. Reactors;

2. Distillation operations;

3. Crystallizers;

4. Centrifuges;

5. Vacuum dryers;

6. Air dryers;

7. Production equipment exhaust systems;

8. Rotary vacuum filters and other filters;

9. In-process tanks; and

10. Leaks.

(b) This rule does not apply to sources in a facility:

1. In Hamilton or Shelby County whose potential emissions from all sources listed in Subparagraph (a) of this paragraph within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

2. In any other county except Davidson, Hamilton, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties whose potential VOC emissions from all sources listed in Subparagraph (a) of this paragraph within the facility are less than 100 tons on volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

"Production equipment exhaust system" means a device for collecting and directing out of the work area VOC fugitive emissions from reactor openings, centrifuge openings, and other vessel openings for the purpose of protecting workers from excessive VOC exposure.

"Reactor" means a vat or vessel, which may be jacketed to permit temperature control, designed to contain chemical reactions.

(Rule 1200-03-18-.33, continued)

"Separation operation" means a process that separates a mixture of compounds and solvents into two or more components. Specific mechanisms include extraction, centrifugation, filtration, and crystallization.

"Synthesized pharmaceutical manufacturing" means manufacture of pharmaceutical products and intermediates by chemical synthesis. The production and recovery of materials produced via fermentation, extraction of organic chemical from vegetative materials or animal tissues, and formulation and packaging of the product are not considered synthesized pharmaceutical manufacturing.

(3) Standards as follow apply:

(a) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this regulation shall control the VOC emissions from all vents from reactors, distillation operations, crystallizers, centrifuges, and vacuum dryers at the facility that emit 6.8 kilograms per day (kg/day) (15 pounds per day [lb/day]) or more of VOC as determined by the procedure in "Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products", Appendix B, EPA-450/2-78-029, December 1978. Surface condensers or equivalent controls shall be used, provided that:

1. If surface condensers are used, the condenser outlet gas temperature shall not exceed the allowable temperature limit described for each associated vapor pressure in the following table; or

Allowable Condenser Outlet Gas Temperature ^{o}C	VOC Vapor Pressure at $20^{o}C$, kPa (psi)	
-25	>40.01	(5.8)
-15	>20.0	(2.9)
0	>10.0	(1.5)
10	> 7.0	(1.0)
25	> 3.5	(0.5)

2. If equivalent controls such as carbon adsorption or incineration are used, the VOC emissions shall be reduced by at least as much as they would be by using a surface condenser. The owner or operator shall calculate the efficiency equivalent to a condenser in accordance with the procedures specified on pages 4-2 through 4-6 in "Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products:, Appendix B, EPA-450/2-78-029, December 1978.

(b) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this regulation shall reduce the VOC emissions from all air dryers and production equipment exhaust systems:

1. By at least 90 percent if emissions are 150 kg/day (330 lb/day) or more of VOC; or

2. To 15.0 kg/day (33 lb/day) or less if emissions are less than 150 kg/day (330 lb/day) of VOC.

(c) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this regulations shall reduce the VOC emissions from storage tanks by:

(Rule 1200-03-18-.33, continued)

1. Providing a vapor balance system or equivalent control that is at least 90 percent effective in reducing emissions from truck or railcar deliveries to storage tanks with capacities greater than 7,500 liters (l) (2,000 gallons [gal]).

2. Installing pressure/vacuum conservation vents set at 0.2 kPa (0.03 pounds per square inch atmospheric [psia]) on all storage tanks that store VOC with vapor pressures greater than 10.0 kPa (1.5 psi) at 20°C (68°F).

(d) The owner or operator of a synthesized pharmaceutical facility subject to this regulation shall enclose all centrifuges, rotary vacuum filters, and other filters having an exposed liquid surface where the liquid contains VOC and exerts a total VOC vapor pressure of 3.50 kPa (0.5 psi) or more at 20°C (68°F).

(e) The owner or operator of a synthesized pharmaceutical facility subject to this regulation shall install covers on all in-process tanks that contain VOC at any time. These covers shall remain closed, unless production, sampling, maintenance, or inspection procedures require operator access.

(f) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this regulation shall repair all leaks from which a liquid containing VOC can be observed running or dripping. The repair shall be completed as soon as practicable but not later than 15 calendar days after the leak is found. If the leaking component cannot be repaired until the process is shut down, the leaking component shall then be repaired before the process is restarted.

(4) (Reserved).

(5) Monitoring for air pollution control equipment shall be as follows:

(a) At a minimum, continuous monitors for the following parameters shall be installed on air pollution control equipment used to control sources subject to this rule:

1. Destruction device combustion temperature;

2. Temperature rise across a catalytic incinerator bed;

3. VOC concentration on a carbon adsorption unit to determine breakthrough;

4. Outlet gas temperature of a refrigerated condenser; and

5. Temperature of a non-refrigerated condenser coolant supply system.

(b) Each monitor shall be equipped with a recording device.

(c) Each monitor shall be calibrated quarterly.

(d) Each monitor shall operate at all times while the associated control equipment is operating.

(6) Recordkeeping shall be as follows:

(a) The owner or operator of a pharmaceutical manufacturing facility subject to this rule shall maintain the following records:

1. Parameters listed in Paragraph (5) of this rule shall be recorded; and

(Rule 1200-03-18-.33, continued)

2. For sources subject to this rule, the solvent true vapor pressure as determined by ASTM D323-89 shall be recorded for every process.

(b) For any leak subject to Subparagraph (3)(f) of this rule, which cannot be readily repaired within 1 hour after detection, the following records shall be kept:

1. The name of the leaking equipment;

2. The date and time the leak is detected;

3. The action taken to repair the leak; and

4. The date and time the leak is repaired.

(7) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed September 7, 1993; effective November 21, 1993.*

1200-03-18-.34 PNEUMATIC RUBBER TIRE MANUFACTURING.

(1) Applicability of this rule is as follows:

(a) This rule applies to the following operations in pneumatic rubber tire manufacturing facilities:

1. Undertread cementing;

2. Tread-end cementing;

3. Bead cementing; and

4. Green tire spraying.

(b) The provisions of this rule do not apply to the production of specialty tires for antique or other vehicles when produced on an irregular basis or with short production runs. This exemption applies only to tires produced on equipment separate from normal production lines for passenger-type tires.

(c) This rule does not apply to operations in a facility:

1. In Hamilton or Shelby County whose potential VOC emissions from all operations listed in Subparagraph (a) of this paragraph within the facility are less than 25 tons of volatile organic compounds (VOC's) per year; or

2. In any other county except Davidson, Hamilton, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties whose potential VOC emissions from all operations listed in Subparagraph (a) of this paragraph within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Bead cementing operation" means the system that is used to apply cement to the bead rubber before or after it is wound into its final, circular form. A bead cementing operation consists of a cement application station, such as a dip tank, spray booth and

(Rule 1200-03-18-.34, continued)

nozzles, cement trough and roller or swab applicator, and all other equipment necessary to apply cement to wound beads or bead rubber and to allow evaporation of solvent from cemented beads.

(b) "Green tire" means an assembled, uncured tire.

(c) "Green tire spraying operation" means the system used to apply a mold-release agent and lubricant to the inside and/or outside of green tires to facilitate the curing process and to prevent rubber from sticking to the curing press. A green tire spraying operation consists of a booth where spraying is performed, the spray application station, and related equipment, such as the lubricant supply system.

(d) "Passenger-type tire" means an agricultural, airplane, industrial, mobile home, light- or medium-duty truck, or passenger vehicle tire with a bead diameter up to 50.8 centimeters (cm) (20.0 inches [in.]) and cross-sectional dimension up to 32.5 cm (12.8 in.).

(e) "Pneumatic rubber tire manufacturing" means the production of pneumatic rubber passenger-type tires on a mass-production basis.

(f) "Sidewall cementing operation" means the system used to apply cement to a continuous strip of sidewall component or any other continuous strip component (except combined tread/sidewall component) that is incorporated into the sidewall of a finished tire. A sidewall cementing operation consists of a cement application station and all other equipment, such as the cement supply system and feed and takeaway conveyors, necessary to allow evaporation of solvent from the cemented rubber.

(g) "Tread-end cementing operation" means the system used to apply cement to one or both ends of the tread or combined tread/sidewall component. A tread and cementing operation consists of a cement application station and all other equipment, such as the cement supply system and feed and takeaway conveyors, necessary to apply cement to tread ends and to allow evaporation of solvent from the cemented tread ends.

(h) "Undertread cementing operation" means the system used to apply cement to a continuous strip of tread or combined tread/sidewall component. An undertread cementing operation consists of a cement application station and all other equipment, such as the cement system and feed and takeaway conveyors, necessary to apply cement to tread or combined tread/sidewall strips and to allow evaporation of solvent from the cemented tread or combined tread/sidewall.

(i) "Water-based green tire spray" means any mold release agent and lubricant applied to the inside or outside of green tires that contains 12 percent or less, by weight, of VOC as sprayed.

(3) Standards as follow apply:

(a) The owner or operator of an undertread cementing operation subject to this rule shall:

1. Install and operate a capture and control system for emissions from the undertread cementing operation that achieves an overall emission reduction of at least 75 percent calculated according to the procedures in this chapter, or

2. Meet the equipment design and performance specifications in the July 1, 1991, 40 C.F.R. 60.543(j)(1), (2), and (4) through (6), or under paragraphs (j)(1) and (3) through (6), and conduct a control device efficiency performance test to determine compliance as described under paragraph (j)(7), or

(Rule 1200-03-18-.34, continued)

3. Maintain total (uncontrolled) VOC use less than or equal to the levels specified in the July 1, 1991, 40 C.F.R. 60.542(a)(1)(ii)(A) through (E).

(b) The owner or operator of a sidewall cementing operation subject to this rule shall:

1. Install and operate a capture and control system for emissions from the sidewall cementing operation that achieves an overall emission reduction of at least 75 percent calculated according to the procedures in this chapter, or

2. Meet the equipment design and performance specifications in the July 1, 1991, 40 C.F.R. 60.543(j)(1), (2), and (4) through (6) or under paragraphs (j)(1) and (3) through (6), and conduct a control device efficiency performance test to determine compliance as described under paragraph (j)(7), or

3. Maintain total (uncontrolled) VOC use less than or equal to the levels specified in the July 1, 1991, 40 C.F.R. 60.542(a)(2)(ii)(A) through (E).

(c) Alternate standards for undertread cementing and sidewall cementing as follow apply:

1. The owner or operator of each undertread cementing and sidewall cementing operation at a rubber tire manufacturing facility that meets the criteria in Subparts 2(i) through (iii) of this subparagraph shall have the option of complying with the alternate standard in the July 1, 1991, 40 C.F.R. 60.542a in lieu of the standards in Subparagraphs (a) and (b) of this paragraph. The election of complying with this option shall be irreversible.

2. The owner or operator may elect to comply with the alternate standard in the July 1, 1991, 40 C.F.R. 60.542(a) provided that the undertread cementing and sidewall cementing operation meets all of the following criteria:

(i) Commenced construction, modification, or reconstruction after January 20, 1983, and before September 15, 1987;

(ii) Uses 25 g or less of VOC per tire per month; and

(iii) Does not use a control device to control VOC emissions from these operations.

(d) The owner or operator of a green tire spraying operation subject to this rule:

1. Using only water-based sprays shall meet the g/tire limits in the July 1, 1991, 40 C.F.R. 60.542(a)(5)(i) and (ii).

2. Using only organic solvent-based sprays shall:

(i) Install and operate a capture and control system for emissions from the green tire spraying operation that achieves an overall emission reduction of at least 75 percent calculated according to the procedures in this chapter;

(ii) Meet the equipment design and performance specifications in the July 1, 1991, 40 C.F.R. 60.543(j)(1), (2), and (4) through (6), or under paragraphs (j)(1) and (3) through (6), and conduct a control device efficiency performance test to determine compliance as described under paragraph (j)(7); or

(Rule 1200-03-18-.34, continued)

(iii) Meet the g/tire limits in the July 1, 1991, 40 C.F.R. 60.542(a)(6)(ii)(A) through (E).

3. Using both water-based and organic solvent-based sprays shall meet the emission limits in the July 1, 1991, 40 C.F.R. 60.542(a)(7).

(e) The owner or operator of a tread-end cementing operation subject to this rule shall:

1. Install and operate a capture and control system for emissions from these operations that achieves an overall emission reduction of at least 75 percent calculated according to the procedures in this chapter; or

2. Meet the g/tire limit in the July 1, 1991, 40 C.F.R. 60.542(a)(3).

(f) The owner or operator of a bead cementing operation subject to this rule shall:

1. Install and operate a capture and control system for emissions from these operations that achieves an overall emission reduction of at least 75 percent calculated according to the procedures in this chapter; or

2. Meet the g/bead limit in the July 1, 1991, 40 C.F.R. 60.542(a)(4).

(4) The compliance procedures as follow shall be used to determine compliance with the standards in Paragraph (3) of this rule:

(a) An owner or operator of a tread-end cementing operation who does not use a VOC control device and who is seeking to comply with the g/tire standards in Part (3)(e)2 shall:

1. Determine the density and weight fraction VOC (including dilution VOC) of each cement by analysis of the cement using Reference Method 24.

2. Calculate the total mass of VOC used at the tread-end cementing operation for the day (M_d) as follows:

(i) For each tread-end cementing operation subject to this rule for which cement is delivered in batch or via a distribution system that serves only that tread-end cementing operation, use the following equation to calculate the total mass of VOC used per day (M_d):

$$M_d = \sum_{i=1}^{a} L_{ci} D_{ci} W_{oi}$$

where:

a = The number of different cements used during the day that are delivered in batch or via a distribution system that serves only a single operation subject to this rule.

L_c = Volume of cement used for a day (liters).

D_c = Density of cement (grams per liter).

(Rule 1200-03-18-.34, continued)

W_o = Weight fraction of VOC in a cement.

(ii) For each tread-end cementing operation subject to this rule for which cement is delivered via a common distribution system that also serves other operations that may or may not be subject to this rule:

(I) Calculate the total mass of VOC used for all operations served by the common distribution system for the day (M):

$$M = \sum_{i=l}^{b} L_{ci} D_{ci} W_{oi}$$

where:

b = The number of different cements used during the day that are delivered via a common distribution system that also serves other operations.

(II) Determine the fraction (F_o) of M used at the operation subject to this rule by comparing the production records and process specifications for the material cemented at the subject operation for the day to the production records and process specifications for all the material cemented at all other operations served by the common distribution system for the day.

(III) Calculate the total mass of VOC used at the operation subject to this rule for the day (M_d):

$$M_d = MF_o$$

where:

M = Total mass of VOC used for a day by all operations served by a common cement distribution system (grams).

F_o = Fraction of total mass of VOC used in a day by all operations served by a common cement distribution system that is used by a particular operation subject to this rule served by the common distribution system.

3. Determine the total number of tread or combined tread/sidewall components that receive an application of cement for the day at the tread-end cementing operation subject to this rule (T_o).

4. Calculate the mass of VOC used per tire cemented at the tread-end cementing operation subject to this rule for the day (G):

$$G = \frac{M_d}{T_o}$$

(Rule 1200-03-18-.34, continued)

5. Calculate the mass of VOC emitted per tire cemented at the tread-end cementing operation subject to this rule for the day (N):

$$N = G$$

(b) An owner or operator of a bead cementing operation who does not use a VOC control device and who is seeking to comply with the g/bead standard in Part (3)(f)2 shall:

1. Determine the density and weight fraction VOC of each cement as specified under Part (a)1 of this paragraph.

2. Calculate the total mass of VOC used at the bead cementing operation subject to this rule for the day (M_d) as specified under Part (a)2 of this rule.

3. Determine the number of beads cemented at the operation subject to this rule for the day (B_d) using production records; B_d equals the number of beads that receive an application of cement for the day.

4. Calculate the mass of VOC used per bead cemented at the operation subject to this rule (G_b):

$$G_b = \frac{M_d}{B_d}$$

5. Calculate the mass of VOC emitted per bead cemented at the operation subject to this rule for the day (N_b):

$$N_b = G_b$$

(c) For each tread-end cementing operation or each bead cementing operation that uses a VOC control device that destroys VOC (e.g., an incinerator), the owner or operator shall use the following procedure to determine compliance with the g/tire or g/bead standards in Parts (3)(e)2 and (f)2 of this rule:

1. Calculate the mass of VOC used per tire cemented (G) at the tread-end cementing operation subject to this rule as specified under Parts (a)1 through (a)4 of this paragraph, or calculate the mass of VOC used per bead cemented (G_b) at the bead cementing operation subject to this rule as specified in Parts (b)1 through (b)4 of this paragraph.

2. Calculate the mass of VOC emitted per tire cemented (N) or per bead cemented (N_b) at the operation subject to this rule:

$$N = G(1-R)$$
$$N_b = G_b(1-R)$$

where:

R = Overall efficiency of an emission reduction system (fraction) as determined by the procedures specified in Subparts 3(i) through 3(iii) of this subparagraph.

(Rule 1200-03-18-.34, continued)

3. For the initial compliance test, determine the overall reduction efficiency (R) as follows:

(i) The owner or operator shall construct a temporary total enclosure around the application and drying areas during the test for the purpose of capturing fugitive VOC emissions. The enclosure shall be maintained at a negative pressure to ensure that all evaporated VOC are measurable. Determine the fraction (F_c) of total VOC used at the operation subject to this rule that enters the control device:

$$F_c = \frac{\sum_{i=1}^{m} C_{bi}Q_{bi}}{\sum_{i=1}^{m} C_{bi}Q_{bi} + \sum_{i=1}^{n} C_{fi}Q_{fi}}$$

where:

C_b = Concentration of VOC in the gas stream in the vents prior to a control device (parts per million by volume);

C_f = Concentration of VOC in each gas stream vented directly to the atmosphere from an operation subject to this rule or from a temporary total enclosure around an operation subject to this rule (parts per million by volume);

m = The number of vents from the operation subject to this rule to the control device;

n = The number of vents from the operation subject to this rule to the atmosphere and from the temporary total enclosure;

Q_b = Volumetric flow rate in the vents before a control device (dry standard cubic meters per hour); and

Q_f = Volumetric flow rate of each stream vented directly to the atmosphere from an operation subject to this rule or from a temporary total enclosure around an operation subject to this rule (dry standard cubic meters per hour).

(ii) Determine the destruction efficiency of the control device (E) by using values of the volumetric flow rate (Q) of each of the gas streams and the VOC concentration (as carbon) (C) of each of the gas streams in and out of the control device:

$$E = \frac{\sum_{i=1}^{m} C_{bi}Q_{bi} - \sum_{i=1}^{p} C_{ai}Q_{ai}}{m}$$

(Rule 1200-03-18-.34, continued)

$$\sum_{i=1} C_{bi} Q_{bi}$$

where:

p = Number of vents after the control device;

C_a = Concentration of VOC in the gas stream in the vents after the control device (parts per million by volume); and

Q_a = Volumetric flow rate in vents after the control device (dry standard cubic meters per hour).

(iii) Determine the overall reduction efficiency (R):

$$R = EF_c$$

4. If subsequent compliance tests are required, the owner or operator may use the most recently determined overall reduction efficiency (R) if the conditions under which the capture system and control device are being operated have not changed since R was most recently determined. If the conditions under which the capture system and control device are being operated are different from those in effect when R was determined, the owner or operator shall re-establish R as specified in Subparts 3(i) through 3(iii).

(d) For each tread-end cementing operation and each bead cementing operation subject to this rule that uses a VOC emission reduction system with a control device that recovers VOC (e.g., a carbon adsorber), the owner or operator shall use the following procedure to determine compliance with the g/tire or g/bead standards specified under Parts (3)(e)2 and (3)(f)2 of this rule:

1. Calculate the mass of VOC used per tire cemented at the operation subject to this rule for the day (G) as specified under Parts (a)1 through (a)4 of this paragraph or the mass of VOC used per bead cemented for the day (G_b) as specified in Parts (b)1 through (b)4 of this paragraph.

2. Calculate the total mass of VOC recovered from the operation subject to this rule for the day (M_r):

$$M_r = L_r D_r$$

where:

L_r = Volume of VOC recovered by a control device for a day (liters); and

D_r = Density of VOC recovered by a control device (grams per liter).

3. Calculate the overall reduction efficiency for the VOC emission reduction system (R) for the day:

$$R = \underline{M_r}$$

(Rule 1200-03-18-.34, continued)

M_o

4. Calculate the mass of VOC emitted per tire cemented at the operation subject to this rule for the day (N) or mass of VOC emitted per bead cemented at the operation subject to this rule for the day (N_b):

$$N = G(1-R)$$
$$N_b = G_b(1-R)$$

(e) An instance of operation of a control device outside of the parameter boundaries listed in Paragraph (6) of this rule shall be an instance of excess emission and noncompliance.

(5) Each owner or operator subject to the provisions of this rule shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(a) Where a thermal incinerator is used for VOC emission reduction, a temperature monitoring device equipped with a continuous recorder for the temperature of the gas stream in the combustion zone of the incinerator. The temperature monitoring device shall have an accuracy of $\pm$1 percent of the combustion temperature being measured in $^{\circ}$C or $\pm$0.5 $^{\circ}$C, whichever is greater.

(b) Where a catalytic incinerator is used for VOC emission reduction, temperature monitoring devices, each equipped with a continuous recorder, for the temperature in the gas stream immediately before and after the catalyst bed of the incinerator. The temperature monitoring devices shall have an accuracy of $\pm$1 percent of the combustion temperature being measured in $^{\circ}$C or $\pm$0.5 $^{\circ}$C, whichever is greater.

(c) Where a carbon adsorber is used for VOC emission reduction, and stack emission testing was required to demonstrate compliance with a standard in this rule, an organics monitoring device used to indicate the concentration level of organic compounds based on a detection principle such as infrared, photoionization, or thermal conductivity, equipped with a continuous recorder, for the outlet of the carbon bed.

(6) Recordkeeping requirements as follow apply:

(a) Each owner or operator of a facility subject to this rule that uses a thermal incinerator shall maintain the following records:

1. Continuous records of the temperature of the gas stream in the combustion zone of the incinerator; and

2. Records of all 3-hour periods of operation for which the average temperature of the gas stream in the combustion zone was more than 28°C (50°F) below the combustion zone temperature measured during the most recent determination of the destruction efficiency of the thermal incinerator that demonstrated that the facility was in compliance.

(b) Each owner or operator of a facility subject to this rule that uses a catalytic incinerator shall maintain the following records:

1. Continuous records of the temperature of the gas stream both upstream and downstream of the incinerator;

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2. Records of all 3-hour periods of operation for which the average temperature measured before the catalyst bed is more than 28°C (50°F) below the gas stream temperature measured before the catalyst bed during the most recent determination of destruction efficiency of the catalytic incinerator that demonstrated that the facility was in compliance; and

3. Records of all 3-hour periods for which the average temperature difference across the catalyst bed is less than 80 percent of the temperature difference measured during the most recent determination of the destruction efficiency of the catalytic incinerator that demonstrated that the facility was in compliance.

(c) Each owner or operator of a facility subject to this rule that uses a carbon adsorber shall maintain continuous records of all 3-hour periods of operation during which the average VOC concentration level or reading of organics in the exhaust gases is more than 20 percent greater than the reading measured by the organics monitoring device during the most recent determination of the removal efficiency of the carbon adsorber that demonstrated that the facility was in compliance. This specification applies only to carbon adsorbers for which stack emission testing was required to demonstrate compliance with a standard of this rule.

(7) The owner or operator of any facility containing emission sources subject to this rule shall comply with the reporting requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.35 GRAPHIC ARTS SYSTEMS.

(1) This rule applies to any packaging rotogravure, publication rotogravure, or flexographic printing press at any facility whose potential VOC emissions from all such printing presses is greater than or equal to 90.7 megagrams (Mg) (100 tons) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) “Flexographic printing press” means a printing press that uses a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other elastomeric materials.

(b) “Packaging rotogravure printing press” means a rotogravure printing press used to print on paper, paper board, metal foil, plastic film, and other substrates that are, in subsequent operations, formed into packaging products and labels, and other nonpublication products.

(c) “Publication rotogravure printing press” means a rotogravure printing press on which the paper products such as the following are printed:

1. Catalogues, including mail order and premium;

2. Direct mail advertisements, including circulars, letters, pamphlets, cards, and printed envelopes;

3. Display advertisements, including general posters, outdoor advertisements, car cards, window posters; counter and floor displays; point-of-purchase, and other printed display material;

4. Magazines, books;

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5. Miscellaneous advertisements, including brochures, pamphlets, catalogue sheets, circular folders, announcements, package inserts, book jackets, market circulars, magazine inserts, and shopping news;

6. Newspapers, magazine and comic supplements for newspapers, and pre-printed newspaper inserts;

7. Periodicals; or

8. Telephone and other directories, including business reference services.

(d) "Rotogravure printing press" means any printing press designed to print on a substrate using a gravure cylinder.

(3) Standards as follow apply:

(a) No owner or operator of a packaging rotogravure or flexographic printing press subject to this rule shall apply any coating or ink unless the VOC content is equal to or less than one of the following:

1. 40 percent VOC by volume of the coating or ink, excluding water, as applied;

2. 25 percent VOC by volume of the volatile content in the coating or ink, as applied; or

3. 0.5 kilogram (kg) VOC per kg (0.5 pound [lb] VOC per lb) coating or ink solids, as applied.

(b) No owner or operator of a publication rotogravure printing press subject to this rule shall apply any coating or ink unless the VOC content is equal to or less than one of the following:

1. 40 percent VOC by volume of the coating or ink, excluding water, as applied; or

2. 25 percent VOC by volume of the volatile content in the coating or ink, as applied.

(c) As an alternative to compliance with the limits in Subparagraphs (a) or (b) of this paragraph, an owner or operator of a packaging rotogravure, publication rotogravure, or flexographic printing press may comply with the requirements of this rule by meeting the requirements of Paragraph (4) or (5) of this rule.

(4) Weighted average limitations as follow apply:

(a) No owner or operator of a packaging rotogravure, publication rotogravure, or flexographic printing press shall apply coatings and/or inks on the subject printing press unless the weighted average, by volume, VOC content of all coatings and/or inks, as applied, each day on the subject printing press is equal to or less than the limitation specified in either Part (3)(a)1 or (3)(b)1 [as determined by Subparagraph (4)(d)]; (3)(a)2 or (3)(b)2 [as determined by Subparagraph (4)(e)]; or, in the case of packaging rotogravure or flexographic printing, (3)(a)3 [as determined by Subparagraph (4)(f)] of this rule.

(b) An owner or operator may comply with the weighted average limitation by grouping coatings and/or inks used on a printing press into two categories that meet the

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conditions in Parts 1 and 2 of this subparagraph as follow. (Any use of averaging between the two categories of coatings and/ or inks used on a packaging rotogravure press or on a flexographic press requires compliance with the emission standard in Part (3)(a)3, as determined by the equation in Subparagraph (f) of this paragraph.):

1. The weighted average VOC content for the first category shall comply with Part (3)(a)1 or (3)(b)1 of this rule, as determined by applying the equation in Subparagraph (d) of this paragraph to the coatings and/or inks in this first category.

2. The weighted average VOC content for the second category shall comply with Part (3)(a)2 or (3)(b)2 of this rule, as determined by applying the equation in Subparagraph (e) of this paragraph to the coatings and/or inks in this second category.

(c) (Reserved)

(d) The following equation shall be used to determine if the weighted average VOC content of all coatings and/or inks, as applied, on the subject printing press exceeds the limitation specified in Part (3)(a)1 or (3)(b)1 of this rule:

$$VOC_{(i)(A)} = \frac{\sum_{i=1}^{n} L_i V_{VOCi}}{\sum_{i=1}^{n} L_i (V_{si} + V_{VOCi})} \times 100$$

where:

$VOC_{(i)(A)}$ = The weighted average VOC content in units of percent VOC by volume of all coatings and/or inks (excluding water and/or exempt compounds) used each day;

i = Subscript denoting a specific coating or ink, as applied;

n = The number of different coatings and/or inks, as applied, each day on a printing press;

L_i = The liquid volume of each coating or ink, as applied, used that day in units or liters (L) (gallons [gal]);

V_{si} = The volume fraction of solids in each coating or ink, as applied; and

V_{VOCi} = The volume fraction of VOC in each coating or ink, as applied.

(e) The following equation shall be used to determine if the weighted average VOC content of all coatings and/or inks, as applied, on the subject printing press exceeds the limitation specified in Part (3)(a)2 or (3)(b)2 of this rule:

n

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$$VOC_{(i)(B)} = \frac{\sum_{i=1} L_i V_{VOCi}}{\sum_{i=1}^{n} L_i V_{VCi}} \times 100$$

where:

$VOC_{(i)(B)}$ = The weighted average VOC content in units of percent VOC by volume of the volatile content of all coatings and/or inks used each day;

i = Subscript denoting a specific coating or ink, as applied;

n = The number of different coatings and/or inks, as applied, each day on a printing press;

L_i = The liquid volume of each coating or ink, as applied, in units or L (gal);

V_{VOCi} = The volume fraction of VOC in each coating or ink, as applied; and

V_{VCi} = The volume fraction of volatile matter in each coating or ink, as applied.

(f) The following equation shall be used to determine if the weighted average VOC content of all coatings and/or inks, as applied, on the subject printing press exceeds the limitation specified in Part (3)(a)3 of this rule:

$$VOC_{(i)(C)} = \frac{\sum_{i=1}^{n} L_i D_i W_{VOCi}}{\sum_{i=1}^{n} L_i D_i W_{si}}$$

where:

$VOC_{(i)(C)}$ = The weighted average VOC content in units of mass of VOC per mass of coating and/or ink solids;

i = Subscript denoting a specific coating or ink, as applied;

n = The number of different coatings and/or inks, as applied, each day on a printing press;

L_i = The liquid volume of each coating or ink, as applied, used on the day in units of L (gal);

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D_i = The density of each coating or ink, as applied, in units of mass of coating or ink per unit volume of coating or ink;

W_{VOCi} = The weight fraction of VOC in each coating or ink, as applied; and

W_{si} = The weight fraction of solids in each coating or ink, as applied.

(5) Control device requirements as follow apply:

(a) No owner or operator of a packaging rotogravure, publication rotogravure, or flexographic printing press equipped with a control system shall operate the printing press unless the owner or operator meets the following requirements:

1. A carbon adsorption, incineration, or other control device is used that reduces the VOC emissions delivered from the capture system to the control device by at least 90 percent by weight; and

2. The printing press is equipped with a capture system and control device that provides an overall emission reduction efficiency of at least:

(i) 75 percent for a publication rotogravure printing press;

(ii) 65 percent for a packaging rotogravure printing press; or

(iii) 60 percent for a flexographic printing press.

(b) An owner or operator of a packaging rotogravure, publication rotogravure, or flexographic printing press equipped with a control system shall ensure that:

1. A capture system and control device are operated at all times that the printing press is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter; and

2. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

(6) The VOC content of each coating and ink and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in this chapter to establish the records required under Paragraph (7) of this rule.

(7) Recordkeeping and reporting requirements as follow apply:

(a) By April 22, 1994, any owner or operator of a printing press that is exempt from the requirements of this rule because of the criteria in Paragraph (1) of this rule shall comply with the following:

1. The owner or operator of a facility in Davidson, Knox, Rutherford, Shelby, Sumner, Williamson, or Wilson County shall certify to the Technical Secretary that the facility is exempt under the provisions of Paragraph (1) of this rule. Such certification shall include:

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(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) A declaration that the facility is exempt from this rule because of the criteria in Paragraph (1) of this rule; and

(iv) Calculations demonstrating that total potential VOC emissions of VOC from all flexographic and rotogravure printing presses at the facility are less than 90.7 Mg (100 tons) per calendar year.

2. The owner or operator shall collect and record all of the following information each year for each printing press and maintain the information for a period of 3 years:

(i) The name and identification number of each coating and ink, as applied each year;

(ii) The weight of VOC per volume of coating solids and the volume of solids of each coating and ink, as applied, each year; and

(iii) The total emissions as calculated for that year.

3. Any record showing that total emissions of VOC from all flexographic and rotogravure printing presses exceeded 90.7 Mg (100 tons) in any calendar year, before the application of capture systems and control devices, shall be reported by sending a copy of such record to the Technical Secretary within 30 calendar days after the exceedance occurs.

(b) Any owner or operator of a printing press subject to this rule and complying by means of use of complying coatings and/or inks, shall comply with the following:

1. By April 22, 1994,or upon initial startup of a new printing press, the owner or operator of a subject printing press shall certify to the Technical Secretary that the printing press is in compliance with Subparagraph (3)(a) or (3)(b) of this rule. Such certification shall include:

(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) Identification of subject sources;

(iv) The name and identification number of each coating and ink, as applied; and

(v) The VOC content of all coatings and inks, as applied, expressed in units of the applicable standard.

2. By April 22, 1994, or on and after the initial startup date, the owner or operator of a printing press subject to the limitations of this rule and complying with Subparagraph (3)(a) or (3)(b) shall collect and record all of the following information for each printing press and maintain the information for a period of 3 years:

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(i) The name and identification number of each coating and ink used or, in the alternative, each coating and ink kept available for use on the press if only complying coatings and inks are used, as applied; and

(ii) The VOC content of each coating and ink, as applied, expressed in units of the applicable standard.

3. Any record showing an exceedance of the VOC content standards of Subparagraph (3)(a) or (3)(b) of this rule shall be reported by the owner or operator of the subject printing press to the Technical Secretary within 30 calendar days following the exceedance; and

(c) Any owner or operator of a printing press subject to the limitations of this rule and complying by means of weighted averaging shall comply with the following:

1. By April 22, 1994, or upon initial startup of a new printing press, the owner or operator of the subject printing press shall certify to the Technical Secretary that the printing press is in compliance with Paragraph (4) of this rule. Such certification shall include:

(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) The name and identification of each printing press which will comply by means of Paragraph (4) of this rule;

(iv) The name and identification number of each coating and/or ink kept in inventory for use on each printing press;

(v) The VOC content of each coating and/or ink, as applied, each day on each printing press, expressed in units necessary to determine compliance;

(vi) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating and/or ink, as applied, each day on each printing press;

(vii) The method by which the owner or operator will create and maintain records each day as required in Part 2 of this subparagraph; and

(viii) An example of the format in which the records required in Part 2 of this subparagraph will be kept.

2. On and after April 22, 1994, or on and after the initial startup date, the owner or operator of a printing press subject to the limitations of this rule and complying by means of weighted averaging shall collect and record all of the following information each day for each printing press and maintain the information for a period of 3 years:

(i) The name and identification number of each coating and/or ink, as applied;

(ii) The VOC content and the volume of each coating and/or ink, as applied, expressed in units necessary to determine compliance; and

(Rule 1200-03-18-.35, continued)

(iii) The weighted average VOC content of all coatings and/or inks, as applied;

3. On and after April 22, 1994, the owner or operator of a subject printing press shall notify the Technical Secretary of any instance of noncompliance with Paragraph (4) by sending a copy of the calculation showing such noncompliance to the Technical Secretary within 30 calendar days following the occurrence.

(d) Any owner or operator of a printing press subject to this rule and complying by means of control devices shall comply with Paragraph .03(5) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.36 PETROLEUM SOLVENT DRY CLEANERS.

(1) Applicability of this rule is as follows:

(a) This rule applies to petroleum solvent dry cleaning facilities in Davidson, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties.

(b) Of the facilities referred to in Subparagraph (a) of the paragraph, any petroleum solvent dry cleaning facility that consumes less than 123,000 liters (L) (32,500 gallons [gal]) of petroleum solvent per year is subject only to the requirements of Subparagraph (5)(a) of this rule.

(c) This rule does not apply to facilities that use only petroleum-based solvents that contain chlorine.

(2) For the purpose of this rule, the following definitions apply:

(a) “Filter cartridge” means a replaceable filter unit containing filtration paper and carbon or carbon only.

(b) “Perceptible leaks” means any petroleum solvent vapor or liquid leaks that are conspicuous from visual observation or that bubble after application of a soap solution, such as pools or droplets of liquid, open containers of solvent, or solvent-laden waste standing open to the atmosphere.

(c) “Petroleum solvent cartridge filtration system” means a process in which soil-laden solvent is pumped under pressure from a washer through a sealed vessel containing filter cartridges that remove entrained solids and impurities from the solvent.

(d) “Petroleum solvent dry cleaning facility” means a facility engaged in the cleaning of fabrics, clothing, and other articles in a petroleum solvent by means of one or more washes in the solvent, extraction of excess solvent by spinning, and drying by tumbling in an airstream. Equipment at the facility includes, but is not limited to, any petroleum solvent washer, dryer, solvent filter system, settling tank, vacuum still, and any other container or conveyor of petroleum solvent.

(e) “Settling tank” means a container, and any associated piping and ductwork, that gravimetrically separates oils, grease, and dirt from petroleum solvent.

(f) “Solvent filter” means a discrete solvent filter unit containing a porous medium that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in the installation of this device.

(Rule 1200-03-18-.36, continued)

(g) "Solvent recovery dryer" means a class of dry cleaning dryers that employs a condenser to condense and recover solvent vapors evaporated in a closed-loop stream of heated air, together with the piping and ductwork used in the installation of this device.

(h) "Standard dryer" means a device that dries dry-cleaned articles by tumbling in a heated airstream.

(i) "Still" means a device used to volatilize, separate, and recover petroleum solvent from contaminated solvent, together with the piping and ductwork used in the installation of this device.

(j) "Washer" means a machine which agitates fabric articles in a petroleum solvent bath and spins the articles to remove the solvent, together with the piping and ductwork used in the installation of this device.

(3) Standards as follow apply:

(a) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall ensure that:

1. There are no perceptible leaks from any portion of the equipment; and

2. All washer lint traps, button traps, access doors, and other parts of the equipment where solvent may be exposed to the atmosphere are kept closed at all times except when opening is required for proper operation or maintenance.

(b) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall repair any perceptible leaks in any portion of the dry cleaning equipment within 3 working days after the leak is detected. If necessary repair parts are not on hand, the owner or operator shall order these parts within 3 working days and repair the leaks no later than 3 working days after the parts arrive.

(c) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall:

1. Limit the volatile organic compound (VOC) emissions from each standard dryer to 1.6 kilograms (kg) (3.5 pounds [lb]) VOC per 45 kg (100 lb) dry weight of articles dry cleaned, or

2. Install, maintain, and operate a solvent-recovery dryer such that the dryer remains closed and the recovery phase continues until a final recovered solvent flow rate of no greater than 50 milliliters per minute (ml/min) (0.013 gallons per minute [gal/min]) is attained.

(d) The owner or operator of a petroleum solvent filtration system subject to this rule shall:

1. Reduce the VOC content in filtration waste to 1 kg (2.2 lb) VOC per 100 kg (220 lb) dry weight of articles dry cleaned, or

2. As an alternative:

(i) Install, maintain, and operate a cartridge filtration system according to the manufacturer's instructions, and

(Rule 1200-03-18-.36, continued)

(ii) Drain all filter cartridges in their sealed housings for 8 hours or more before their removal.

(4) Test methods and procedures as follow apply:

(a) To be in compliance with Part (3)(c)1 of this rule, each owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall:

1. Calculate the weight of VOC's vented from the dryer emission control device calculated by using Reference Methods 1, 2, and 25A with the following specifications:

(i) Field calibration of the flame ionization analyzer with propane standards;

(ii) Laboratory determination of the ratio of the flame ionization analyzer response to a given parts per million (ppm) by volume concentration of propane to the response to the same ppm concentration of the VOC's to be measured; and

(iii) Determination of the weight of VOC's vented to the atmosphere by:

(I) Multiplying the ratio determined in Subpart (ii) of this part by the measured concentration of VOC gas (as propane) as indicated by the flame ionization analyzer response output record;

(II) Converting the ppm by volume value calculated in Item (I) of this subpart into a mass concentration value for the VOC's present; and

(III) Multiplying the mass concentration value calculated in Item (II) of this subpart by the exhaust flow rate determined by using Reference Methods 1 and 2.

2. Calculate the dry weight of articles dry cleaned; and

3. Repeat Parts 1 and 2 of this subparagraph for normal operating conditions that encompass at least 30 dryer loads, which total not less than 1,800 kg (4,000 lb) dry weight and represent a normal range of variations in fabrics, solvents, load weights, temperatures, flow rates, and process deviations.

(b) To determine initial compliance with Part (3)(c)2 of this rule, the owner or operator of a petroleum solvent dry cleaning facility shall:

1. Verify that the flow rate of recovered solvent from the solvent-recovery dryer at the termination of the recovery phase is no greater than 50 ml/min (0.013 gal/min) by using the following procedure:

(i) Determine the appropriate location for measuring the flow rate of recovered solvent; the suggested point is at the outlet of the solvent-water separator;

(ii) Near the end of the recovery cycle, divert the flow of recovered solvent to a graduated cylinder;

(iii) Continue the cycle until a flow rate of solvent no greater than 50 ml/min (0.013 gal/min) is reached; and

(Rule 1200-03-18-.36, continued)

(iv) Record the type of articles dry cleaned and the length of the cycle.

2. To determine initial compliance with Part (3)(c)2 of this rule, conduct the procedure in Part 1 of this subparagraph for at least 50 percent of the dryer loads over a period of no less than 2 consecutive weeks.

(c) To be in compliance with Subparagraph (3)(d) of this rule, the owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall:

1. Calculate the weight of volatile organic compounds contained in each of at least five 1-kg (2.2-lb) samples of filtration waste material taken at intervals of at least 1 week, by employing ASTM D322-80 (Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation);

2. Calculate the total dry weight of articles dry cleaned during the intervals between removal of filtration waste samples, as well as the total mass of filtration waste produced in the same period; and

3. Calculate the weight of VOC's contained in filtration waste material per 100 kg (220 lb) dry weight of articles dry cleaned.

(d) Compliance with Paragraph (3) of this rule requires that each owner or operator of a petroleum solvent dry cleaning facility subject to this rule make weekly inspections of washers, dryers, solvent filters, settling tanks, vacuum stills, and all containers and conveyors of petroleum solvent to identify perceptible VOC vapor or liquid leaks.

(5) Recordkeeping requirements as follow apply:

(a) The owner or operator of a petroleum solvent dry cleaning facility claiming exemption from this regulation by the provisions of Subparagraph (1)(b) shall maintain records of annual solvent consumption for at least 3 years to document whether the applicability threshold in Subparagraph (1)(b) of this rule has been exceeded.

(b) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall maintain the following records for at least 3 years:

1. Records of the weight of VOC's vented from the dryer emission control device calculated according to Part (4)(a)1 of this rule;

2. Records of the dry weight of articles dry cleaned for use in the calculations required in Subparagraphs (4)(a), (4)(b), and (4)(c) of this rule;

3. Records of the weight of VOC's contained in the filtration waste samples required by Part (4)(c)1 of this rule; and

4. Records of the weight of VOC's in filtration waste material per 100 kg (220 lb) dry weight of articles dry cleaned.

(6) The owner or operator of any facility containing sources subject to this rule shall:

(a) Comply with the initial compliance certification requirements of Paragraph .04(1) of this chapter; and

(Rule 1200-03-18-.36, continued)

(b) Comply with the requirements of Paragraph .04(2) of this chapter for excess emissions related to the control devices required to comply with Subparagraph (3)(b) and Parts (3)(c)2 and (3)(d)2 of this rule.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed May 16, 1997; effective July 30, 1997.*

1200-03-18-.37 RESERVED.

1200-03-18-.38 LEAKS FROM SYNTHETIC ORGANIC CHEMICAL, POLYMER, AND RESIN MANUFACTURING EQUIPMENT.

(1) Applicability of this rule is as follows:

(a) For general applicability:

1. This rule applies to all equipment in volatile organic compound (VOC) service in any process unit at a synthetic organic chemical, polymer, and resin manufacturing facility in Davidson, Rutherford, Shelby, Sumner, Williamson, or Wilson County.

2. A piece of equipment is not in VOC service if the VOC content of the process fluid can never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

(i) Procedures that conform to the general methods in ASTM E260, E168, and E169 shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment;

(ii) Organic compounds that are not volatile organic compounds, including exempt compounds, may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid; and

(iii) Engineering judgment may be used to estimate the VOC content. If the Technical Secretary disagrees with the judgment, Parts (9)(b)1 and (9)(b)2 of this rule shall be used to resolve the disagreement.

(b) This rule does not apply to any synthetic organic chemical, polymer, or resin manufacturing facility whose annual design production capacity is less than 1,000 megegrams (Mg) (1,100 tons) of product.

(c) The requirements of Paragraph (4) of this rule do not apply to:

1. Any equipment in vacuum service;

2. Any pressure-relief valve that is connected to an operating flare header or vapor recovery device;

3. Any liquid pump that has a dual mechanical pump seal with a barrier fluid system; or

4. Any compressor with a degassing vent that is routed to an operating VOC control device.

(Rule 1200-03-18-.38, continued)

(2) For the purpose of this rule, the following definitions apply:

(a) "[In] gas/vapor service" means that the piece of equipment in VOC service contains process fluid that is in the gaseous state at operating conditions.

(b) "[In] heavy liquid service" means that the piece of equipment in VOC service is not in gas/vapor service or in light liquid service.

(c) "[In] light liquid service" means that the piece of equipment in VOC service contains a liquid that meets the following conditions:

1. The vapor pressure of one or more of the components is greater than 0.3 kPa (0.044 in Hg) at 20°C (68°F) (standard reference texts or ASTM D2879 shall be used to determine the vapor pressures);

2. The total concentration of the pure components having a vapor pressure greater than 0.3 kPa (0.044 in Hg) at 20°C (68°F) is equal to or greater than 10 percent by weight; and

3. The fluid is a liquid at operating conditions.

(d) "Process unit" means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 40 C.F.R. 60.489 as of July 1, 1991. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for product.

(e) "[In] vacuum service" means that the equipment in VOC service is operating at an internal pressure which is at least 5 kPa below ambient pressure.

(f) "[In] VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight. The provisions of Part (1)(a)2 of this rule specify how to determine that a piece of equipment is not in VOC service.

(3) The owner or operator of a synthetic organic chemical, polymer, or resin manufacturing facility subject to this rule shall ensure that:

(a) Any open-ended line or valve is sealed with a second valve, blind flange, cap, or plug except:

1. During operations requiring process fluid flow through the open-ended line or valve; or

2. For an open-ended valve or line containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped, plugged, or sealed by a second valve or blind flange;

(b) When a second valve is used, each open-ended line or valve equipped with a second valve is operated in such a manner that the valve on the process fluid end is closed before the second valve is closed; and

(c) When a double block-and-bleed system is used, the bleed valve or line is open only during operations that require venting of the line between the block valves and is closed at all other times.

(Rule 1200-03-18-.38, continued)

(4) The owner or operator of a synthetic organic chemical, polymer, or resin manufacturing facility shall conduct the equipment inspection program described in Subparagraphs (a) through (c) of this paragraph using the test methods specified in this chapter, leak determination, and tagging procedure as follow:

(a) The owner or operator of a synthetic organic chemical, polymer, or resin manufacturing facility shall conduct quarterly monitoring of each:

1. Compressor;

2. Pump in light liquid service;

3. Valve in light liquid service, except as provided in Paragraphs (5) and (6) of this rule;

4. Valve in gas/vapor service, except as provided in Paragraphs (5) and (6) of this rule; and

5. Pressure relief valve in gas/vapor service, except as provided in Paragraphs (5) and (6) of this rule.

(b) The owner or operator of a synthetic organic chemical or resin manufacturing facility shall conduct a weekly visual inspection of each pump in light liquid service.

(c) The owner or operator of a synthetic organic chemical, polymer, or resin manufacturing facility shall inspect each pressure relief valve immediately after each overpressure relief to ensure that the valve has properly reseated and is not leaking.

(d) Leak determination is as follows:

1. When an instrument reading of 10,000 parts per million (ppm) or greater is measured, it shall be determined that a leak has been detected.

2. If there is liquid dripping from the equipment, it shall be determined that a leak has been detected.

(e) When a leak is detected, the owner or operator shall affix a weatherproof, readily visible tag in a bright color such as red or yellow, bearing the equipment identification number and the date on which the leak was detected. This tag shall remain in place until the leaking equipment is repaired. The requirements of this subparagraph apply to any leak detected by the equipment inspection program and to any leak from any equipment that is detected on the basis of sight, sound, or smell.

(f) Following any attempt to repair a leak which it is believed has been successfully repaired, testing by the methods listed in Subparagraph (d) of this paragraph shall be conducted.

(5) An owner or operator shall comply with the requirements for valves in gas/vapor service and valves in light liquid service as described in Paragraph (4) of this rule except as follows:

(a) If the percent of valves leaking is equal or less than 2.0 for two consecutive quarters, an owner or operator may skip alternate quarterly leak detection periods for the valves in gas/vapor and light liquid service;

(b) If the percent of valves leaking is equal to or less than 2.0 for five consecutive quarters, an owner or operator may skip three of the quarterly leak detection periods per year for

(Rule 1200-03-18-.38, continued)

the valves in gas/vapor and light liquid service, provided that each valve shall be monitored once year year;

(c) If at any time the percent of valves leaking is greater than 2.0, the owner or operator shall resume compliance with the requirements in Paragraph (4) of this rule but may again elect to comply with the alternative standards in this paragraph.

(d) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and previously leaking valves for which repair has been delayed by the total number of valves subject to the requirements of this rule.

(e) An owner or operator shall keep a record of the percent of valves found leaking during each leak detection period.

(6) Alternative standards for unsafe-to-monitor valves and difficult-to-monitor valves apply as follow:

(a) Any valve is exempt from the requirements of Paragraph (4) as an unsafe-to-monitor valve if:

1. The owner or operator of the valve demonstrates that the valve is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with Paragraph (4); and

2. The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(b) Any valve is exempt from the requirements of Paragraph (4) as a difficult-to-monitor valve if:

1. The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters (m) (6.6 feet [ft]) above a support surface; and

2. The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

(c) The alternative standards of Paragraph (5) are not available to valves subject to the requirements of this paragraph.

(7) The owner or operator of a synthetic organic chemical, polymer, or resin manufacturing facility refinery shall:

(a) Make a first attempt at repair for any leak not later than 5 calendar days after the leak is detected; and

(b) Repair any leak as soon as practicable, but not later than 15 calendar days after it is detected except as provided in Paragraph (8) of this rule.

(8) Delay of repair standards apply as follow:

(a) Delay of repair of equipment for which a leak has been detected will be allowed if repair is technically infeasible without a process unit shutdown. Repair of such equipment shall occur before the end of the first process unit shutdown after detection of the leak.

(Rule 1200-03-18-.38, continued)

(b) Delay of repair of equipment will also be allowed for equipment that is isolated from the process and that does not remain in VOC service after detection of the leak.

(c) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, and if valve assembly supplies have been depleted, where valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the first process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(9) Test methods and procedures apply as follow:

(a) In conducting the monitoring required to comply with Paragraph (4) of this rule, the owner or operator shall use the test methods specified in this chapter.

(b) The owner or operator shall demonstrate that a piece of equipment is in light liquid service by showing that all of the following conditions apply:

1. The vapor pressure of one or more of the components is greater than 0.3 kiloPascal (kPa) (0.044 inches of mercury [in Hg]) at 20°C (68°F) with standard reference texts or ASTM D2879 used to determine the vapor pressures;

2. The total concentration of the pure components having a vapor pressure greater than 0.3 kPa (0.044 in Hg) at 20°C (68°F) is equal to or greater than 20 percent by weight; and

3. The fluid is a liquid at operating conditions.

(c) Samples shall be representative of the process fluid that is contained in or contacts the equipment.

(10) Recordkeeping requirements apply as follow:

(a) Each owner or operator subject to the provisions of this rule shall comply with the recordkeeping requirements of this rule.

(b) An owner or operator of more than one facility subject to the provisions of this rule may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(c) When each leak is detected as specified in Paragraph (4) of this rule, the following information shall be recorded in a log and shall be kept for 3 years:

1. The instrument and operator identification numbers and the equipment identification number;

2. The date the leak was detected and the dates of each attempt to repair the leak;

3. The repair methods employed in each attempt to repair the leak;

4. The notation of and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;

5. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown;

(Rule 1200-03-18-.38, continued)

6. The dates of process unit shutdowns that occur while the equipment is unrepaired; and

7. The date of successful repair of the leak.

(d) A list of identification numbers of equipment in vacuum service shall be recorded in a log that is kept for 3 years.

(e) The following information for valves complying with Paragraph (5) of this rule shall be recorded in a log that is kept for 3 years.

1. A schedule of monitoring, and

2. The percent of valves found leaking during each monitoring period.

(f) The following information pertaining to all valves subject to the requirements of Paragraph (6) of this rule shall be recorded in a log that is kept for 3 years:

1. A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve, and

2. A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve.

(g) The following information shall be recorded in a log that is kept for 3 years for use in determining exemptions as provided in Paragraph (1) of this rule:

1. An analysis demonstrating the design capacity of the affected facility; and

2. Information and data used to demonstrate that a piece of equipment is not in VOC service.

(11) The owner or operator of any facility containing sources subject to this rule shall comply with the requirements in Paragraphs .04(1) and (2) of this chapter.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed May 16, 1997; effective July 30, 1997.*

1200-03-18-.39 MANUFACTURE OF HIGH-DENSITY POLYETHYLENE, POLYPROPYLENE, AND POLYSTYRENE RESINS.

(1) Applicability of this rule is as follows:

(a) This rule applies to the following process sections at facilities in Davidson, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties engaged in the manufacture of high-density polyethylene, polypropylene, and polystyrene:

1. For the manufacture of high-density polyethylene using a liquid-phase slurry process: each material recovery section and each product finishing section;

(Rule 1200-03-18-.39, continued)

2. For the manufacture of polypropylene using a liquid-phase process: each polymerization reaction section, each material recovery section, and each product finishing section; and

3. For the manufacture of polystyrene using a continuous process: each material recovery section.

(b) Facilities having all process sections with uncontrolled emission rates at or below those identified as follow are exempt from the requirements of this rule except that owners or operators seeking to comply with this rule by complying with the uncontrolled emission rates in this subparagraph are still required to comply with the initial certification requirements at Paragraph .04(1) of this chapter:

Production Process	Process Section	Uncontrolled emission rate, megagram of product per year (Mg/yr)
1. High density polyethylene, liquid-phase slurry process.	material recovery section	7
2. High density polyethylene, liquid-phase slurry process	product finishing section	19
3. Polypropylene, liquid-phase process	polymerization reaction section	7
4. Polypropylene, liquid-phase process	material recovery section	8
5. Polypropylene, liquid-phase process	product finishing section	36
6. Polystyrene, continuous process	material recovery section	7

(2) For the purpose of this rule, the following definitions apply:

(a) “Continuous process” means a polymerization process in which reactants are introduced in a continuous manner and products are removed either continuously or intermittently at regular intervals so that the process can be operated and polymers produced essentially continuously.

(b) “Flame zone” means that portion of the combustion chamber in a boiler occupied by the flame envelope.

(c) “High-density polyethylene” means a linear, thermoplastic polymer comprised of at least 50 percent ethylene by weight and having a density greater than 0.94 grams per cubic centimeter (g/cm^3) (59 pounds per cubic foot [lb/ft^3]).

(d) “Liquid-phase process” means a polymerization process in which the polymerization reaction is carried out in the liquid phase; i.e.,the monomer(s) and any catalyst are dissolved or suspended in a liquid solvent.

(Rule 1200-03-18-.39, continued)

(e) "Liquid-phase slurry process" means a liquid-phase polymerization process in which the monomer(s) are in solution (completely dissolved) in a liquid solvent, but the polymer is in the form of solid particles suspended in the liquid reaction mixture during the polymerization reaction, sometimes called a particle-form process.

(f) "Polypropylene" means a polymer comprised of at least 50 percent propylene by weight.

(g) "Polystyrene" means a thermoplastic polymer comprised of at least 80 percent stryene or para-methylstyrene by weight.

(h) "Process line" means a group of equipment assembled that can operate independently if supplied with sufficient raw materials to produce polypropylene, high-density polyethylene, polystyrene. A process line consists of the equipment in the following process sections (to the extent that these process sections are present at a plant): raw materials preparation, polymerization reaction, product finishing, product storage, and material recovery.

(i) "Process section" means the equipment designed to accomplish a general but well-defined task in polymer production. Process sections include raw materials preparation, polymerization reaction, material recovery, product finishing, and product storage and may be dedicated to a single process line or common to more than one process line.

(j) "Product finishing section" means the equipment that treats, shapes, or modifies the polymer or resin to produce the finished end product of the particular facility. Product finishing equipment may accomplish extruding and pelletizing, cooling and drying, blending, additives introduction, curing, or annealing. Product finishing does not include polymerization or shaping such as fiber spinning, molding, or fabricating or modification such as fiber stretching and crimping.

(3) The owner or operator of a high-density polyethylene or polypropylene process line containing a process section subject to this rule shall comply with the following:

(a) Reduce emissions of total volatile organic compounds (VOC's) by 98 weight percent, determined according to the procedure specified in Subparagraph (5)(a) of this rule, or to a VOC concentration of 20 parts per million volumetric (ppmv), as determined by the procedure specified in Subparagraph (5)(b) of this rule, on a dry basis, whichever is less stringent. Total VOC is expressed as the sum of the actual compounds, not carbon equivalents. If an owner or operator elects to comply with the 20 ppmv concentration standard, the concentration shall include a correction to 3 percent oxygen only when supplemental combustion air is used to combust the vent stream. The procedure in Subparagraph (5)(c) shall be used to correct the concentration to 3 percent oxygen;

(b) Combust the emissions in a boiler or process heater with a design heat input capacity of 150 million British thermal units per hour (Btu/hr) or greater by introducing the vent stream into the flame zone of the boiler or process heater; or

(c) Combust the emissions in a flare as follows:

1. Flares shall be designed for and operated with no visible emissions as determined by the method specified in Part (5)(d)1 of this rule, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours;

(Rule 1200-03-18-.39, continued)

2. Flares shall be operated with a flame present at all times, as determined by the method specified in Part (5)(d)2 of this rule;

3. Flares used to comply with provisions of this rule shall be steam-assisted, air-assisted, or non-assisted;

4. Flares shall be used only with the net heating value of the gas being combusted being 11.2 megaJoules per standard cubic meter (MJ/scm) (300 Btu per standard cubic foot [Btu/scf]) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the method specified in Part (5)(e)7 of this rule.

5. Consistent with exit velocity requirements as follow:

(i) Steam-assisted and non-assisted flares shall be designed for and operated with an exit velocity, as determined by the method specified in Part (5)(e)4 of this rule, less than 18.3 meters per second (m/s) (60 feet per second [ft/s]), except as provided in Subparts (ii) and (iii) of this part;

(ii) Steam-assisted and non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in Part (5)(e)4 of this rule, equal to or greater than 18.3 m/s (60 ft/s) but less than 122 m/s (400 ft/s) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf); and

(iii) Steam-assisted and non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in Part (5)(e)4 of this rule, less than the velocity, V_{max}, as determined by the method specified in Part (5)(e)5 of this rule and less than 122 m/s (400 ft/s) are allowed.

6. Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max}, as determined by the method specified in Part (5)(e)6 of this rule.

(4) The owner or operator of a polystyrene process line containing process sections subject to this rule shall comply with the following:

(a) Not allow continuous VOC emissions from the material recovery section to be greater than 0.12 kg (kilograms) VOC per 1,000 kg of product (0.12 pounds [lb] VOC per 1,000 lb of product); or

(b) Not allow the outlet gas stream from each final condenser in the material recovery section to exceed -25°C (-13°F).

(5) Test methods and procedures as follow apply:

(a) The owner or operator shall determine compliance with the percent emission reduction standard in Subparagraph (3)(a) of this rule as follows:

1. The emission reduction of total VOC shall be determined using the following equation:

$$E_{inlet} - E_{outlet}$$

(Rule 1200-03-18-.39, continued)

$$P = \frac{\quad}{E_{inlet}} \times 100$$

where:

P = Percent emission reduction, by weight.

E_{inlet} = Mass rate of total VOC entering the control device, kg VOC/hr.

E_{outlet} = Mass rate of total VOC discharged to the atmosphere, kg VOC/hr.

2. The mass rates of total VOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_1 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i$$

$$E_o = K_1 \left(\sum_{j=1}^{n} C_{oj} M_{oj} \right) Q_o$$

where:

C_{ij}, C_{oj} = Concentration of sample component "j" of the gas stream at the inlet and outlet of the control device, respectively, dry basis, ppmv.

M_{ij}, M_{oj} = Molecular weight of sample component "j" of the gas stream at the inlet and outlet of the control device respectively, g/gmole (lb/lb-mole).

Q_i, Q_o = Flow rate of the gas stream at the inlet and outlet of the control device, respectively, dscm/hr (dscf/hr).

K_1 = 4.157×10^{-8} [(kg)/(g-mole)]/[(g)(ppm)(dscm)] or {2.595×10^{-9} [(lb)(/(lb-mole)]/[(lb)(ppm)(dscf)]}.

3. Reference Method 18 shall be used to determine the concentration of each individual organic component (C_{ij}, C_{oj}) in the gas stream. Reference Method 1 or 1A, as appropriate, shall be used to determine the inlet and outlet sampling sites. The inlet site shall be before the inlet of the control device and after all product recovery units.

4. Reference Method 2, 2A, 2C, or 2D, as appropriate, shall be used to determine the volumetric flow rates (Q_i, Q_o). If necessary, Method 4 shall be used to determine the moisture content. Both determinations shall be compatible with the Reference Method 18 determinations.

(Rule 1200-03-18-.39, continued)

5. Inlet and outlet samples shall be taken simultaneously. The sampling time for each run shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at 15 minute intervals.

(b) The owner or operator shall determine compliance with the emission concentration standard in Subparagraph (3)(a) of this rule as follows:

1. The total VOC concentration is the sum of the individual components and shall be computed for each run using the following equation:

$$C_{voc} = \sum_{j=1}^{n} C_j$$

where:

C_{voc} = Concentration of total VOC, dry basis, ppmv;

C_j = Concentration of sample component j, ppm; and

n = Number of components in the sample.

2. Reference Method 18 shall be used to determine the concentration of each individual inorganic component (C_j) in the gas stream. Reference Method 1 or 1A as appropriate, shall be used to determine the sampling site at the outlet of the control device. Reference Method 4 shall be used to determine the moisture content, if necessary.

3. The sampling time for each run shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at 15 minute intervals.

(c) Correction for supplemental combustion air shall be as follows:

1. If supplemental combustion air is used, the total VOC concentration shall be corrected to 3 percent oxygen and shall be computed using the following equation:

$$C_{CORR} = C_{meas} \frac{17.9}{20.9 - \%0_{2d}}$$

C_{CORR} = Concentration of total VOC corrected to 3 percent oxygen, dry basis, ppmv;

C_{MEAS} = Concentration of total VOC, dry basis, ppmv, as calculated in Part (5)(b)1 above; and

$\%O_{2d}$ = Concentration of O_2, dry basis, percent by volume.

(Rule 1200-03-18-.39, continued)

2. The emission rate correction factor, integrated sampling and analysis procedure of Reference Method 3 shall be used to determine the oxygen concentration ($\%O_{2d}$). The sampling site shall be the same as that of the total VOC sample and the samples shall be taken during the same time that the total VOC samples are taken.

(d) When a flare is used to comply with Subparagraph (3)(c) of this rule:

1. Reference Method 22 shall be used to determine the compliance of flares with the visible emission requirement in Part (3)(c)1 of this rule. The observation period is 2 hours and shall be used according to Reference Method 22; and

2. The presence of a flare pilot flame shall be monitored using a thermocouple or other equivalent monitoring device to detect the presence of a flame.

(e) The test methods shall be used for determining the VOC emission rate in terms of kg emission per megagram (Mg) of product, exit velocities, or net heating value of the gas combusted to determine compliance under Paragraphs (3) and (4) of this rule as follows:

1. Reference Method 1 or 1A, as appropriate, for selection of the sampling site. The sampling site for the molar composition and vent stream flow rate determination prescribed in Parts 2 and 3 of this subparagraph shall be prior to the inlet of any combustion device and prior to any dilution of the stream with air.

2. The composition of the process vent stream shall be determined as follows:

(i) Reference Method 18 and ASTM D2504-67 (reapproved 1977) to measure the concentration of VOC and the concentration of all other compounds present except water vapor and carbon monoxide, and

(ii) Reference Method 4 to measure the content of water vapor.

3. The volumetric flow rate shall be determined using Reference Method 2, 2A, 2C, or 2D, as appropriate;

4. The actual exit velocity of a flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by Reference Method 2, 2A, 2C, or 2D as appropriate, by the unobstructed (free) cross-sectional area of the flare tip;

5. The maximum permitted velocity, V_{max}, for flares complying with Subpart (3)(c)5(i) of this rule shall be determined using the following equation:

$$\text{Log}_{10}(V_{max}) = \frac{H_T + 28.8}{31.7}$$

where:

V_{max} = Maximum permitted velocity, m/s;

28.8 = Constant;

(Rule 1200-03-18-.39, continued)

31.7 = Constant; and

H_T = The net heating value as determined in Part 7 of this subparagraph.

6. The Vmax for air-assisted flares shall be determined by the following equation:

Vmax = 8.706 + 0.7084 (HT)

where:

Vmax = Maximum permitted velocity, m/s;

8.706 = Constant;

0.7084 = Constant; and

HT = The net heating value as determined in Part 7 of this subparagraph.

7. The net heating value of the process vent stream being combusted in a flare shall be calculated using the following equation:

$$HT = K \sum_{i=1}^{n} CiHi$$

where:

HT = Net heating value of the sample, MJ/scm, where the net enthalpy per mole of offgas is based on combustion at 25^{0}C and 760 millimeters of Mercury (mm Hg) (77^{0}F and 29.92 inches of Mercury [in Hg]), but the standard temperature for determining the volume corresponding to one mole is 20^{0}C (68^{0}F);

K = Constant:

$$K = 1.740 \times 10^{-7} \frac{(1) \quad (g\ mole) \quad (MJ)}{ppm \quad scm \quad kcal}$$

where standard temperature for (g mole)/scm is 200C.

Ci = Concentration of sample components i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-82; and

Hi = Net heat of combustion of sample component i, kcal/g-mole at 25^{0}C (77^{0}F) and 760 mm Hg (29.92 in Hg). The heats of combustion of process vent stream components may be determined using ASTM D2382-76 (reapproved 1977) if published values are not available or cannot be calculated;8.The emission rate of VOC in the process vent stream shall be calculated using the following equation:

(Rule 1200-03-18-.39, continued)

8. The emission rate of VOC in the process vent stream shall be calculated using the following equation:

$$E_{voc} = K \left(\sum_{i=1}^{n} C_i M_i \right) Q_s$$

where:

E_{voc} = Emission rate of total organic compounds in the sample, kilogram per hour (kg/h);

K = Constant, 2.494×10^{-6} (1/ppm)(g-mole/scm)(kg/g)(min/h), where standard temperature for (g-mole/scm) is 20°C (68°F);

C_i = Concentration of sample component i, ppm;

M_i = Molecular weight of sample component i, g/g-mole; and

Q_s =Vent stream flow rate (scm/min), at a standard temperature of 20°C (68°F).

9. The rate of polymer produced, P_p (kg/h), shall be determined by dividing the weight of polymer pulled in kg from the process line during the performance test by the number of hours (h) taken to perform the performance test. The polymer pulled, in kg, shall be determined by direct measurement or, if approved by the Technical Secretary and approved as a revision to the State Implementation Plant, computed from materials balance by good engineering practice; and

10. The emission rate of VOC in terms of kilograms of emissions per megagram of production shall be calculated using the following equation:

$$ER_{voc} = \frac{E\ VOC}{P_p \times \frac{1Mg}{1{,}000\ kg}}$$

where:

ER_{voc} = Emission rate of VOC, kg VOC/Mg product;

E_{voc} = Emission rate of VOC in the sample, kg/h; and

P_p = The rate of polymer produced, kg/h.

(6) The owner or operator of a facility subject to this rule shall maintain the following records for at least 3 years and shall make these records available to the Technical Secretary upon request:

(Rule 1200-03-18-.39, continued)

(a) For facilities complying with the standards listed in Subparagraph (3)(a), parameters listed in Subparagraphs (5)(a), (5)(b), and, where applicable, (5)(e);

(b) For facilities complying with the standards listed in Subparagraph (3)(b), parameters listed in Subparagraphs (5)(c), and, where applicable, (5)(e);

(c) For facilities complying with the standards listed in Subparagraph (3)(c), parameters listed in Subparagraphs (5)(d), and, where applicable, (5)(e);

(d) For facilities complying with the standards listed in Paragraph (4), parameters listed in Subparagraph (5)(e) where applicable; and

(e) For all facilities containing sources subject to this rule, the following records shall be kept:

1. The time, date, and duration of any excess emissions;

2. The subject source of any excess emissions;

3. The cause of any excess emissions;

4. The estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and the calculations used in determining the magnitude of any excess emissions; and

5. Any corrective actions and schedules utilized to correct the conditions causing any excess emissions.

(7) The owner or operator of any facility containing sources subject to this rule shall:

(a) Comply with the initial compliance certification requirements of Paragraph .04(1) of this chapter; and

(b) Comply with the requirements of Paragraph .04(2) of this chapter for excess emissions related to the control devices required to comply with Subparagraph (3)(b), (3)(c), or (4)(b) of this rule.

Authority: *T.C.A. §§ 4-5-202 et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed January 31, 1997; effective April 16, 1997.*

1200-03-18-.40 AIR OXIDATION PROCESSES IN THE SYNTHETIC ORGANIC CHEMICAL MANUFACTURING INDUSTRY.

(1) Applicability of this rule is as follows:

(a) This rule applies to the following air oxidation facilities in Davidson, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties in the synthetic organic chemical manufacturing industry:

1. Each air oxidation reactor not discharging its vent stream into a recovery system;

2. Each combination of an air oxidation reactor and the recovery system into which its vent stream is discharged; and

3. Each combination of two or more air oxidation reactors and the common recovery system into which their vent streams are discharged.

(Rule 1200-03-18-.40, continued)

(b) Any air oxidation reactor vent stream that has a total resource effectiveness (TRE) index value greater than 1.0 is exempt from all provisions of this rule except the requirements in Paragraph (3) and Subparagraphs (5)(b) and (6)(j) of this rule.

(2) For the purpose of this rule, the following definitions apply:

"Air oxidation facility" means a product recovery system and all associated air oxidation process reactors discharging directly into that system or any such reactors discharging directly into the atmosphere.

"Air oxidation process" means a reactor in which air is used as an oxidizing agent to produce an organic chemical.

"Air oxidation reactor" means any device or process vessel in which one or more organic reactants are combined with air or a combination of air and oxygen to produce one or more organic compounds. Ammoxidation and oxychlorination are included in this definition.

"Air oxidation reactor recovery train" means an individual recovery system receiving the vent stream from at least one air oxidation reactor, along with all air oxidation reactors feeding vent streams into this system.

"Product recovery system" means any equipment used to collect volatile organic compounds (VOC's) for use, reuse, or sale. Such equipment includes, but is not limited to, absorbers, adsorbers, condensers, and devices that recover non-VOC's such as ammonia and HCl.

"Synthetic organic chemical manufacturing industry" means the industry that produces, as intermediates or final products, one or more of the chemicals listed at 40 C.F.R. 60.489, as of July 1, 1991.

"Total resource effectiveness index value," or TRE index value, means a measure of the supplemental total resource requirement per unit of VOC emission reduction associated with an individual air oxidation vent stream, based on vent stream flow rate, emission rate of VOC, net heating value, and corrosive properties, as quantified by the equation given under Subparagraph (4)(a) of this rule.

"Vent stream" means any gas stream containing nitrogen that was introduced as air to the air oxidation reactor, released to the atmosphere directly from any air oxidation reactor recovery train or indirectly, after diversion through other process equipment.

(3) For each vent stream from an air oxidation reactor or combination air oxidation reactor and recovery train subject to this rule, the owner or operator shall comply with Subparagraph (a), (b), or (c) as follows:

(a) Reduce total VOC emissions by 98 weight percent or to 20 parts per million volumetric (ppmv) on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this subparagraph, the vent stream shall be introduced into the flame zone of the boiler or process heater;

(b) Combust the emissions in a flare that meets the requirements of 40 C.F.R. 60.18, as of July 1, 1991, except that, for a hydrogen fueled flare serving a hydrogen cyanide process at a facility in Shelby County, the Technical Secretary, upon demonstration that stable-flame conditions are maintained, may waive the net heating value and exit velocity requirements of the C.F.R. section; or

(Rule 1200-03-18-.40, continued)

(c) Maintain a TRE index value greater than 1.0 without the use of VOC emission control devices.

(4) Monitoring requirements as follow apply:

(a) The owner or operator of an air oxidation facility that uses an incinerator to seek to comply with the VOC emission limit specified under Subparagraph (3)(a) of this rule, shall install, calibrate, maintain, and operate according to manufacture's specifications the following equipment:

1. A temperature monitoring device equipped with a continuous recorder and having an accuracy of ±1 percent of the temperature being monitored expressed in degrees Celsius or ±0.5°C, whichever is greater.

(i) Where an incinerator other than a catalytic incinerator is used, a temperature monitoring device shall be installed in the firebox.

(ii) Where a catalytic incinerator is used, temperature monitoring devices shall be installed in the gas stream immediately before and after the catalyst bed.

2. A flow indicator that provides a record of vent stream flow to the incinerator at least once every hour for each air oxidation facility. The flow indicator shall be installed in the vent stream from each air oxidation facility at a point closest to the inlet of each incinerator and before being joined with any other vent stream.

(b) The owner or operator of an air oxidation facility that uses a flare to seek to comply with Subparagraph (3)(b) of this rule shall install, calibrate, maintain, and operate according to manufacture's specifications the following equipment:

1. A heat sensing device, such as an ultra-violet sensor or thermocouple, at the pilot light to indicate the continuous presence of a flame.

2. A flow indicator that provides a record of vent stream flow to the flare at least once every hour for each air oxidation facility. The flow indicator shall be installed in the vent stream from each air oxidation facility at a point closest to the flare and before being joined with any other vent stream.

(c) The owner or operator of an air oxidation facility that uses a boiler or process heater to seek to comply with Subparagraph (3)(a) of this rule shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

1. A flow indicator that provides a record of vent stream flow to the boiler or process heater at least once every hour for each air oxidation facility. The flow indicator shall be installed in the vent stream from each air oxidation reactor within a facility at a point closest to the inlet of each boiler or process heater and before being joined with any other vent stream.

2. A temperature monitoring device in the firebox equipped with a continuous recorder and having an accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5°C, whichever is greater, for boilers or process heaters of less than 44 MW (150 million Btu/hr) heat input design capacity.

(Rule 1200-03-18-.40, continued)

3. Monitor and record the periods of operation of the boiler or process heater if the design input capacity of the boiler or process heater is 44 MW (150 million Btu/hr) or greater. The records shall be readily available for inspection.

(d) The owner or operator of an air oxidation facility that seeks to demonstrate compliance with the TRE index value limit specified under Subparagraph (3)(c) of this rule shall install, calibrate, maintain, and operate according to manufacturer's specifications the following equipment:

1. Where an absorber is the final recovery device in a recovery system:

(i) A scrubbing liquid temperature monitoring device having an accuracy of ±1 percent of the temperature being monitored, expressed in degrees Celsius or ±0.5°C, whichever is greater, and a specific gravity monitoring device having an accuracy of ±0.02 specific gravity unit, each equipped with a continuous recorder; and

(ii) An organic monitoring device used to indicate the concentration level of organic compounds exiting the recovery device based on a detection principle such as infrared, photoionization, or thermal conductivity, each equipped with a continuous recorder.

2. Where a condenser is the final recovery device in a recovery system:

(i) A condenser exit (product site) temperature monitoring device equipped with a continuous recorder and having an accuracy of ±1 percent of the temperature being monitored expressed in degrees Celsius or ±0.5°C, whichever is greater; and

(ii) An organic monitoring device used to indicate the concentration level of organic compounds exiting the recovery device based on a detection principle such as infrared, photoionization, or thermal conductivity, each equipped with a continuous recorder.

3. Where a carbon adsorber is the final recovery device in a recovery system:

(i) An integrating steam flow monitoring device having an accuracy of ±10 percent, and a carbon bed temperature monitoring device having an accuracy of ±1 percent of the temperature being monitored expressed in degrees Celsius or ±0.5°C, whichever is greater, both equipped with a continuous recorder; and

(ii) An organic monitoring device used to indicate the concentration level of organic compounds exiting the recovery device based on a detection principle such as infrared, photoionization, or thermal conductivity, each equipped with a continuous recorder.

(5) The following methods shall be used to demonstrate compliance with Paragraph (3) of this rule:

(a) The following equation shall be used to calculate the TRE index for a given vent stream:

$$TRE = \frac{1}{E}\left[a+b\,(FL)^{0.88} + C(FL) + d(FL)H_T + e(FL)^{0.88}(H_T)^{0.88} + f(FL)^{0.5}\right]$$

(Rule 1200-03-18-.40, continued)

where:

TRE = The total resource effectiveness index value.

E = The measured hourly emissions in units of kilograms/hour (kg/h).

FL = The vent stream flow rate in scm/min, at a standard temperature of 20°C. For a Category E stream (see Table 1), the factor $f(FL)^{0.5}$ should be replaced with

$$f\left[(FL\ \frac{(H_T)^{0.5}}{3.6}\right]$$

where:

H_T = Vent stream net heating value in units of MJ/scm, where the net enthalpy per mole of offgas is based on combustion at 25°C (68°F) and 760 millimeters of Mercury (mm Hg), but the standard temperature for determining the volume corresponding to one mole is 20°c, as in the definition of FL.

a, b, c, d, e, and f = Specific coefficients for six different general categories of process vent streams. The set of coefficients that apply to a given air oxidation process vent stream are specified in Table 1.

TABLE 1. COEFFICIENTS OF THE TOTAL RESOURCE EFFECTIVENESS (TRE) INDEX EQUATION

A1. For Chlorinated Process Vent Streams, if 0 ≤ Net Heating Value (MJ/scm) ≤ 3.5:

FL - Vent Stream Flow Rate (scm/min)	a	b	c	d	e	f
FL ≤ 13.5	48.73	0	0.404	-0.1632	0	0
13.5 < FL ≤ 700	42.35	0.624	0.404	-0.1632	0	0.0245
700 < FL ≤ 1,400	84.38	0.678	0.404	-0.1632	0	0.0346
1,400 < FL ≤ 2,100	126.41	0.712	0.404	-0.1632	0	0.0424
2,100 < FL ≤ 2,800	168.44	0.747	0.404	-0.1632	0	0.0490
2,800 < FL ≤ 3,500	210.47	0.758	0.404	-0.1632	0	0.0548

A2. For Chlorindated Process Vent Streams, if 3.5 < Net Heating Value (MJ/scm):

FL - Vent Stream Flow Rate (scm/min)	a	b	c	d	e	f
FL ≤ 13.5	47.76	0	0.292	0	0	0
13.5 < FL ≤ 700	41.58	0.605	0.292	0	0	0.0245
700 < FL ≤ 1,400	82.84	0.658	0.292	0	0	0.0346
1,400 < FL ≤ 2,100	123.10	0.691	0.292	0	0	0.0424
2,100 < FL ≤ 2,800	165.36	0.715	0.292	0	0	0.0490

(Rule 1200-03-18-.40, continued)

2,800 < FL ≤ 3,500	206.62	0.734	0.292	0	0	0.0548

B. For Nonchlorinated Process Vent Streams, if 0 ≤ Net Heating Value (MJ/scm) ≤ 0.48:

FL - Vent Stream Flow Rate (scm/min)	a	b	c	d	e	f
FL ≤ 13.5	19.05	0	0.113	-0.214	0	0
13.5 < FL ≤ 1,350	16.61	0.239	0.113	-0.214	0	0.0245
1,350 < FL ≤ 2,700	32.91	0.260	0.113	-0.214	0	0.0346
2,700 < FL ≤ 3,500	49.21	0.273	0.113	-0.214	0	0.0424

C. For Nonchlorindated Process Vent Streams, if 0.48 < Net Heating Value (MJ/scm) ≤ 1.9:

FL - Vent Stream Flow Rate (scm/min)	a	b	c	d	e	f
FL ≤ 13.5	19.74	0	0.400	-0.202	0	0
13.5 < FL ≤ 1,350	18.30	0.138	0.400	-0.202	0	0.0245
1,350 < FL ≤ 2,700	36.28	0.150	0.400	-0.202	0	0.0346
2,700 < FL ≤ 4,050	54.26	0.158	0.400	-0.202	0	0.0424

D. For Nonchlorinated Process Vent Streams, if 1.9 < Net Heating Value (MJ/scm) ≤ 3.6:

FL - Vent Stream Flow Rate (scm/min)	a	b	c	d	e	f
FL ≤ 13.5	15.24	0	0.033	0	0	0
13.5 < FL ≤ 1,190	13.63	0.157	0.033	0	0	0.0245
1,190 < FL ≤ 2,380	26.95	0.171	0.033	0	0	0.0346
2,380 < FL ≤ 3,570	40.27	0.179	0.033	0	0	0.0424

E. For Nonchlorinated Process Vent Streams, if 3.6 < Net Heating Value (MJ/scm):

FL - Vent Stream Flow Rate (scm/min)	a	b	c	d	e	f
FL ≤ 13.5	15.24	0	0	0.0090	0	0
13.5 < FL ≤ 1,190	13.63	0	0	0.0090	0.0503	0.0245
1,190 < FL ≤ 2,380	26.95	0	0	0.0090	0.0546	0.0346
2,380 < FL ≤ 3,570	40.27	0	0	0.0090	0.0573	0.0424

(b) Each owner or operator of an air oxidation facility seeking to comply with Subparagraph (1)(b) or (3)(c) of this rule shall recalculate the TRE index value for that air oxidation facility whenever process changes are made. Some examples of process changes are changes in production capacity, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. The TRE index value shall

(Rule 1200-03-18-.40, continued)

be recalculated based on test data, or on best engineering estimates of the effects of the change to the recovery system.

(c) Reference Method 1 or 1A, as appropriate, for selection of the sampling sites. The control device inlet sampling site for determination of vent stream molar composition or VOC reduction efficiency shall be prior to the inlet of the control device and after the recovery system.

(d) Reference Method 2, 2A, 2C, or 2D, as appropriate, for determination of the volumetric flow rates.

(e) The emission rate correction factor, integrated sampling and analysis procedure of Method 3 shall be used to determine the oxygen concentration ($\%0_{2d}$) for the purposes of determining compliance with the 20 ppmv limit. The sampling site shall be the same as that of the VOC samples and the samples shall be taken during the same time that the VOC samples are taken. The VOC concentration corrected to 3 percent O_2 (C_2) shall be computed using the following equation:

$$C_c = C_{voc} \frac{17.9}{20.9 - \%0_{2d}}$$

where:

C_c = Concentration of VOC corrected to 3 percent 0_2, dry basis, ppm by volume.

C_{voc} = Concentration of VOC, dry basis, ppm by volume.

$\%0_{2d}$ = Concentration of 0_2, dry basis, percent by volume.

(f) Reference Method 18 to determine concentration of VOC in the control device outlet and the concentration of VOC in the inlet when the reduction efficiency of the control device is to be determined, according to the following:

1. The sampling time for each run shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at 15-minute intervals.

2. The emission reduction (R) of VOC shall be determined using the following equation:

$$R = \frac{E_i - E_o}{E_i} \times 100$$

where:

R = Emission reduction, percent by weight.

E_i = Mass rate of VOC entering the control device, kg VOC/hr.

(Rule 1200-03-18-.40, continued)

E_o = Mass rate of VOC discharged to the atmosphere, kg VOC/hr.

3. The mass rates of VOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_2 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i$$

$$E_o = K_2 \left(\sum_{j=1}^{n} C_{oj} M_{oj} \right) Q_o$$

where:

C_{ij}, C_{oj} = Concentration of sample component "j" of the gas stream at the inlet and outlet of the control device, respectively.

M_{ij}, M_{oj} = Molecular weight of sample component "j" of the gas stream at the inlet and outlet of the control device, respectively, g/g-mole (lb/lb-mole).

Q_i, Q_o = Flow rate of gas stream at the inlet and outlet of the control device, respectively, dscm/min (dscf/hr).

K_2 = Constant, 2.494 x 10^{-6} (1/ppm) (g-mole/scm) (kg/g) (min/h), where standard temperature for (g-mole/scm) is 20^0C.

4. The VOC concentration (C_{voc}) is the sum of the individual components and shall be computed for each run using the following equation:

$$C_{voc} = \sum_{j=1}^{n} C_j$$

where:

C_{voc} = Concentration of VOC, dry basis, ppm by volume.

C_j = Concentration of sample components in the sample.

n = Number of components in the sample.

(g) When a flare is used to seek to comply with Subparagraph (3)(b) of this rule, the flare shall comply with the requirements of 40 C.F.R. 60.18, as of July 1, 1991.

(h) The following test methods shall be used for determining the net heating value of the gas combusted to determine compliance under Subparagraph (3)(b) of this rule, and

(Rule 1200-03-18-.40, continued)

for determining the process vent stream TRE index value to determine compliance under Subparagraph (3)(c) of this rule:

1. For selection of sampling site:

   (i) Reference Method 1 or 1A, as appropriate, for selection of the sampling site. The sampling site for the vent stream flow rate and molar composition determination prescribed in Parts 2 and 3 of this subparagraph shall be, except for the situations outlined in Subpart (ii) of this part, prior to the inlet of any control device, prior to any post-reactor dilution of the stream with air, and prior to any post-reactor introduction of halogenated compounds into the vent stream. No transverse site selection method is needed for vents smaller than 4 inches in diameter.

   (ii) If any gas stream other than the air oxidation vent stream is normally conducted through the final recovery device:

      (I) The sampling site for vent stream flow rate and molar composition shall be prior to the final recovery device and prior to the point at which the nonair oxidation stream is introduced.

      (II) The efficiency of the final recovery device is determined by measuring the VOC concentration using Method 18 at the inlet to the final recovery device after the introduction of any nonair oxidation vent stream and at the outlet of the final recovery device.

      (III) This efficiency is applied to the VOC concentration measured prior to the final recovery device and prior to the introduction of the nonair oxidation stream to determine the concentration of VOC in the air oxidation stream from the final recovery device. This concentration of VOC is then used to perform the calculations outlined in Parts 4 and 5 of this subparagraph.

2. For determining molar composition of the process vent stream:

   (i) Reference Method 18 to measure the concentration of VOC including those containing halogens.

   (ii) ASTM D1946-77 to measure the concentration of carbon monoxide and hydrogen.

   (iii) Reference Method 4 to measure the content of water vapor.

3. For volumetric flow rate Reference Method 2, 2A, 2C, or 2D, as appropriate.

4. For net heating value of the vent stream, the following equation:

$$H_T = K_1 \sum_{j=1}^{n} C_j H_j$$

where:

H_T = Net heating value of the sample, MJ/scm, where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but

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the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of Q_s (offgas flow rate).

K_1 = Constant, $1.740 \times 10^{-7} \frac{(1)}{ppm} \frac{(g\text{-}mole)}{scm} \frac{(MJ)}{kcal}$

where standard temperature for $\frac{(g\text{-}mole)}{scm}$ is 20°C.

C_j = Concentration of compound j in ppm, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77 as indicated in Part 2 of this subparagraph.

H_j = Net heat of combustion of compound j, kcal/g-mole, based on combustion at 25°C and 760 mm Hg. The heats of combustion of vent stream components would be required to be determined using ASTM D2382-76 if published values are not available or cannot be calculated.

5. For emission rate of VOC in the process vent stream, the following equation:

$$E_{voc} = K_2 \left(\sum_{j=1}^{n} C_j M_j \right) Q_s$$

where:

E_{voc} = Emission rate of VOC in the sample, kg/hr.

K_2 = Constant, 2.494×10^{-6} (1/ppm) (g-mole/scm) (kg/g) (min/hr), where standard temperature for (g-mole/scm) is 20°C.

C_j = Concentration on a dry basis of compound j in ppm as measured by Reference Method 18 as indicated in Part 2 of this subparagraph.

M_j = Molecular weight of sample j, g/g-mole.

Q_s =Vent stream flow rate (scm/min) at a standard temperature of 20°C.

(6) The owner or operator of a facility subject to this rule shall keep the records specified in this paragraph for at least 3 years. These records, as follow, shall be made available to the Technical Secretary immediately upon request:

(a) Where an owner or operator subject to this rule seeks to demonstrate compliance with Subparagraph (3)(a) of this rule through the use of either a thermal or catalytic incinerator:

1. The average firebox temperature of the incinerator (or the average temperature upstream and downstream of the catalyst bed for a catalytic incinerator),

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measured at least every 15 minutes and averaged over the same time period as the compliance test, and

2. The percent reduction of VOC determined as specified in Subparagraph (3)(a) of this rule that is achieved by the incinerator, or the concentration of VOC determined as specified in Subparagraph (3)(a) of this rule at the outlet of the control device on a dry basis corrected to 3 percent oxygen.

(b) Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with Subparagraph (3)(a) of this rule through the use of a boiler or process heater:

1. A description of the location at which the vent stream is introduced into the boiler or process heater, and

2. The average combustion temperature of the boiler or process heater with a design heat input capacity of less than 44 MW (150 million Btu/hr) measured at least every 15 minutes and averaged over the same time period of the compliance testing.

(c) Where an owner or operator subject to the provisions of this rule seeks to comply with Subparagraph (3)(b) of this rule through the use of a smokeless flare, flare design (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the compliance test, continuous records of the flare pilot flame monitoring, and records of all periods of operation during which the pilot flame is absent.

(d) Where an owner or operator seeks to demonstrate compliance with Subparagraph (3)(c) of this rule:

1. Where an absorber is the final recovery device in a recovery system, the exit specific gravity and average exit temperature of the absorbing liquid, measured at least every 15 minutes and averaged over the same time period of the compliance testing (both measured while the vent stream is normally routed and constituted), or

2. Where a condenser is the final recovery device in a recovery system, the average exit (product side) temperature, measured at least every 15 minutes and averaged over the same time period of the compliance testing while the vent stream is normally routed and constituted, or

3. Where a carbon adsorber is the final recovery device in a recovery system, the total steam mass flow measured at least every 15 minutes and averaged over the same time period of the compliance test (full carbon bed cycle), temperature of the carbon bed after regeneration (and within 15 minutes of completion of any cooling cycle(s)), and duration of the carbon bed steaming cycle (all measured while the vent stream is normally routed and constituted), or

4. As an alternative to Part 1, 2, or 3 of this subparagraph, the concentration level or reading indicated by the organic monitoring device at the outlet of the absorber, condenser, or carbon adsorber measured at least every 15 minutes and averaged over the same time period of the compliance testing while the vent stream is normally routed and constituted.

5. All measurements and calculations performed to determine the TRE index value of the vent stream.

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(e) Each owner or operator subject to the provisions of this rule shall keep up-to-date continuous records of the equipment operating parameters specified to be monitored under Subparagraphs (4)(a) and (4)(c) of this rule as well as up-to-date records of periods of operation during which the parameter boundaries established during the most recent compliance test are exceeded. The Technical Secretary may at any time require a report of these data. Where a combustion device is used by an owner or operator seeking to demonstrate compliance with Subparagraph (3)(a) or (3)(c) of this rule, periods of operation during which the parameter boundaries established during the most recent performance tests are exceeded and therefore an instance of noncompliance has occurred are defined as follows:

1. For thermal incinerators, all 3-hour periods of operation during which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent test at which compliance with Subparagraph (3)(a) of this rule was determined.

2. For catalytic incinerators, all 3-hour periods of operation during which the average temperature of the vent stream immediately before the catalyst bed is more than 28°C (50°F) below the average temperature of the vent stream during the most recent test at which compliance with Subparagraph (3)(a) of this rule was determined. The owner or operator also shall record all 3-hour periods of operation during which the average temperature difference across the catalyst bed is less than 80 percent of the average temperature difference of the device during the most recent test at which compliance with Subparagraph (3)(a) of this rule was determined.

3. All 3-hour periods of operation during which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent test at which compliance with Subparagraph (3)(a) of this rule was determined for boilers or process heaters with a design heat input capacity of less than 44 MW (150 million Btu/hr).

4. For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under Subparagraph (3)(a) of this rule.

(f) Each owner or operator subject to the provisions of this rule shall keep up-to-date continuous records of the flow indication specified under Parts (4)(a)2, (4)(b)2, and (4)(c)1 of this rule, as well as up-to-date records of all periods when the vent stream is diverted from the control device or has no flow rate.

(g) Each owner or operator subject to the provisions of this rule who uses a boiler or process heater with a design heat input capacity of 44 MW or greater to comply with Subparagraph (3)(a) of this rule shall keep an up-to-date record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other regulatory requirements.)

(h) Each owner or operator subject to the provisions of this rule shall keep up-to-date continuous records of the flare pilot flame monitoring specified in Subparagraph (4)(b) of this rule as well as up-to-date records of all periods of operations in which the pilot flame is absent.

(i) Each owner or operator subject to the provisions of this rule shall keep up-to-date continuous records of the equipment operating parameters specified to be monitored

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under Subparagraph (4)(c) of this rule as well as up-to-date records of periods of operation during which the parameter boundaries established during the most recent compliance test are exceeded. The Technical Secretary may at any time require a report of these data. Where the owner or operator seeks to demonstrate compliance with Subparagraph (3)(c) of this rule, periods of operation during which the parameter boundaries established during the most recent compliance tests are exceeded and therefore an instance of noncompliance has occurred are defined as follows:

1. Where an absorber is the final recovery device in a recovery system, and where an organic monitoring device is not used:

   (i) All 3-hour periods of operation during which the average absorbing liquid temperature was more than 11°C (20°F) above the average absorbing liquid temperature during the most recent compliance test that demonstrated that the facility was in compliance, or

   (ii) All 3-hour periods of operation during which the average absorbing liquid specific gravity was more than 0.1 unit above, or more than 0.1 unit below, the average absorbing liquid specific gravity during the most recent compliance test that demonstrated that the facility was in compliance.

2. Where a condenser is the final recovery device in a recovery system, and where an organic monitoring device is not used, all 3-hour periods of operation during which the average exit (product site) condenser operating temperature was more than 6°C (11°C) above the average exit (product site) operating temperature during the most recent compliance test that demonstrated that the facility was in compliance.

3. Where a carbon adsorber is the final recovery device in a recovery system and where an organic monitoring device is not used:

   (i) All carbon bed regeneration cycles during which the total mass steam flow was more than 10 percent below the total mass steam flow during the most recent compliance test that demonstrated that the facility was in compliance, or

   (ii) All carbon bed regeneration cycles during which the temperature of the carbon bed after regeneration [and after completion of any cooling cycle(s)] was more than 10 percent greater than the carbon bed temperature (in degrees Celsius) during the most recent compliance test that demonstrated that the facility was in compliance.

4. Where an absorber, condenser, or carbon adsorber is the final recovery device in the recovery system and an organic monitoring device approved by the Technical Secretary is used, all 3-hour periods of operation during which the average concentration level or reading of organic compounds in the exhaust gases is more than 20 percent greater than the exhaust gas organic compound concentration level or reading measured by the monitoring device during the most recent compliance test that demonstrated that the facility was in compliance.

(j) Each owner or operator subject to the provisions of this rule and seeking to demonstrate compliance with Subparagraph (3)(c) of this rule shall keep up-to-date records of:

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1. Any changes in production capacity, feedstock type, or catalyst type, or of any replacement, removal, or addition of recovery equipment or air oxidation reactors;

2. Any calculation of the TRE index value performed pursuant to Subparagraph (5)(b) of this rule.

3. The results of any test performed pursuant to the methods and procedures required by Subparagraph (4)(d) of this rule.

(7) The owner or operator of any facility containing sources subject to this rule shall:

(a) Comply with the initial compliance certification requirements of Paragraph .04(1) of this chapter; and

(b) Comply with the requirements of Paragraph .04(2) of this chapter for excess emissions related to the control devices required to comply with this rule.

Authority: *T.C.A. §§ 4-5-201, et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed October 2, 1979; effective November 16, 1979. Amendment filed April 23, 1992; effective June 7, 1992. Repeal and new rule filed March 8, 1983; effective April 22, 1993. Amendment filed May 16, 1997; effective July 30, 1997.*

1200-03-18-.41 RESERVED.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed May 15, 1979; effective July 10, 1979. Amendment filed December 14, 1981; effective January 28, 1982. Amendment filed April 23, 1992; effective June 7, 1992. Repeal filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.42 WOOD FURNITURE FINISHING AND CLEANING OPERATION.

(1) Applicability of this Rule is as follows:

This Rule applies to any wood furniture coating line within a facility located in Davidson, Rutherford, Shelby, Sumner, Williamson or Wilson County whose maximum potential emissions from all wood furniture coating lines within the facility are 100 tons or more of volatile organic compounds (VOC's) per year.

(2) For the purpose of this Rule, the following definitions apply**:**

(a) "Adhesive" means any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.

(b) "Administrator" means the Administrator of the United States Environmental Protection Agency or his or her authorized representative.

(c) "Affected Source" means a wood furniture manufacturing facility that meets the criteria listed in Subparagraph (1).

(d) "Alternative method" means any method of sampling and analyzing for an air pollutant that is not a reference or equivalent method but that has been demonstrated to the Technical Secretary and the Administrator's satisfaction to, in specific cases, produce results adequate for a determination of compliance.

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(e) "Basecoat" means a coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other opaque finishing materials and is usually topcoated for protection.

(f) "Baseline conditions" means the conditions that exist prior to an affected source implementing controls, such as a control system.

(g) "Cleaning operations" means operations in which organic solvent is used to remove coating materials from equipment used in the coating operation.

(h) "Coating Solids (or solids)" mean the part of the coating that remains after the coating is dried or cured.

(i) "Continuous coater" means a finishing system that continuously applies finishing materials onto furniture parts moving along a conveyor system. Finishing materials that are not transferred to the part are recycled to the finishing material reservoir. Several types of application methods can be used with a continuous coater including spraying, curtain coating, roll coating, dip coating, and flow coating.

(j) "Continuous compliance" means that the affected source is meeting the emission limitations and other requirements of the Rule at all times and is fulfilling all monitoring and recordkeeping provisions of the Rule in order to demonstrate compliance.

(k) "Conventional air spray" means a spray coating method in which the coating is atomized by mixing it with compressed air at an air pressure greater than 10 pounds per square inch (gauge) at the point of atomization. Airless and air assisted airless spray technology are not conventional air spray because the coating is not atomized by mixing it with compressed air.

(l) "Disposed offsite" means sending used organic solvent or finishing material outside of the facility for disposal.

(m) "Enamel" means the coat of colored material, usually opaque, that is applied as a protective topcoat over a basecoat, primer, or a previously applied enamel coat. In some cases, another finishing material may be applied as a topcoat over enamel.

(n) "Equivalent method" means any method of sampling and analyzing for an air pollutant that has been demonstrated to the Technical Secretary and the Administrator's satisfaction to have a consistent and quantitatively known relationship to the reference method under specific conditions.

(o) "Final touch-up and repair" means the application of finishing materials after completion of the finishing operation to cover minor imperfections.

(p) "Finishing application station" means the part of a finishing operation where the finishing material is applied, e.g., a spray booth.

(q) "Finishing material" means a coating other than an adhesive. For the wood furniture manufacturing industry, such materials include, but are not limited to, basecoats, stains, washcoats, sealers, topcoats, and enamels.

(r) "Finishing operation" means those activities in which a finishing material is applied to a substrate and is subsequently air-dried, cured in an oven, or cured by radiation.

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(s) "Incinerator" means, for the purposes of this industry, an enclosed combustion device that thermally oxidizes volatile organic compounds to CO and CO_2. This term does not include devices that burn municipal or hazardous waste material.

(t) "Material safety data sheet (MSDS)" means the documentation required by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard for a solvent, cleaning material, finishing material, or other material that identifies select reportable hazardous ingredients of the material, safety and health considerations, and handling procedures.

(u) "Normally closed container" means a container that is closed unless an operator is actively engaged in activities such as emptying or filling the container.

(v) "Operating parameter value" means a minimum or maximum value established for a control device or process parameter that, if achieved by itself or in combination with one or more other operating parameter values, determines that an owner or operator has complied with an applicable emission limit.

(w) "Organic solvent" means a liquid containing volatile organic compounds that is used for dissolving or dispersing constituents in a coating, adjusting the viscosity of a coating, or cleaning equipment. When used in a coating the organic solvent evaporates during drying and does not become a part of the dried film.

(x) "Permanent total enclosure" means a permanently installed enclosure that completely surrounds a source of emissions such that all emissions are captured and contained for discharge through a control device.

(y) "Recycled onsite" means the reuse of an organic solvent in a process other than cleaning or washoff.

(z) "Sealer" means a finishing material used to seal the pores of a wood substrate before additional coats of finishing material are applied. Special purpose finishing materials that are used in some finishing systems to optimize aesthetics are not sealers.

(aa) "Stain" means any color coat having a solids content by weight of no more than 8.0 percent that is applied in single or multiple coats directly to the substrate. This includes, but is not limited to, nongrain raising stains, equalizer stains, sap stains, body stains, no-wipe stains, penetrating stains, and toners.

(bb) "Storage containers" means vessels or tanks, including mix equipment, used to hold finishing or cleaning materials.

(cc) "Strippable booth coating" means a coating that:

1. Is applied to a booth wall to provide a protective film to receive overspray during finishing operations;

2. That is subsequently peeled off and disposed of; and;

3. By achieving 1. and 2., reduces or eliminates the need to use organic solvents to clean booth walls.

(dd) "Temporary total enclosure" means an enclosure that meets the requirements of (7)(e)1.(i) through (iv) and is not permanent, but constructed only to measure the capture efficiency of the capture system of a given source. In addition to meeting the

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requirements of (7)(e)1.(i) through (iv), any exhaust point from the enclosure shall be at least 4 equivalent duct or hood diameters from each natural draft opening.

(ee) "Topcoat" means the last film-building finishing material applied in a finishing system.

(ff) "Washcoat" means a transparent special purpose coating having a solids content by weight of 12.0 percent or less. Washcoats are applied over initial stains to protect and control color and to stiffen the wood fibers in order to aid sanding.

(gg) "Washoff" operations means those operations in which organic solvent is used to remove coating from a substrate.

(hh) "Waterborne" coating means a coating that contains more than five percent water by weight in its volatile fraction.

(ii) "Wood furniture" facility means all of the pollutant-emitting activities that belong to the same wood furniture 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). The wood furniture industrial grouping includes the following SIC codes: 2434, 2511, 2512, 2517, 2519, 2521, 2531, 2541, and 2599.

(jj) "Wood furniture manufacturing operations" means the finishing and cleaning operations conducted at a wood furniture facility.

(kk) "Working day" means a day, or any part of a day, in which a facility is engaged in manufacturing.

(3) The nomenclature used in this Rule has the following meaning:

(a) A_k = the area of each natural draft opening (k) in a total enclosure, in square meters.

(b) C = the VOC content of a coating (c), in kilograms of VOC per kilogram of coating solids (kg VOC/kg solids), as applied. Also given in pounds of VOC per pound of coating solids (lb VOC/lb solids), as applied.

(c) C_{aj} = the concentration of VOC in gas stream (j) exiting the emission control device, in parts per million by volume.

(d) C_{bi} = the concentration of VOC in gas stream (i) entering the emission control device, in parts per million by volume.

(e) C_{di} = the concentration of VOC in gas stream (i) entering the emission control device from the affected emission point(s), in parts per million by volume.

(f) C_{fk} = the concentration of VOC in each uncontrolled gas stream (k) emitted directly to the atmosphere from the affected emission point(s), in parts per million by volume.

(g) E = the emission limit to be achieved by the affected emission point(s), in kg VOC/kg solids.

(h) F = the control device efficiency, expressed as a fraction.

(i) FV = the average inward face velocity across all natural draft openings in a total enclosure, in meters per hour.

(j) N = the capture efficiency, expressed as a fraction.

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(k) Q_{aj} = the volumetric flow rate of gas stream (j) exiting the emission control device, in dry standard cubic meters per hour.

(l) Q_{bi} = the volumetric flow rate of gas stream (i) entering the emission control device, in dry standard cubic meters per hour.

(m) Q_{di} = the volumetric flow rate of gas stream (i) entering the emission control device from the affected emission point(s), in dry standard cubic meters per hour.

(n) Q_{fk} = the volumetric flow rate of each uncontrolled gas stream (k) emitted directly to the atmosphere from the affected emission point(s), in dry standard cubic meters per hour.

(o) $Q_{in\ i}$ = the volumetric flow rate of gas stream (i) entering the total enclosure through a forced makeup air duct, in standard cubic meters per hour (wet basis).

(p) $Q_{out\ j}$ = the volumetric flow rate of gas stream (j) exiting the total enclosure through an exhaust duct or hood, in standard cubic meters per hour (wet basis).

(q) R = the overall efficiency of the control system, expressed as a percentage.

(4) Emission Standards

(a) Each owner or operator of an affected source subject to this Rule shall limit VOC emissions from finishing operations by:

1. Using topcoats with a VOC content no greater than 0.8 kg VOC/kg solids (0.8 lb VOC/lb solids), as applied; or

2. Using a finishing system of sealers with a VOC content no greater than 1.9 kg VOC/kg solids (1.9 lb VOC/lb solids), as applied and topcoats with a VOC content no greater than 1.8 kg VOC/kg solids (1.8 lb VOC/lb solids), as applied; or

3. For affected sources using acid-cured alkyd amino vinyl sealers or acid-cured alkyd amino conversion varnish topcoats, using sealers and topcoats based on the following criteria:

(i) If the affected source is using acid-cured alkyd amino vinyl sealers and acid-cured alkyd amino conversion varnish topcoats, the sealer shall contain no more than 2.3 kg VOC/kg solids (2.3 lb VOC/lb solids), as applied, and the topcoat shall contain no more than 2.0 kg VOC/kg solids (2.0 lb VOC/lb solids), as applied; or

(ii) If the affected source is using a sealer other than an acid-cured alkyd amino vinyl sealer and acid-cured alkyd amino conversion varnish topcoats, the sealer shall contain no more than 1.9 kg VOC/kg solids (1.9 lb VOC/lb solids), as applied, and the topcoat shall contain no more than 2.0 kg VOC/kg solids (2.0 lb VOC/lb solids), as applied; or

(iii) If the affected source is using an acid-cured alkyd amino vinyl sealer and a topcoat other than an acid-cured alkyd amino conversion varnish topcoat, the sealer shall contain no more than 2.3 kg VOC/kg solids (2.3 lb VOC/lb solids), as applied, and the topcoat shall contain no more than 1.8 kg VOC/kg solids (1.8 lb VOC/lb solids), as applied; or

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4. Meeting the provisions established in Paragraph (10) for sources using an averaging approach and demonstrating that actual emissions from the affected source are less than or equal to allowable emissions using one of the following equations:

$$0.9\left(\sum_{i=1\rightarrow N} 0.8(TC_i)\right) \geq \sum_{i=1\rightarrow N} ER_{TCi}(TC_i) \qquad (1)$$

$$0.9\left(\sum_{i=1\rightarrow N} 1.8(TC_i) + 1.9(SE_i) + 9.0(WC_i) + 1.2(BC_i) + 0.791(ST_i)\right) \geq \sum_{i=1\rightarrow N} ER_{TCi}(TC_i) + ER_{SEi}(SE_i) + ER_{WCi}(WC_i) + ER_{BCi}(BC_i) + ER_{STi}(ST_i) \qquad (2)$$

where:

N = number of finishing materials participating in averaging;

TC_i = kilograms of solids of topcoat “i” used;

SE_i = kilograms of solids of sealer “i” used;

WC_i = kilograms of solids of washcoat “i” used;

BC_i = kilograms of solids of basecoat “i” used;

ST_i = liters of stain “i” used;

ER_{TCi} = VOC content of topcoat “i” in kg VOC/kg solids, as applied;

ER_{SEi} = VOC content of sealer “i” in kg VOC/kg solids, as applied;

ER_{WCi} = VOC content of washcoat “i” in kg VOC/kg solids, as applied;

ER_{BCi} = VOC content of basecoat “i” in kg VOC/kg solids, as applied; and

ER_{STi} = VOC content of stain “i” in kg VOC/liter (kg/l),as applied.

5. Using a control system that will achieve an equivalent reduction in emissions as the requirements of Part (a)1. or 2. of this Paragraph, as calculated using the compliance provisions in Part (6)(a)2. of this Rule, as appropriate; or

6. Using a combination of the methods presented in Parts (4)(a)1., 2., 3., 4., and 5. of this Rule.

(b) Each owner or operator of an affected source subject to this Rule shall limit VOC emissions from cleaning operations when using a strippable booth coating. A strippable booth coating shall contain no more than 0.8 kg VOC/kg solids, as applied (0.8 lb VOC/lb solids).

(5) Work Practice Standards

(a) Work practice implementation plan.

1. Each owner or operator of an affected source subject to this Rule shall prepare and maintain a written work practice implementation plan that defines environmentally desirable work practices for each wood furniture manufacturing

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operation and addresses each of the topics specified in Subparagraphs (b) through (j) of this paragraph. The plan shall be developed no more than 60 days after the compliance date. The written work practice implementation plan shall be available for inspection by the Technical Secretary, upon request. If the Technical Secretary determines that the work practice implementation plan does not adequately address each of the topics specified in Subparagraphs (b) through (j) of this Paragraph, the Technical Secretary shall require the affected source to modify the plan.

(b) Operator training course.

Each owner or operator of an affected source shall train all new and existing personnel, including contract personnel, who are involved in finishing or cleaning operations or implementation of the requirements of this Rule. All personnel shall be given refresher training annually. The affected source shall maintain a copy of the training program with the work practice implementation plan. The training program shall include, at a minimum, the following:

1. A list of all personnel by name and job description that are required to be trained;

2. An outline of the subjects to be covered in the initial and refresher training for each person, or group of personnel;

3. Lesson plans for courses to be given at the initial and the annual refresher training that include, at a minimum, appropriate application techniques, appropriate cleaning procedures, appropriate equipment setup and adjustment to minimize finishing material usage and overspray, and appropriate management of cleanup wastes; and

4. A description of the methods to be used at the completion of initial or refresher training to demonstrate and document successful completion.

(c) Leak inspection and maintenance plan.

Each owner or operator of an affected source shall prepare and maintain with the work practice implementation plan a written leak inspection and maintenance plan that specifies:

1. A minimum visual inspection frequency of once per month for all equipment used to transfer or apply finishing materials or organic solvents;

2. An inspection schedule;

3. Methods for documenting the date and results of each inspection and any repairs that were made;

4. The time frame between identifying a leak and making the repair, which adheres to the following schedule:

(i) A first attempt at repair (e.g., tightening of packing glands) shall be made no later than 5 working days after the leak is detected; and

(ii) Final repairs shall be made within 15 working days, unless the leaking equipment is to be replaced by a new purchase, in which case repairs shall be completed within 3 months.

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(d) Cleaning solvent accounting system.

Each owner or operator of an affected source shall develop an organic solvent accounting form to record:

1. The quantity and type of organic solvent used each month for washoff and cleaning;

2. The number of pieces washed off, and the reason for the washoff; and

3. The quantity of spent organic solvent generated from each activity, and the quantity that is recycled onsite or disposed offsite each month.

(e) Each owner or operator of an affected source shall not use organic solvents containing more than 8.0 percent by weight of VOC for cleaning spray booth components other than conveyors, continuous coaters and their enclosures, and/or metal filters, unless the spray booth is being refurbished. If the spray booth is being refurbished, that is, the spray booth coating or other material used to cover the booth is being replaced, the affected source shall use no more than 1.0 gallon of organic solvent to clean the booth.

(f) Each owner or operator of an affected source shall use normally closed containers for storing finishing and cleaning materials.

(g) Each owner or operator of an affected source shall not use conventional air spray guns for applying finishing materials except under the following circumstances:

1. To apply finishing materials that have a VOC content no greater than 1.0 kg VOC/kg solids (1.0 lb VOC/lb solids), as applied;

2. For final touch-up and repair;

3. If spray is automated, that is, the spray gun is aimed and triggered automatically, not manually;

4. If emissions from the finishing application station are directed to a control device;

5. The conventional air gun is used to apply finishing materials and the cumulative total usage of that finishing material is less than 5 percent of the total gallons of finishing material used during that semiannual reporting period; or

6. The conventional air gun is used to apply coating on a part for which it is technically or economically infeasible to use any other spray application technology. The affected source shall demonstrate technical or economic infeasibility by submitting to the Technical Secretary a videotape, a technical report, or other documentation that supports the affected source's claim of technical or economic infeasibility. The following criteria shall be used, either independently or in combination, to support the affected source's claim of technical or economic infeasibility:

(i) The production speed is too high or the part shape is too complex for one operator to coat the part and the application station is not large enough to accommodate an additional operator; or

(ii) The excessively large vertical spray area of the part makes it difficult to avoid sagging or runs in the stain.

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(h) Each owner or operator of an affected source shall pump or drain all organic solvent used for line cleaning into a normally closed container.

(i) Each owner or operator of an affected source shall collect all organic solvent used to clean spray guns into a normally closed container.

(j) Each owner or operator of an affected source shall control emissions from washoff operations by:

1. Using normally closed tanks for washoff; and

2. Minimizing dripping by tilting or rotating the part to drain as much organic solvent as possible.

(6) Compliance Procedures and Monitoring Requirements

(a) The owner or operator of an affected source subject to the emission standards in Paragraph (4) of this Rule shall demonstrate compliance with those provisions and with the initial compliance certification requirements of Paragraph .03(1) of this chapter, except that the date for submittal of the initial compliance certification for each existing source as of August 15, 1995 is November 15, 1996, and for each new sources (after August 15, 1995) is within 180 days after the start-up of that source; and by using any of the following methods:

1. To support that each sealer, topcoat, and strippable booth coating meets the requirements of Parts (4)(a)1., 2., or 3. or Subparagraph (4)(b) of this Rule, maintain documentation in accordance with Rule .81 of this chapter, or data from an alternative or equivalent method, to determine the VOC and solids content of the as supplied finishing material. If solvent or other VOC is added to the finishing material before application, the affected source shall maintain documentation showing the VOC content of the finishing material as applied, in kg VOC/kg solids.

2. To comply through the use of a control system as discussed in (4)(a)5.:

(i) Determine the overall control efficiency needed to demonstrate compliance using Equation 3;

$$R = ((C - E)/C)(100) \qquad (3)$$

(ii) Document that the value of C in Equation 3 is obtained from the VOC and solids content of the as-applied finishing material;

(iii) Calculate the overall efficiency of the control device, using the procedures in Subparagraphs (7)(d) or (e), and demonstrate that the value of R calculated by Equation 6 is equal to or greater than the value of R calculated by Equation 3.

(b) Initial compliance.

1. Owners or operators of an affected source subject to the provisions of Parts (4)(a)1., 2., or 3. or Subparagraph (4)(b) that are complying through the procedures established in Part (6)(a)1. shall submit an initial compliance status report, as required by Subparagraph (9)(b), stating that compliant sealers and/or topcoats and strippable booth coatings are being used by the affected source.

(Rule 1200-03-18-.42, continued)

2. Owners or operators of an affected source subject to the provisions of Parts (4)(a)1., 2., or 3. that are complying through the procedures established in Part (6)(a)1. and are applying sealers and/or topcoats using continuous coaters shall demonstrate initial compliance by:

   (i) Submitting an initial compliance status report stating that compliant sealers and/or topcoats, as determined by the VOC content of the finishing material in the reservoir and the VOC content as calculated from records, are being used; or

   (ii) Submitting an initial compliance status report stating that compliant sealers and/or topcoats, as determined by the VOC content of the finishing material in the reservoir, are being used and the viscosity of the finishing material in the reservoir is being monitored. The affected source shall also provide data that demonstrates the correlation between the viscosity of the finishing material and the VOC content of the finishing material in the reservoir.

3. Owners or operators of an affected source using a control system (capture device/control device) to comply with the requirements of this Rule, as allowed by Parts (4)(a)5. and (6)(a)2. shall demonstrate initial compliance by:

   (i) Submitting a monitoring plan that identifies the operating parameter to be monitored for the capture device and discusses why the parameter is appropriate for demonstrating ongoing compliance;

   (ii) Conducting an initial performance test using the procedures and test methods listed in Subparagraphs (7)(c) and (d) or (e);

   (iii) Calculating the overall control efficiency (R) using Equation 6; and

   (iv) Determining those operating conditions critical to determining compliance and establishing operating parameters that will ensure compliance with the standard.

      (I) For compliance with a thermal incinerator, minimum combustion temperature shall be the operating parameter.

      (II) For compliance with a catalytic incinerator equipped with a fixed catalyst bed, the minimum gas temperature both upstream and downstream of the catalyst bed shall be the operating parameter.

      (III) For compliance with a catalytic incinerator equipped with a fluidized catalyst bed, the minimum gas temperature upstream of the catalyst bed and the pressure drop across the catalyst bed shall be the operating parameters.

      (IV) For compliance with a carbon adsorber, the operating parameters shall be either the total regeneration mass stream flow for each regeneration cycle and the carbon bed temperature after each regeneration, or the concentration level of organic compounds exiting the adsorber, unless the owner or operator requests and receives approval from the Technical Secretary and the Administrator to establish other operating parameters.

(Rule 1200-03-18-.42, continued)

(V) For compliance with a control device not listed in this section, the operating parameter shall be established using the procedures identified in Sub-part (6)(c)3.(vi).

(v) Owners or operators complying with Part (b)3. of this Paragraph shall calculate the site-specific operating parameter value as the arithmetic average of the maximum or minimum operating parameter values, as appropriate, that demonstrate compliance with the standards, during the test runs required by Rule .84 of this chapter

4. Owners or operators of an affected source subject to the work practice standards in Paragraph (5) shall submit an initial compliance status report, as required by (9)(b), stating that the work practice implementation plan has been developed and procedures have been established for implementing the provisions of the plan.

(c) Continuous compliance demonstrations.

1. Owners or operators of an affected source subject to the provisions of paragraph (4) that are complying through the procedures established in Part (6)(a)(1) shall demonstrate continuous compliance by using compliant materials, maintaining records that demonstrate the finishing materials are compliant materials.

(i) The compliance certification shall state that compliant sealers and/or topcoats and strippable booth coatings have been used each day, or should otherwise identify the days of noncompliance and the reasons for noncompliance. An affected source is in violation of the standard whenever a noncompliant material, as determined by records or by a sample of the finishing material, is used. Use of a noncompliant material is a separate violation for each day the noncompliant material is used.

(ii) The compliance certification shall be signed by a responsible official of the company that owns or operates the affected source.

2. Owners or operators of an affected source subject to the provisions of Paragraph (4) that are complying through the procedures established in Part (6)(a)(1) and are applying sealers and/or topcoats using continuous coaters shall demonstrate continuous compliance by following the procedures in (i) or (ii) of this Part.

(i) Using compliant materials, as determined by the VOC content of the finishing material in the reservoir and the VOC content as calculated from records.

(I) The compliance certification shall state that compliant sealers and/or topcoats have been used each day, or should otherwise identify the days of noncompliance and the reasons for noncompliance. An affected source is in violation of the standard whenever a noncompliant material, as determined by records or by a sample of the finishing material, is used. Use of a noncompliant material is a separate violation for each day the noncompliant material is used.

(II) The compliance certification shall be signed by a responsible official of the company that owns or operates the affected source.

(Rule 1200-03-18-.42, continued)

(ii) Using compliant materials, as determined by the VOC content of the finishing material in the reservoir, maintaining a viscosity of the finishing material in the reservoir that is no less than the viscosity of the initial finishing material by monitoring the viscosity with a viscosity meter or by testing the viscosity of the initial finishing material and retesting the material in the reservoir each time solvent is added, and maintaining records of solvent additions.

(I) The compliance certification shall state that compliant sealers and/or topcoats, as determined by the VOC content of the finishing material in the reservoir, have been used each day. Additionally, the certification shall state that the viscosity of the finishing material in the reservoir has not been less than the viscosity of the initial finishing material, that is, the material that is initially mixed and placed in the reservoir.

(II) The compliance certification shall be signed by a responsible official of the company that owns or operates the affected source.

(III) An affected source is in violation of the standard when a sample of the as-applied finishing material exceeds the applicable limit established in 4(a)(1), (2), or (3), as determined according to and as provided for in Rule .81 of this chapter, or an alternative or equivalent method, or the viscosity of the finishing material in the reservoir is less than the viscosity of the initial finishing material.

3. Owners or operators of an affected source subject to the provisions of Paragraph (4) that are complying through the use of a control system (capture/ control device) shall demonstrate continuous compliance by installing, calibrating, maintaining, and operating the appropriate monitoring equipment according to manufacturers specifications.

(i) Where a capture/control device is used, a device to monitor the site-specific operating parameter established in accordance with 6(b)3.(iv) is required.

(ii) Where an incinerator is used, a temperature monitoring device equipped with a continuous recorder is required.

(I) Where a thermal incinerator is used, a temperature monitoring device shall be installed in the firebox or in the ductwork immediately downstream of the firebox in a position before any substantial heat exchange occurs.

(II) Where a catalytic incinerator equipped with a fixed catalyst bed is used, temperature monitoring devices shall be installed in the gas stream immediately before and after the catalyst bed.

(III) Where a catalytic incinerator equipped with a fluidized catalyst bed is used, a temperature monitoring device shall be installed in the gas stream immediately before the bed. In addition, a pressure monitoring device shall be installed to determine the pressure drop across the catalyst bed. The pressure drop shall be measured monthly at a constant flow rate.

(iii) Where a carbon adsorber is used:

(Rule 1200-03-18-.42, continued)

(I) An integrating regeneration stream flow monitoring device having an accuracy of ± 10 percent, capable of recording the total regeneration stream mass flow for each regeneration cycle; and a carbon bed temperature monitoring device having an accuracy of ±1 percent of the temperature being monitored expressed in degrees Celsius or ±0.5°C, whichever is greater, capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle;

(II) An organic monitoring device, equipped with a continuous recorder, to indicate the concentration level of organic compounds exiting the carbon adsorber; or

(III) Any other monitoring device that has been approved by the Technical Secretary and the Administrator as allowed under (6)(c)3.(iv).

(iv) Owners or operators of an affected source shall not operate the capture or control device at a daily average value greater than or less than (as appropriate) the operating parameter value. The daily average value shall be calculated as the average of all values for a monitored parameter recorded during the operating day.

(v) Owners or operators of an affected source that are complying through the use of a catalytic incinerator equipped with a fixed catalyst bed shall maintain a constant pressure drop, measured monthly, across the catalyst bed.

(vi) An owner or operator using a control device not listed in this Paragraph shall submit to the Technical Secretary and the Administrator a description of the device, test data verifying the performance of the device, and appropriate operating parameter values that will be monitored to demonstrate continuous compliance with the standard. Compliance using this device is subject to both the Technical Secretary and the Administrator's approval.

4. Owners or operators of an affected source subject to the work practice standards in Paragraph (5) shall demonstrate continuous compliance by following the work practice implementation plan and submitting a compliance certification required by Rule .03 of this chapter.

(i) The compliance certification shall state that the work practice implementation plan is being followed, or should otherwise identify the periods of noncompliance with the work practice standards. Each failure to implement an obligation under the plan during any particular day is a separate violation.

(ii) The compliance certification shall be signed by a responsible official of the company that owns or operates the affected source.

5. The owner or operator of an existing source or of a source having a state or local agency's construction permit before August 15, 1995 (instead of April 22,1993) and subject to this Rule may petition for a source-specific compliance schedule according to and as provided for in Rule .07 of this chapter. The petition for the

(Rule 1200-03-18-.42, continued)

source-specific compliance schedule must be received by Technical Secretary by February 11, 1996 (instead of October 22, 1993).

(7) Performance Test Methods

(a) The VOC content and the solids content by weight of the as supplied finishing materials shall be determined according to and as provided for in Rule .81 of this chapter. The owner or operator of the affected source may request approval from the Technical Secretary and the Administrator to use an alternative or equivalent method for determining the VOC content of the finishing material. If it is demonstrated to the satisfaction of the Technical Secretary and the Administrator that a finishing material does not release VOC byproducts during the cure, for example, all VOC is organic solvent, then batch formulation information shall be accepted. In the event of any inconsistency between the procedures described in Rule .81 of this chapter and a facility's formulation data, that is, if the procedures described in Rule .81 of this chapter result in higher values, these procedures (Rule .81) shall govern.

(b) Owners or operators demonstrating compliance with the provisions of this Rule via a control system shall determine the overall control efficiency of the control system (R) as the product of the capture and control device efficiencies, using the test methods cited in Subparagraph (7)(c) and the procedures in Subparagraphs (7)(d) or (e).

(c) Owners or operators using a control system shall demonstrate initial compliance using the procedures in Rule .84 of this chapter.

(d) Owners or operators using a control system to demonstrate compliance with this Rule shall use the following procedures:

1. Construct the overall VOC control system so that volumetric flow rates and VOC concentrations can be determined by the test methods specified in Rule .84 of this chapter;

2. Measure the capture efficiency from the affected emission point(s) by capturing, venting, and measuring all VOC emissions from the affected emission point(s). To measure the capture efficiency of a capture device located in an area with non-affected VOC emission point(s), the affected emission point(s) shall be isolated from all other VOC sources by one of the following methods:

(i) Build a temporary total enclosure (see Subparagraph (2)(dd) of this Rule) around the affected emission point(s);

(ii) Shut down all non-affected VOC emission point(s) and continue to exhaust fugitive emissions from the affected emission point(s) through any building ventilation system and other room exhausts such as drying ovens. All exhaust air must be vented through stacks suitable for testing; or

(iii) Use another methodology approved by the Technical Secretary and the Administrator provided that it is constructed and operated in accordance with the guidelines of the latest edition of the *Industrial Ventilation Manual*, of the American Conference of Governmental Industrial Hygienists.

3. Operate the control system with all affected emission point(s) connected and operating at maximum production rate;

4. Determine the efficiency (F) of the control device using Equation 4; and

(Rule 1200-03-18-.42, continued)

$$F = \frac{\sum_{i=1}^{n} Q_{bi} \; C_{bi} - \sum_{j=1}^{P} Q_{aj} \; C_{aj}}{\sum_{i=1}^{n} Q_{bi} \; C_{bi}}$$

5. Determine the efficiency (N) of the capture system using Equation 5;

$$N = \frac{\sum_{i=1}^{n} Q_{di} \; C_{di}}{\sum_{i=1}^{n} Q_{di} \; C_{di} + \sum_{k=1}^{P} Q_{fk} \; C_{fk}} \qquad (5)$$

6. Compliance is demonstrated if the value of (R) in Equation 6 is greater than or equal to the value of R calculated by Equation 3 in accordance with Subpart (6)(a)2.(i).
R = (F x N)(100) (6)

(e) An alternative to the compliance method presented in Subparagraph (7)(d) is the installation of a permanent total enclosure. A permanent total enclosure presents prima facia evidence that all VOC emissions from the affected emission point(s) are directed to the control device. Each affected source that complies using a permanent total enclosure shall:

1. Demonstrate that the total enclosure meets the following requirements:

(i) The total area of all natural draft openings shall not exceed 5 percent of the total surface area of the total enclosure's walls, floor, and ceiling;

(ii) All sources of emissions within the enclosure shall be a minimum of four equivalent diameters away from each natural draft opening;

(iii) Average inward face velocity (FV) across all natural draft openings shall be a minimum of 3,600 meters per hour as determined by the following procedures:

(I) All forced makeup air ducts and all exhaust ducts are constructed so that the volumetric flow rate in each can be accurately determined by the test methods and procedures specified in Rule .83 of this chapter. Volumetric flow rates shall be calculated without the adjustment normally made for moisture content; and

(II) Determine FV by the following equation:

$$FV = \frac{\sum_{j=1}^{n} Q_{out\,j} - \sum_{i=1}^{p} Q_{\in i}}{\sum_{k=1}^{q} A_k}$$

(iv) All access doors and windows whose areas are not included as natural draft openings and are not included in the calculation of FV shall be closed during routine operation of the process.

2. Determine the control device efficiency using Equation 4, and the test methods and procedures specified in Subparagraph (7)(c).

(Rule 1200-03-18-.42, continued)

3. If the permanent enclosure is demonstrated to be total, the value of N in Equation 5 is equal to 1.

4. For owners or operators using a control system to comply with the provisions of this Rule, compliance is demonstrated if:

(i) The installation of a permanent total enclosure is demonstrated (N=1); and

(ii) The value of (R) calculated by Equation 6 in accordance with paragraph (7)(d) is greater than or equal to the value of R calculated by Equation 3 in accordance with Part (6)(a)2.

(8) Recordkeeping Requirements

(a) The owner or operator of an affected source subject to the emission limits in Paragraph (4) of this Rule shall maintain records of the following:

1. A list of each finishing material and strippable booth coating subject to the emission limits in Paragraph (4);

2. The VOC and solids content, as applied, of each finishing material and strippable booth coating subject to the emission limits in Paragraph (4), and copies of data sheets documenting how the as applied values were determined.

(b) The owner or operator of an affected source following the compliance procedures of paragraph (6)(c)2. shall maintain the records required by paragraph (8)(a) and records of the following:

1. Solvent and finishing material additions to the continuous coater reservoir; and

2. Viscosity measurements.

(c) The owner or operator of an affected source following the compliance method of paragraph (6)(a)2. shall maintain the following records:

1. Copies of the calculations to support the equivalency of using a control system, as well as the data that are necessary to support the calculation of E in Equation 3 and the calculation of R in Equation 6;

2. Records of the daily average value of each continuously monitored parameter for each operating day. If all recorded values for a monitored parameter are within the range established during the initial performance test, the owner or operator may record that all values were within the range rather than calculating and recording an average for that day; and

3. Records of the pressure drop across the catalyst bed for facilities complying with the emission limitations using a catalytic incinerator with a fluidized catalyst bed.

(d) The owner or operator of an affected source subject to the work practice standards in Paragraph (5) of this Rule shall maintain onsite the work practice implementation plan and all records associated with fulfilling the requirements of that plan, including, but not limited to:

1. Records demonstrating that the operator training program is in place;

2. Records maintained in accordance with the inspection and maintenance plan;

(Rule 1200-03-18-.42, continued)

3. Records associated with the cleaning solvent accounting system;

4. Records associated with the limitation on the use of conventional air spray guns showing total finishing material usage and the percentage of finishing materials applied with conventional air spray guns; and;

5. Records showing the VOC content of solvent used for cleaning booth components, except for solvent used to clean conveyors, continuous coaters and their enclosures, and/or metal filters; and

6. Copies of logs and other documentation developed to demonstrate that the other provisions of the work practice implementation plan are followed.

(e) The owner or operator of an affected source shall maintain a copy of all other information submitted with the initial status report required by Subparagraph (9)(b).

(f) The owner or operator of an affected source shall maintain all records for a minimum of 5 years.

(g) Failure to maintain the records required by (a) through (f) of this Paragraph shall constitute a violation of the Rule for each day records are not maintained.

(9) Reporting Requirements

(a) The owner or operator of an affected source using a control system to fulfill the requirements of this Rule are subject to the following reporting requirements:

1. The owner or operator of an affected source subject to this Rule shall submit an initial compliance report by the compliance date. The report shall include the items required by Subparagraph (6)(b) of this Rule.

2. The owner or operator of an affected source subject to this Rule and demonstrating compliance in accordance with Parts (6)(a)1. or 2. shall comply with Rule .03 of this chapter, except that the date for compliance for an existing source as of August 15, 1995 is November 15, 1996, and for each new source (after August 15, 1995) is within 180 days after the start-up of that source.

(10) Special Provisions for Sources Using an Averaging Approach

The owner or operator of an affected source complying with the emission limitations established in Paragraph (4) through the procedures established in (4)(a)4. shall also meet the provisions established in (a) through (i) of this Paragraph.

(a) Program goals and rationale. The owner or operator of the affected source shall provide a summary of the reasons why the affected source would like to comply with the emission limitations through the procedures established in (4)(a)4. and a summary of how averaging can be used to meet the emission limitations. The affected source shall also document that the additional environmental benefit requirement is being met through the use of the equations in (4)(a)4. These equations ensure that the affected source is achieving an additional 10 percent reduction in emissions when compared to affected sources using a compliant coatings approach to meet the requirements of the Rule.

(b) Program scope. The owner or operator of the affected source shall describe the types of finishing materials that will be included in the affected source's averaging program.

(Rule 1200-03-18-.42, continued)

Stains, basecoats, washcoats, sealers, and topcoats may all be used in the averaging program. Finishing materials that are applied using continuous coaters may only be used in an averaging program if the affected source can determine the amount of finishing material used each day.

(c) Program baseline. The baseline for each finishing material included in the averaging program shall be the lower of the actual or allowable emission rate as of the effective date of this rule, August 15, 1995. In no case shall the facility baseline emission rate be higher than what was presumed in the 1990 emissions inventory for the facility unless the State has accounted for the increase in emissions as growth.

(d) Quantification procedures. The owner or operator of the affected source shall describe how emissions and changes in emissions will be quantified, including methods for quantifying usage of each finishing material. Quantification procedures for VOC content are included in Paragraph (7). The quantification methods used shall be accurate enough to ensure that the affected source's actual emissions are less than the allowable emissions, as calculated using Equation 1 or 2 in Part (4)(a)4., on a daily basis.

(e) Monitoring, recordkeeping, and reporting. The owner or operator of an affected source shall provide a summary of the monitoring, recordkeeping, and reporting procedures that will be used to demonstrate daily compliance with the equations presented in (4)(a)4. The monitoring, recordkeeping, and reporting procedures shall be structured in such a way that inspectors and facility owners can determine an affected source's compliance status for any day.

(f) Implementation schedule. The owner or operator of an affected source shall submit an averaging proposal for Technical Secretary and the Administrator's approval for each existing source as of 180 days after August 15, 1995, and for each new source (after August 15, 1995) which is within 180 days after the start-up of that source. This must ensure that all sources are in compliance with the State's Rule by the November 15, 1996. Submittal of the averaging proposal does not provide an exemption from this Rule. The source must submit the averaging proposal by a date that allows sufficient time for the Administrator's approval.

Authority: *T.C.A. §§ 4-5-201, et. seq. and 68-201-105.* ***Administrative History:*** *Original rule filed June 2, 1995; effective August 15, 1995. Amendment filed March 13, 1997; effective May 27, 1997. Amendment filed June 13, 1997; effective August 28, 1997.*

1200-03-18-.43 OFFSET LITHOGRAPHIC PRINTING OPERATIONS.

(1) Applicability of this rule is as follows:

(a) This rule applies to offset lithographic printing operations in Davidson, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties.

(b) The emission limits of this rule do not apply to offset lithographic printing operations within any facility whose potential VOC emissions from all offset lithographic printing operations within the facility are less than 100 tons of volatile organic compounds (VOC's) per year.

(2) For the purpose of this rule, the following definitions apply:

(a) "Alcohol substitute" means nonalcohol additives that contain VOC's and are used in the fountain solution. Some additives are used to reduce the surface tension of water; others (especially in the newspaper industry) are added to prevent piling (ink build up).

(Rule 1200-03-18-.43, continued)

(b) "Batch" means a supply of fountain solution that is prepared and used without alteration until completely used or removed from the printing process.

(c) "Cleaning Solution" means liquids to remove ink and debris from the operating surfaces of the printing press and its parts.

(d) "Fountain Solution" means a mixture of water, nonvolatile printing chemicals, and an additive (liquid) that reduces the surface tension of the water so that it spreads easily across the printing plate surface. The fountain solution wets the nonimage areas so that the ink is maintained within the image area. Isopropyl alcohol, a VOC, is the most common additive used to reduce the surface tension of the fountain solution.

(e) "Heatset" means any operation where heat is required to evaporate ink oil from the printing ink. Hot air dryers are used to deliver the heat.

(f) "Lithography" means a printing process where the image and nonimage area are chemically differentiated; the image area is oil receptive and the nonimage area is water receptive. This method differs from other printing methods, where the image is a raised or recessed surface.

(g) "Non-heatset" means any operation where the printing inks are set without the use of heat.

(h) "Offset" means a printing process that transfers the ink film from the lithographic plate to an intermediary surface (blanket), which, in turn, transfer the ink film to the substrate.

(i) "Press" means a printing production assembly composed of one or many units to produce a printed sheet or web.

(j) "Sheet-fed" means a printing operation where individual sheets of substrate are fed to the press.

(k) "Unit" means the smallest complete printing component of a printing press.

(l) "Web" means a continuous roll of paper used as the printing substrate.

(3) Standard as follow apply:

(a) No owner or operator of a heatset web offset lithographic printing press subject to this rule shall apply any fountain solution unless the VOC content is equal to or less than one of the following:

1. 1.6 percent VOC by volume of the fountain solution containing alcohol, as applied;

2. 3 percent VOC by volume of the fountain solution containing alcohol, as applied, if the fountain solution is refrigerated to less than 60°F.

3. 4.6 percent VOC by volume of the fountain solution, as applied, and use no alcohol in the fountain solution .

4. 6 percent VOC by volume of the fountain solution, as applied, if the fountain solution is refrigerated to less than 60°F and use no alcohol in the fountain solution.

(Rule 1200-03-18-.43, continued)

(b) No owner or operator of a non-heatset web offset printing press subject to this rule shall apply any fountain solution that contains alcohol, nor shall any fountain solution be applied unless the VOC content is equal to or less than 5 percent by weight of the fountain solution, as applied.

(c) Reserved.

(d) No owner or operator of a sheet-fed offset lithographic printing press subject to this rule shall apply any fountain solution unless the VOC content is equal to or less than one of the following:

1. 5 percent VOC by volume of the fountain solution, as applied;

2. 8.5 percent VOC by volume of the fountain solution, as applied, if the fountain solution is refrigerated to less than 60°F.

(e) No owner or operator of an offset lithographic printing press subject to this rule shall apply any cleaning solutions unless:

1. The VOC composite partial vapor pressure of the cleaning solutions is less than 10mm Hg at 20°C, as applied; or

2. The VOC content of the cleaning solutions are less than or equal to 30 percent by weight, as applied.

(f) Reserved.

(g) Any person who owns or operates a heatset offset lithographic printing press subject to this rule shall reduce VOC emissions from the press dryer exhaust vent by 90 percent by weight of total organic (minus methane and ethane), or maintain a maximum control device outlet concentration of 50 ppmv whichever is less stringent when the press is in operation.

(h) As an alternative to compliance with the limits in Subparagraphs (3)(a), (d), (e), or (f) of this paragraph, an owner or operator of an offset lithographic printing press may comply with the requirements of Paragraph (4) of this rule.

(i) As an alternative to compliance with the limits in Subparagraphs (3)(g) of this paragraph, an owner or operator of an offset lithographic printing press may comply with the requirements of Paragraph (5) of this rule.

(4) Weighted average limitations as follow apply:

(a) No owner or operator of an offset lithographic printing press subject to this rule shall apply fountain solutions on the printing press unless the weighted average, by volume, VOC content of all fountain solutions, as applied, each day on the printing press is equal to or less than the limitation specified in either Part (3)(a) or (3)(d) [as determined by Subparagraph (4)(d)]; or, in the case of nonalcohol additives or alcohol substitute addition to fountain solution, (3)(c) [as determined by Subparagraph (4)(e)].

(b) Reserved.

(c) No owner or operator of an offset lithographic printing press subject to this rule shall apply cleaning solutions on the printing press unless VOC composite vapor pressure, as applied, each day on the printing press is equal to or less than the limitation specified in Subparagraph (3)(e)1 [as determined by Subparagraph (4)(f)] of this rule.

(Rule 1200-03-18-.43, continued)

(d) The following equation shall be used to determine if the weighted average VOC content, by volume, of all fountain solutions, as applied, on the subject printing press exceeds the limitation specified in Part (3)(a) or (3)(d) of this rule:

$$VOC_{(i)(A)} = \frac{\sum_{i=1}^{n} L_i \quad V_{VOCi}}{\sum_{i=l}^{n} L_i \quad V_{VOCi}} \quad x \quad 100$$

where:

$VOC_{(i)(A)}$	=	The weighted average VOC content in units of percent VOC by volume of the volatile content of all fountain solutions used each day;
i	=	Subscript denoting a specific fountain solution, as applied;
n	=	The number of different fountain solutions, as applied, each day on a printing press;
L_i	=	The liquid volume of each fountain solution, as applied, used that day in units of liters (L) (gallons [gal]);
V_{VOCi}	=	The volume fraction of VOC in each fountain solution, as applied; and
V_{VCi}	=	The volume fraction of volatile matter in each fountain solution, as applied.

(e) The following equation shall be used to determine if the weighted average VOC content, by weight, of all fountain solutions, as applied, on the subject printing press exceeds the limitations specified in Part (4)(a) in case of fountain solution :

$$VOC_{(i)(B)} = \frac{\sum_{i=1}^{n} L_i \quad D_i \quad W_{VOCi}}{\sum_{i=1}^{n} L_i \quad D_i \quad W_{ni}} \quad x \quad 100$$

where:

$VOC_{(i)(B)}$	=	The weighted average VOC content in units of percent VOC by weight of the volatile content of all fountain solutions used each day;
i	=	Subscript denoting a specific fountain solution as applied;
n	=	The number of different fountain solutions, as applied, each day on a printing press;

(Rule 1200-03-18-.43, continued)

L_i	=	The liquid volume of each fountain solution, as applied, used on the day in units of L (gal);
D_i	=	The density of each fountain solution, as applied, in units of mass of fountain solution per unit volume of fountain solution;
W_{VOCi}	=	The weight fraction of VOC in each fountain solution, as applied; and
W_{si}	=	The weight fraction of solids in each fountain solution, as applied.

(f) The following equation shall be used to determine if the VOC composite partial pressure of cleaning solutions, as applied, exceeds the limitation specified in Part (3)(e) of this rule:

$$PP_c = \sum_{i=1}^{n} \frac{(W_i)\ {(VP_i)}/{MW_i}}{\frac{W_W}{MW_W} + \frac{W_e}{MW_e} + \sum_{i=1}^{n} \frac{W_i}{MW_i}}$$

where:

PP_c	=	VOC composite partial pressure at 20°C, in mm Hg.
VP_i	=	Vapor pressure of the “i”th VOC compound at 20°, in mm Hg.
W_i	=	Weight of the “i”th cleaning solution, in grams;
W_w	=	Weight of the water, in grams;
W_e	=	Weight of exempt compound, in grams;
MW_i	=	Molecular weight of the “i”th cleaning solution, in grams;
MW_w	=	Molecular weight of the water, in grams;
MW_e	=	Molecular weight of exempt compound, in grams;
i	=	Subscript denoting a specific cleaning solution, as applied;
n	=	The number of different cleaning solutions, as applied, each day on a printing press.

(5) Reserved.

(6) Test methods and procedures as follow apply:

(Rule 1200-03-18-.43, continued)

(a) The affected facility shall be run at typical operating conditions and flow rates during any emission testing.

(b) Emission tests shall include an initial test, within 90 days of initial startup, when the control device is installed and operating that demonstrates compliance with either the 90 percent (by weight) reduction or the 50 ppmv emission limit.

(c) In conducting the tests required to comply with Paragraph (3)(a), (b), (d), or (e)(2) of this rule, the owner or operator shall use the test methods specified in rule 1200-03-18-.81 of this chapter.

(d) In conducting the tests required to comply with Subparagraph (3)(g) of this rule, the owner or operator shall use the test methods specified in rule 1200-03-18-.84 of this chapter.

(e) To be in compliance with the fountain solution refrigeration requirements of this rule, the affected facility shall use a thermometer or other temperature detection device capable of reading to 0.5^{o}F to ensure that a refrigerated fountain solution containing alcohol is below 60°F at all times.

(f) To be in compliance with the Subparagraph (3)(e)1 of this rule, if applicable, each owner or operator of an offset lithographic printing press subject to this rule shall determine VOC composite partial pressure as given in Subparagraph (4)(f).

(7) Monitoring requirement apply as follow:

(a) To be in compliance with the emission control requirements of this rule, the affected facility shall monitor any add-on dryer exhaust control device as follow:

1. The owner or operator of a subject heatset offset lithographic printing press shall install, calibrate, maintain, and operate a temperature monitoring device, according to the manufacturer's instructions, at the inlet or outlet of the control device. The monitoring temperature shall be set during testing required to demonstrate compliance with the emission standard. Monitoring shall be required only when the unit is operational.

2. The temperature monitoring device shall be equipped with a continuous recorder and shall have an accuracy of 0.5^{o}F.

3. The dryer pressure shall be maintained lower than the press room air pressure such that air flows into the dryer at all times when the press is operating. A 100 percent emissions capture efficiency for the dryer shall be established using an air flow direction indicator, such as a smoke stick or aluminum ribbons.

(b) To be in compliance with the Subparagraph (3)(a), (b), or (d) of this rule, each owner or operator of an offset lithographic printing facility subject to this rule shall monitor the fountain solution as follow:

1. The purpose of monitoring the VOC concentration in the fountain solution is to provide data that can be correlated to the amount of material used when the fountain solution contains alcohol and complies with the limits listed in Subparagraph (3)(a) or (d). The following methods may be used to determine the concentration of alcohol in the fountain solution frequently. Alternatively, calculation of the alcohol concentration using the protocol of Subparagraph (7)(c) or (d) may be used to demonstrate compliance with Subparagraph (3)(a) or (d).

(Rule 1200-03-18-.43, continued)

The monitoring requirements of Subparagraph (7)(b) shall only be required if noncompliance is suspected.

(i) The owner or operator of any subject offset lithographic printing press shall monitor the alcohol concentration of the fountain solution with a refractometer, that is corrected for temperature, at least once per 8-hour shift or once per batch, whichever is longer. The refractometer shall have a visual, analog, or digital readout with an accuracy of 0.5 percent. A standard solution shall be used to calibrated the refractometer for the type of alcohol used in the fountain. Alternatively, the refractometer shall be standardized against measurements or calculations performed to determine compliance, according to the procedures described in Subparagraph 7(c) or (d).

(ii) Alternatively, the owner or operator of any subject offset lithographic printing press shall monitor the alcohol concentration of the fountain solution with a hydrometer, that is corrected for temperature, at least once per 8-hour shift or once per batch, whichever is longer. The hydrometer shall have a visual, analog, or digital readout with an accuracy of 0.5 percent. A standard solution shall be used to calibrate the refractometer for the type of alcohol used in the fountain. Alternatively, the refractometer shall be standardized against measurements or calculations performed to determine compliance, according to the procedures described in Subparagraph 7(c) or (d).

(iii) The VOC content of the fountain solution may be monitored with a conductivity meter if it is determined that a refractometer or hydrometer cannot be used for monitoring the type of VOC's in the fountain solution. The conductivity meter reading for the fountain solution shall be referenced to the conductivity of the incoming water. A standard solution shall be used to calibrate the conductivity meter for the type of alcohol used in the fountain. Alternatively, the conductivity shall be standardized against measurements or calculations performed to determine compliance, according to the procedures described in Subparagraph (7)(c) or (d).

2. If, through recordkeeping for a period of 6 months or more, the printing process is shown to consistently meet the requirements in (3)(a) or (d), the monitoring requirement may be waived or extended by the Technical Secretary to a longer period of time.

3. The owner or operator of any subject offset lithographic printing press using refrigeration equipment on the fountain to comply with the requirements of Subparagraph (3)(a)2. Or (d)2., shall maintain, and operate a temperature monitor of the fountain solution reservoir.

4. The temperature monitor shall be read and noted at least once per operation day to verify that the refrigeration system is operating properly.

(c) The VOC content of fountain solution shall be determined by using the test methods specified in rule 1200-03-18-.81.

(d) Alternatively, a sample of the fountain solution (as used) may be taken from the fountain tray or reservoir of fountain solution during use and measured with a hydrometer or refractometer that has been standardized with tests or calculations performed in accordance with Subparagraph (7)(b). The unit shall be considered in

(Rule 1200-03-18-.43, continued)

compliance with Section 6(c) if the refractometer or hydrometer measurement is less than of equal to the value determined according to section 7(c), plus ten percent.

(8) Compliance Certification, recordkeeping and reporting requirements as follow apply:

(a) By November 15, 1996, any owner or operator of an offset lithographic printing press that is exempt from the requirements of this rule because of the criteria in Subparagraph (1)(b) of this rule shall comply with the following:

1. The owner or operator of a facility in Davidson, Rutherford, Sumner, Wilson and Williamson County shall certify to the Technical Secretary that the facility is exempt under the provisions of Subparagraph (1)(b) of this rule. Such certification shall include:

(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) A declaration that the facility is exempt from emission limitations of this chapter because total VOC emissions from the facility are below 25 tons per year; and

(iv) Calculations demonstrating the combined VOC emissions from the facility are below 25 tons per year before the application of capture systems and control devices. The following equations shall be used to calculate the VOC emissions:

A. Ink VOC Content and Emissions:
Ink VOC Content:

$$C_1 = M_1 \times \frac{W_1}{100}$$

or

$$C_1 = L_1 \times G_1$$

Ink VOC Emissions:

$$E_1 = C_1 \; x \left(1 - \frac{R}{100}\right)$$

Total Ink VOC emissions;

$$T_1 = E_{11} + E_{12} + \ldots + E_{1n}$$

where,

C_1 = VOC content in Ink

(Rule 1200-03-18-.43, continued)

M_1 = Weight of ink used: (amount purchased - amount discarded or recycled).

W_1 = %VOC (by weight) in ink from either supplier (MSDS) or method specified in Subparagraph (2)(a) of rule 1200-03-18-.81.

G_1 = Volume (gallons) used; (volume purchased - volume discarded or recycled)

R = % VOC (by weight) retained by paper:

Non-heatset - 95% as per Nov. 1993 draft Control Techniques Guideline for Offset Lithography.
Heatset - 20% as per Nov. 1993 draft Control Techniques Guideline for Offset Lithography.
UV - Amount from method specified in subparagraph (2)(a) of rule 1200-03-18-.81 after curing (assume 100%).

T_1 = Total VOC emissions from all inks, 1 + 2 + .. + n.

B. Fountain solution VOC Content and emissions:
Fountain solution VOC content:

$$C_F = \left(M_C \ x \ \frac{W_C}{100}\right) + \left(M_A \ x \ \frac{W_A}{100}\right) + \left(M_S \ x \ \frac{W_S}{100}\right)$$

Fountain solution VOC emissions:

$$E_F = C_F - D_F$$

Total fountain solution VOC emissions:

$$T_F = E_{F1} + E_{F2} + \ldots + E_{Fn}$$

where,

C_F = VOC content of fountain solution

D_F = VOC content of press-ready fountain solution discarded or recycled.

M_C = Fountain solution concntrate weight.

W_C = % VOC (by weight) in fountain solution from supplier (MSDS) or method specified in subparagraph (2)(a) in rule 1200-03-18-.81.

(Rule 1200-03-18-.43, continued)

M_A = Isopropanol weight.

W_A = % Isopropanol (by weight) from supplier (MSDS).

M_S = Weight of alcohol substitute.

W_S = % VOC (by weight) in alcohol substitute from supplier (MSDS) or method specified in Subparagraph (2)(a) in rule 1200-03-18-.81.

T_F = Total emissions from all fountain solutions, 1 + 2 + ... + n.

weight of material:

M = V x D
M = Weight of material
V = Volume (gallon) of material used: (volume purchased - volume discarded or recycled).
D = Density in lb/gal from MSDS or (specific gravity x 8.33 lbs/gal).

C. Cleaning solution VOC content and emissions:

Cleaning solution VOC content:

$$C_L = M_L \ x \ \frac{W_L}{100}$$

or

$$C_L = L_L \ x \ G_L$$

Cleaning solution VOC emissions from Automatic Blanket Wash System:

$$E_L = C_L$$

Cleaning solution VOC emissions from hand washing:

$$E_L = C_L \ x \ \left(1 - \frac{R}{100}\right)$$

Total cleaning solution VOC emissions:

$$T_L = E_{L1} + E_{L2} + \ldots\ldots + E_{Ln}$$

Key:

(Rule 1200-03-18-.43, continued)

C_L = VOC content in cleaning solution

M_L = Weight of cleaning solution (see above for calculation).

w_L = % VOC (by weight) in cleaners from supplier (MSDS) or method specified in Subparagraph (2)(a) in rule 1200-03-18-.81.

L_L = Pounds VOC per gallon from supplier (MSDS) or method specified in Subparagraph(2)(a) in rule 1200-03-18-.81.

G_L = volume (gallon) used: (volume purchased - volume discarded or recycled).

E_L = Clenaing solution VOC emissions.

R = % VOC (by weight) retained by wipes: 50% per June 1994 ACT for Offset lithography and cleaning solutions with VOC partial vapor pressure of 10mm Hg or less at 20 degree C.

T_L = Total VOC emissions from all cleaners, 1 + 2 + .. +n

2. On or after November 15, 1996, the owner or operator shall collect and record all of the following information and maintain the information at the facility for a period of 3 years:

   (i) The name and identification of each ink, fountain solution and cleaning solvent;

   (ii) The weight of VOC per unit weight of ink and the weight of ink used;

   (iii) The weight of VOC per unit weight of cleaning solvent and fountain solution and the weight of cleaning solvent and fountain solution used; and

   (iv) The average VOC emissions as calculated using the equation in Subparagraph (8)(a)1(iv) of this paragraph.

3. Any record showing that total emissions of VOC from all offset lithographic printing operations exceeded 25 tons in any calendar year, before the application of capture systems and control devices, shall be reported by sending a copy to the Technical Secretary within 30 calendar days after the exceedences occurs.

(b) Any owner or operator of a printing press subject to this rule and complying by means of use of complying inks, fountain solution, and cleaning solution, shall comply with the following:

1. By November 15, 1996, or upon initial startup of a new printing press

   (i) The name and identification number of each ink, fountain solution, and cleaning solution as applied; and

   (ii) The VOC content of all inks, fountain solutions and cleaning solutions, as applied, expressed in units of the applicable standard.

(Rule 1200-03-18-.43, continued)

(c) Any owner or operator of a printing press subject to this rule and complying by means of weighted averaging shall comply with the following:

1. By November 15, 1996, or upon initial startup of a new printing press, or change method of compliance, the owner or operator of a subject printing press shall certify to the Technical Secretary that the printing press is in compliance with Paragraph (4) of this rule. Such certification shall include:

(i) The name and location of the facility;

(ii) The address and telephone number of the person responsible for the facility;

(iii) The name and identification of each printing press which will comply by means of Paragraph (4) of this rule;

(iv) The name and identification of each ink, fountain solution, or cleaning solution as applied;

(v) The VOC content of all inks, fountain solutions or cleaning solutions, as applied, expressed in units of the applicable standard;

(vi) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each solution, as applied, each day on each printing press;

(vii) The methods by which the owner or operator will create and maintain records each day as required in Part 2 of this subparagraph; and

(viii) An example of the format in which the records required in Part 2 of this Subparagraph will be kept.

2. On or after November 15, 1996, or on and after the initial startup date, or change method of compliance, the owner or operator of a printing press subject to the limitations of this rule and complying by means of weighted averaging shall collect and record all of the following information each day for each printing press and maintain the information for a period of 3 years:

(i) The name and identification number of each coating, fountain solution, or cleaning solution, as applied;

(ii) The VOC content and the volume of each solution, as applied, expressed in units necessary to determine compliance; and

(iii) The weighted average VOC content of all solutions, as applied.

3. On or after November 15, 1996, the owner or operator of a printing press subject to the limitations of this rule shall notify the Technical Secretary of any instance of noncompliance with Paragraph (4) be sending a copy of the calculation showing such noncompliance to the Technical Secretary within 30 calendar days following the occurrence.

(d) Any owner or operator of a printing press subject to this rule and complying by means of control devices shall comply with rule 1200-03-18-.03(5) of this chapter, except that the applicable date for certification, recordkeeping and reporting shall be November 15, 1996 rather than April 22, 1994.

(Rule 1200-03-18-.43, continued)

(9) With respect to petitioning for a source-specific compliance schedule according to and as provided for in rule 1200-03-18-.07 of this chapter, the owner or operator shall insure the petition is received by the Technical Secretary no later than October 1, 1995 rather than October 22 1993.

Authority: *T.C.A. §§ 4-5-201, et. seq. and 68-201-105.* ***Administrative History:*** *Original rule filed August 11, 1995; effective October 26, 1995. Amendment filed March 13, 1997; effective May 27, 1997. Amendment filed January 15, 2009; effective March 31, 2009.*

1200-03-18-.44 SURFACE COATING OF PLASTIC PARTS.

(1) APPLICABILITY. This rule applies as follows:

(a) This rule applies to any plastic parts coating line within a facility located in Davidson, Rutherford, Sumner, Williamson or Wilson County whose potential VOC emissions from all plastic parts coating lines within the facility are greater than 25 tons of volatile organic compounds (VOC's) per year and coats plastic components for any of the following uses:

1. Automotive or other transportation equipment including interior and/or exterior parts for automobiles, trucks, tractors, lawn mowers, and other mobile equipment;

2. Business machines and office machines, including computers, copy machines, and typewriters;

3. Medical equipment housing;

4. Entertainment equipment housing;

5. Miscellaneous plastic parts, including toys, musical equipment housing, sporting goods, outdoor signs, and architectural structures such as doors, floors, and window frames.

(b) This rule does not apply to topcoating of automotive exterior panels, which must comply with Rule 1200-03-18-.11 of this chapter.

(2) DEFINITIONS. For the purpose of this rule, the following definitions apply:

(a) Basecoat/clear coat: a two step topcoat system in which a highly pigmented, often metallic, basecoat is followed by a clearcoat. It results in a finished with high-gloss characteristics and often used on automotive parts.

(b) Clearcoat: a transparent coating usually applied over a colored, opaque coat to improve gloss and protection to the basecoat below.

(c) Colorcoat: a coating that contains pigment and provides color to a part; may constitute the topcoat or serve as the base coat portion of the basecoat//clearcoat system.

(d) Electromagnetic interference/radio frequency interference (EMI/RFI) coatings: coating used in plastic business machine housing to attenuate electromagnetic and radio frequency interference signals that would otherwise pass through the plastic housings. The EMI/RFI shielding substance used in coating include copper or nickel. Zinc-arc spraying, electroless plating, conductive plastics, metal inserts, and vacuum-metallizing and sputtering are other mean of EMI/RFI shielding.

(Rule 1200-03-18-.44, continued)

(e) Flexible coating: a coating with ability to withstand dimensional changes; flexible substrates utilizing flexible coatings include thermoplastic olefin (TPO), vinyl, acrylonitrile-butadiene (ABS) alloy, reaction injection molded (RIM) and thermoplastic urethane (TPU).

(f) Non-flexible coating: a coating which lacks the ability to withstand dimensional changes; non-flexible substrates utilizing non-flexible coatings include sheet molding compound (SMC), nylon, polyester, ABS, Xenoy polycarbonate, and acrylic.

(g) Plastic part: a piece made from a substance that has been formed from a resin through the application of pressure or heat or both.

(h) Waterborne coating: a coating which contains more than fifty percent by weight water in its volatile fraction.

(3) EMISSION STANDARDS. Each owner or operator of a source subject to this rule shall limit VOC emissions from finishing operations by one of the following methods:

(a) Each owner or operator of a source subject to this rule shall not cause or allow the application of any coating with VOC content in excess of these amounts:

1. Business machines, Medical equipment housing, Entertainment equipment housing and Miscellaneous plastic parts:

COATING	VOC (lb/gal)
Primer	1.20
Color	2.30
Color/texture	2.30
EMI/RFI	2.50

2. Automotive Coating:

	COATING	VOC (lb/gal)
(i)	Auto Interior:	
	High Bake Colorcoat	4.1
	High Bake Primer	3.8
	Low Bake Colorcoat	3.2
	Low Bake Primer	3.5
(ii)	Auto Exterior Flexible/Nonflexible (unless otherwise noted)	
	High Bake Colorcoat	4.7
	High Bake Clearcoat	4.3
	High Bake Primer (Flexible)	5.0
	High Bake Primer (Nonflexible)	4.5
	Low Bake Colorcoat (Red & Black)	5.6
	Low Bake Colorcoat	5.1
	Low Bake Primer	5.5
	Low Bake Clear	4.5

3. Automotive Specialty

(Rule 1200-03-18-.44, continued)

	COATINGS	VOC (lb/gal)
(i)	Group A-1 Coatings: Vacuum Metallizing Basecoats Texture Basecoats	5.5
(ii)	Group A-2 Coatings: Black and Reflective Argent Air Bag Cover Coatings Soft Coatings	5.9
(iii)	Group B Coatings: Golss Reducers Vacuum Metallizing Topcoats Texture Topcoats	6.4
(iv)	Group C Coatings: Stencil Adhesion Primer/Promoter Ink Pad Electrostatic Prep Resist	6.8
(v)	Headlight Lens Coating	7.4

(b) Each owner or operator of a plastic parts coating line subject to this rule shall not:

1. Apply coatings on that line, during any one day, whose weighted average VOC content for any category exceeds the emission limits in Subparagraph (3)(a) of this rule.

2. Apply coatings on that line, during any one day, whose weighted average VOC content exceeds the emission limits in Subparagraph (3)(a) of this rule by performing the calculation in paragraph .82(1) of this chapter. The calculation shall be for the daily total of all coatings of the appropriate coating category in Subparagraph (3)(a) above used in all lines subject to this rule, if such calculation is consistent with all approved lowest achievable emission rate determinations for the lines involved.

(c) Each owner or operator shall apply control device requirements as follows:

1. An owner or operator of a plastic coating line subject to this rule may comply with this rule by:

(i) Installing and operating a capture system and a control device on that line;

(ii) Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed is the lesser of the value calculated according to the procedure in this chapter or 95 percent; and

(Rule 1200-03-18-.44, continued)

(iii) Demonstrating each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

2. An owner or operator of a plastic coating line subject to this rule electing to comply with the requirements of part 1. of this subparagraph shall ensure that:

(i) A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods in this chapter, and

(ii) The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

(3) COMPLIANCE CERTIFICATION, RECORDKEEPING AND REPORTING REQUIREMENTS. The owner or operator of an affected source subject to this rule shall:

(a) Demonstrate compliance with this rule by using the applicable test methods specified in this chapter;

(b) Except the for waterborne coatings the methods for determining VOC content may be batch formulation data certified as accurate by the coating supplier.

With respect to compliance certification, initiation of recordkeeping and reporting, and completion of control system compliance testing of a source, the owner or operator of that source shall comply with the requirements of rule .03 of this chapter, except that the applicable date for initial compliance and certification and performance testing shall be November 15, 1996, rather than April 22, 1994.

With respect to petitioning for a source-specific compliance schedule according to and as provided for in rule .07 of this chapter, the owner or operator shall insure the petition is reviewed by the Technical Secretary no later than October 1, 1995, rather than October 22, 1993.

Authority: *T.C.A. §§ 4-5-201, et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed May 30, 1996; effective August 10, 1996.*

1200-03-18-.45 STANDARDS OF PERFORMANCE FOR COMMERCIAL MOTOR VEHICLE AND MOBILE EQUIPMENT REFINISHING OPERATIONS.

(1) APPLICABILITIY: This regulations is applicable to those commercial facilities making spot repairs, panel repairs, refinishing of parts and/or the refinishing of the entire motor vehicle or mobile equipment. This rule applies to any facility located in Davidson, Rutherford, Sumner, Williamson or Wilson County whose potential emissions fro the facility is greater than 15 pounds of volatile organic compounds (VOC 's) per day.

(2) DEFINITIONS: Terms used in this regulations not defined herein shall have the meaning given then in Regulations .01 of this chapter.

(a) "Adhesion promoter" means a coating used to promote adhesion of a topcoat on surfaces such as trim moldings, door locks, door spills, or any coating which provides adhesion to plastic substrates, where sanding is not practical.

(Rule 1200-03-18-.45, continued)

(b) "Aerosol coating products" means a mixture of resins, pigments, liquid solvents and gaseous propellants, packaged in a disposable can for small, hand-held spraying applications. or change method of compliance, the owner or operator of a subject printing press shall certify to the Technical Secretary that the printing press is in compliance with Paragraph (3)(a) through (f) of this rule. Such certification shall include:

1. (i) The name and location of the facility;

   (ii) The address and telephone number of the person responsible for the facility;

   (iii) Identification of subject sources;

   (iv) The name and identification of each ink, fountain solution, and cleaning solution as applied; and

   (v) The VOC content of all inks, fountain solutions and cleaning solutions, as applied, expressed in units of the applicable standard.

2. By November 15, 1996, or on and after the initial startup date, or after changing method of compliance, the owner or operator of a printing press subject to this rule and complying with Subparagraph (3)(a) through (f) shall collect and record all of the following information for each printing press and maintain the information for a period of 3 years:

(c) "Basecoat" means a pigmented topcoat which is the first topcoat applied as part of a multiple stage topcoat system.

(d) "Basecoat/clearcoat system" means a topcoat system composed of a pigmented basecoat portion and a transparent and clear overcoat portion.

(e) "Capture system" means the equipment including, but not limited to, booths, ducts, dryers or ovens, fans, and hoods that contains, collects, and transports an air pollutant to a control device.

(f) "Catalyst" means a substance whose presence enhances the reaction between chemical compounds.

(g) "Chemical Abstract Service (CAS) registration number" means that unique identification number, usually three parts, given to each chemical product or component by the Chemical Abstract Service.

(h) "Clearcoat" means a topcoat which contains no pigments or only transparent pigments and which is the final topcoat applied as a part of a multiple stage topcoat system.

(i) "Coating" means coating or surface cleaning.

(j) "Color match" means the ability of a repair coating to blend into an existing coating so that color difference is not visible.

(k) "Exempt VOC" means any of the compounds expressly excluded from the definition of volatile organic compound in Rule .01 of this chapter.

(l) "Elastomeric materials" means topcoats and primers that are specifically formulated for application over flexible parts such as filler panels and elastomeric bumpers.

(Rule 1200-03-18-.45, continued)

(m) "Electrostatic application" means the application of charged atomized paint droplets which are deposited by electrostatic attraction.

(n) "Extreme performance coating" means any coating used on the surface of a motor vehicle, mobile equipment or their parts or components which, during intended use, is exposed to either of the following conditions:

1. Industrial grade detergents, cleaners or abrasive scouring agents, or

2. Extreme environmental conditions during the vehicle's principle use, which is use in extremely hot or cold, extremely high or low humidity and etc.

(o) "Graphic design application" means the application of logos, letters lines, stripes numbers and/or other graphics to a painted surface, with or without the use of a template.

(p) "Ground support vehicles" means vehicles used in support of aircraft activities at airports.

(q) "Group I vehicles and equipment" means passenger cars, large-sized trucks cabs and chassis, light and medium duty trucks and vans, motor homes, recreational vehicles and motorcycles.

(r) "Group II vehicles" means buses and mobile equipment.

(s) "High-volume, low pressure (HVLP) spray" means equipment used to apply coatings by means of a spray gun which typically operates at less than 10 psig applied air pressure.

(t) "Material Safety Data Sheet" (MSDS) means the documentation required by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard for a solvent, cleaning material, finishing material, or other material that identifies select reportable hazardous ingredients of the material, safety and health considerations, and handling procedures.

(u) Metallic/iridescent topcoat" means any coating which contains more than 5 g/l (0.042 lb/gal) of metal or iridescent particles, as applied, where such particles are visible in the dried coating.

(v) "Midcoat" means a semi-transparent topcoat which is a middle topcoat applied as part of a multiple topcoat system.

(w) "Mobile equipment" means any equipment which may be drawn or is capable of being driven on a roadway, including but not limited to: trucks bodies, truck trailers, cargo vaults, utility bodies, camper shells, construction equipment (mobile cranes, bulldozers, concrete mixers), farming equipment (tractor, plows, pesticide sprayers), and miscellaneous equipment (street cleaners, golf carts, ground support vehicles, tow motors, fork lifts).

(x) "Multiple stage topcoat system" means any basecoat/clearcoat topcoat system or any three-stage or more topcoat system manufactured as a system, and used as specified by the manufacturer.

(y) "Panel" means a complete section (e.g., hood, door), which typically is approximately 9 square feet.

(Rule 1200-03-18-.45, continued)

(z) "Precoat" mans any coating which is applied to bare metal primarily to deactivate the metal surface for corrosion resistance to a subsequent water-base primer.

(aa) "Pretreatment wash primer" means any coating which contains a minimum of 0.5% acid by weight, as necessary to provide surface etching and is applied directly to bare metal surfaces to provide etching and is applied directly to bare, metal surfaces to provide corrosion resistance and adhesion.

(bb) "Primer" means any coating applied prior to the application of a topcoat for the purpose of corrosion resistance and adhesion of the topcoat

(cc) "Primer sealer" means any coating applied prior to the application of a topcoat for the purpose of corrosion resistance, adhesion of the topcoat, color uniformity and to promote the ability of an undercoat to resist penetration by the topcoat.

(dd) "Primer surface" means any coating applied prior to the application of a topcoat for the purpose of corrosion resistance, adhesion of the topcoat, and which promotes a uniform surface by filling in surface imperfections.

(ee) "Reducer" means the solvent used to thin enamel.

(ff) "Refinishing" means any coating of vehicles, their parts and components, or mobile equipment, including partial body collision repairs, for the purpose of protection or beautification and which is subsequent to the original coating applied at a manufacturing plant coating line.

(gg) "Specialty coating" means any coating which is necessary due to unusual job performance requirements. The coating includes, but is not limited to: weld-through primer, adhesion promoter, uniform finish blender, elastomeric material, gloss flattener, bright metal trim repair, antiglare coating, and safety related coating.

(hh) "Spot/panel repair" means the non assembly line process of repairing and restoring a portion of a motor vehicle or mobile equipment to predamaged condition.

(ii) "Three-stages coating system" means a topcoat system composed of a pigmented basecoat portion, a semi-transparent midcoat portion, and a transparent clearcoat portion.

(jj) "Topcoat" means any coating applied over a primer or an original finish for the purpose of protection or appearance. For the purpose of this regulation, basecoat/clearcoat and multiple-stage coating systems shall be considered topcoats.

(kk) "Touch-up coating" means any coating applied by brush and, in some limited cases, by aerosol spray to repair minor surface damage or imperfections.

(ll) "Transfer efficiency" means the ratio of the amount of coating solids adhering to the object being coated to the total amount of coating solids used in the application process, expressed as a percentage.

(mm) "Trucks" means a motor vehicle designed, used, or maintained primarily for the transportation of property.

(nn) "Large-sized truck" means a truck having a manufacturer's gross vehicle weight rating of more than 8500 pounds.

(Rule 1200-03-18-.45, continued)

(oo) "Small-sized truck" means any motor vehicle having a manufacturer's gross vehicle weight rating at 8500 pounds or less and which is designed primarily for the purposes of transportation of property or is a derivative of such vehicle, or is available with special features enabling on-street or off-highway operation and use.

(pp) "Van" means a closed truck for carrying property or persons.

(qq) "Waterborne primer" means any primer using waste as the primary solids suspension agent, usually containing 5% or more water in its volatile fraction.

(3) EXEMPTIONS: The following activities are exempted from this regulation:

(a) Application of aerosol coating products;

(b) Graphic designs such as the application of letter, lines, logos, numbers, striping, etc. covering less than 10% of the total painted surface of the vehicle;

(c) Original Equipment Manufacturer (OEM) coatings applied at manufacturing or assembly plants.

(d) Touch-up operations involving the application of very small quantities of coatings, usually by brush;

(e) Application of waterborne coatings of less than 2 lbs VOC/gal of coating as applied; and

(f) Small facilities that perform minimal coating operations and meet all of the following limitations. These limitations must be met on a weekly basis, where a time period is shown:

1. Not more than one complete motor vehicle or mobile equipment per week shall be refinished;

2. Not more than five panel or spot repair jobs per week shall be performed; and

3. No visible emissions shall leave the applicator's property.

(g) An exemption under this Paragraph does not constitute an exemption from any other regulations.

(4) STANDARDS AS FOLLOW APPLY: Effective on the dates specified, a person applying coatings to Group I or Group II vehicles and equipment, including parts and components, repairing of partial collision damage or refinishing entire motor vehicles or mobile equipment, shall not apply materials that have a VOC content which exceeds the limits in Subparagraphs (4)(a) and(4)(b). Compliance with the VOC limits shall be based on VOC content, including any VOC material added to the original coating supplied by the manufacturer, less water and exempt solvent, as applied to the coated surface.

(a) Group I Vehicles: Group I vehicles, their parts and components, whether existing or replacement parts, shall not be refinished with a coating which has a VOC content in excess of the limits in Part (4)(a)1.;

1. After November 15, 1996, no coatings shall be used which have a VOC content in excess of the following limits, expressed as pounds of VOC per gallon of coating, as applied, less water and exempt compounds unless the condition of Subparagraph (4)(c) are met.

(Rule 1200-03-18-.45, continued)

Coating	VOC lb/gal
Surface cleaner	1.7
Pretreatment wash primer	6.5
Precoat	5.5
Prime sealer	4.6
Primer/primer surface	4.8
Topcoat	5.2
Metallic/iridescent topcoat	5.2
Extreme performance	6.2

(b) Group II Vehicles: Group II vehicles, or their existing parts and components, or replacement parts or components, shall not be refinished with a coating which has a VOC content in excess of the limits in part (4)(b)1.;

1. After November 15, 1996, no coatings shall be used which have a VOC content in excess of the following limits, expressed as pounds of VOC per gallon of coating, as applied, less water and exempt compounds unless the conditions of paragraph (4)(c) are met:

Coating	VOC lb/gal
Surface cleaner	1.7
Pretreatment wash primer	6.5
Precoat	5.5
Primer/primer surface	2.8
Primer sealer	3.5
Topcoat	3.5
Metallic/iridescent topcoat	3.5
Extreme performance	6.2

(c) The limitations of VOC content in Subparagraph (4)(a) and (4)(b) shall not exceed unless:

1. Emissions are controlled to an equivalent level by air pollutant control equipment.

2. The efficiency of the control equipment is a minimum of 85%, and

(Rule 1200-03-18-.45, continued)

3. The control equipment has been approved by the Technical Secretary.

4. A determination is made of the overall emission reduction efficiency needed to demonstrate compliance.

5. A determination is made each day that the overall emission reduction efficiency achieved is greater than or equal to the overall emission reduction efficiency required.

6. A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with this rule through the applicable coating analysis and capture system and control device efficiency test methods specified in this chapter, and;

7. The control device is equipped with the applicable monitoring equipment specified in this chapter, and the monitoring equipment is installed, calibrated,, operated, and maintained according to the vendor's specifications at all times the control device is in use.

(d) In lieu of satisfying the standards above for specialty coating, specialty coatings shall not be applied unless;

1. The VOC content is equal to or less than 7 pounds of VOC per gallon of coating, as applied, less water and exempt compounds and;

2. The application of all such coatings, except safety related coatings, shall not exceed 10% of all coatings applied, on a weekly basis.

(e) VOC content shall be given and/or calculated in lbs/gal as follows.

Calculation 1:

The VOC content of a basecoat/topcoat system shall be calculated according to the following equation:

$$VOC_{ms} = \frac{VOC_{bc} + 2VOC_{ee}}{3}$$

where

VOC_{ms} = the composite VOC content, less water and less exempt compounds, to be used for compliance determination under the multistage topcoat system coating category.

VOC_{bc} = the VOC content, less water and less exempt compounds as applied, of any given basecoat.

VOC_{cc} = the VOC content, less water and less exempt compounds as applied, of any given clearcoat.

Calculation 2:

The VOC content per gallon of any coating, less water and less exempt compounds, shall be calculated by the following equation:

(Rule 1200-03-18-.45, continued)

$$\text{Content} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

where

Pounds of VOC per gallon of coating, less water and less exempt compounds is the weight of VOC per combined volume of VOC and coating solids.

W_s = weight of volatile compounds in pounds.

W_w = weight of water in pounds.

W_{es} = weight of exempt compounds in pounds.

V_m = volume of material in gallons.

V_w = volume of water in gallons.

V_{es} = volume of exempt compounds in gallons.

Calculation 3:

The VOC content of any coating shall be calculated by the following equation:

$$\text{Content} = \frac{W_s - W_w - W_{es}}{Vm}$$

where

W_s = weight of volatile compounds in pounds.

W_w = weight of water in pounds.

W_{es} = weight of exempt compounds in pounds.

V_m = volume of material in gallons.

Calculation 4:

The VOC content of a three-stage topcoat system shall be calculated according to the equation:

$$VOC_{ms} = \frac{VOC_{bc} + VOC_{mc} + 2VOC_{cc}}{4}$$

where

A three-stage topcoat system is a topcoat system composed of a basecoat portion, a midcoat portion, and a transparent clearcoat portion.

VOC_{ms} = the composite VOC content, less water and less exempt compounds, to be used for compliance determination under the multistage topcoat system coating category.

(Rule 1200-03-18-.45, continued)

VOC_{bc} = the VOC content, less water and less exempt compounds as applied, of any give basecoat.

VOC_{mc} = the VOC content, less water and less exempt compounds as applied, of any give midcoat.

VOC_{cc} = the VOC content, less water and less exempt compounds as applied, of any given clearcoat.

(5) EQUIPMENT STANDARDS: All spray coating operators that coat more than one complete motor vehicle or mobile equipment per week or perform more than five panel or spot repairs per week shall perform those operations using the following equipment:

(a) Spraying operations shall be performed in a totally enclosed spray booth or a totally enclosed spray area which provides, at a minimum, proper maintenance of the equipment in accordance with the manufacturer's recommendations.

(b) Effective November 15, 1996, spraying equipment shall have a minimum transfer efficiency of 65% at 8 inches from the work surface. Compliance may be achieved by any of the following:

1. Electrostatic application equipment operated and maintained in accordance with the manufacturer's recommendations;

2. High Volume Low Pressure (HVLP) spray equipment operated and maintained in accordance with the manufacturer's recommendations; or

3. Any other coating application equipment which has been satisfactorily demonstrated to be capable of achieving a minimum of 65% efficiency and approved by the Technical Secretary.

(c) VOC pollution control equipment, if required for compliance with Section (4), shall be appropriately installed, maintained and operated in accordance with the manufacturer's recommendations. The minimum efficiency of the control device shall be 85%.

(d) Spray and other equipment cleanup shall be accomplished in a totally enclosed apparatus specifically designed to minimize evaporation of VOC materials to the atmosphere. Non-enclosed gun cleaners, etc. may be used provided that the vapor pressure of the cleaning solvent is less than 100 mmHg at 68 degrees F and the used solvent is contained for subsequent disposal by means which minimize emission of the used solvent

(6) Prohibitions:

(a) No person shall specify or require for use the application of any coating if such use results in a violation of this regulations. This prohibition is applicable to all contracts wherein a coating is to be applied at any location within Davidson, Rutherford, Sumner, Wilson and Williamson counties. This prohibition shall not apply if the coating is to be utilized at surface coating facilities where control equipment has been installed to meet the requirements of paragraph (5)(c).

(b) Cleaning of equipment by spraying solvent through the spray gun without measures being employed to collect the sprayed solvent and minimize emissions of the solvent is prohibited.

(Rule 1200-03-18-.45, continued)

(7) OPERATING REQUIREMENTS: The owner/operator shall implement good housekeeping practices which include, but are not limited to, the following:

(a) All equipment shall be maintained in accordance with the manufacturer's recommendations;

(b) All fresh or used solvents shall be stored in closed containers;

(c) All waste coatings, and surface cleaners, waste solvents, and uncured spray booth filters, etc. shall be stored in closed containers prior to disposal by means which minimize emissions of volatile organic compounds; and

(d) Storage of cloth or paper products used for solvents surface preparation and cleanup shall be stored in closed containers prior to disposal by means which minimize emissions of volatile organic compounds.

(e) A person using pressure pots shall use either;

1. Bag-type liners to aid cleanup and minimize cleaning solvent use;

2. Insert containers to aid cleanup and minimize cleaning solvent use; or

3. Other reasonable practices to reduce the amount of cleaning solvent used.

(f) Equipment cleanup shall be performed with appropriate methods to minimize the use of solvents. Reasonable effort must be made to reclaim the bulk of the used solvents. Absolutely no cleaning shall be effected by the direct spraying of solvent such that it is emitted to the atmosphere.

(g) Personnel performing spraying operations must be trained to properly position a spray gun to minimize overspray.

(h) Reasonable effort shall be employed to schedule operations of a similar nature to significantly reduce overall VOC material consumption.

(8) REPORTING AND RECORDKEEPING REQUIREMENTS: Any person subject to this regulation shall comply with the following requirements as a minimum:

(a) A current list of all coatings, solvents, reducers, additives, and any other VOC containing material in use at the facility shall be maintained and readily available upon request. This list shall include, but is not limited to, the following information:

1. Name and appropriate identification of coating, catalyst, hardener, reducer, etc. used;

2. Mix ratio of components used; and

3. VOC content of coatings, as applied, less water and exempt solvents, in pounds per gallon.

(b) Daily records shall be maintained which shall include:

1. Identification of applied coatings pursuant to Part (8)(a)1. and

2. Quantity of each coating applied.

(Rule 1200-03-18-.45, continued)

(c) Monthly records shall be maintained which shall include:

1. Type of solvent used for cleanup and/or surface preparation, and

2. Quantity of each solvent, cleaner, etc. used.

(d) MSDS or other data sheets provided by the material manufacturer and/or its agent shall be maintained and readily retrievable for each item listed pursuant to Part (8)(a)1. and shall include as a minimum the designation of VOC content as supplied, expressed in lbs/gal, less water and exempt compounds;

(e) Records specified in this section shall be retained and readily available for inspection by EPA; Tennessee Department of Environment and Conservation, Division of Air Pollution Control; Nashville and Davidson County Metropolitan Health Department, Air Pollution Division; and each record shall be maintained for 5 years.

Authority: *T.C.A. §§ 4-5-201, et. seq. and 68-201-105.* ***Administrative History:*** *Original rule filed November 3, 1995; effective January 17, 1996.*

1200-03-18-.46 AND 1200-03-18-.47 RESERVED.

1200-03-18-.48 VOLATILE ORGANIC LIQUID STORAGE TANKS.

(1) Applicability of this rule is as follows:

(a) This rule applies to Volatile Organic Liquid Storage Tanks at:

1. Any facility in Davidson, Rutherford, Sumner, Williamson, or Wilson County having potential Volatile Organic Compounds (VOC) emission of 100 tons per year or greater from Volatile Organic Liquid Storage Tanks. In calculation to determine whether this applicability threshold is exceeded, potential VOC emissions are not included from any storage vessel subject to standards in rules 1200-03-18-.22 through 1200-18-.24, 1200-03-18-.28 and 1200-03-18-.29, or;

2. This rule applies to any facility subject to rules 1200-03-18-.78 or .79.

(b) Any storage vessel with a capacity of 37.9 m3 (10,000 gal.) or less shall comply with the standard as prescribed in Subparagraph (3)(d) of this rule.

(c) Any storage vessel subject to rules 1200-03-18-.22 through 1200-18-.24, 1200-03-18-.28 and 1200-03-18-.29 shall not be subject to the standards of this rule.

(2) For the purpose of this rule, the following definitions, with precedence as listed below, apply:

(a) Any applicable definition in Subparagraph 1200-03-18-.01 of this chapter.

(b) Any applicable definition in rules 1200-03-18-.28 and 1200-03-18-.29, 1200-03-18-.22 through 1200-03-18-.24 of this chapter.

(c) Any definition in Rules .10, .11 and .61 of rule 1200-03-16.

(3) Standards for Volatile Organic Compounds:

(a) Each fixed roof tank with a design capacity greater than 37.9 m3 (10,000 gal.) shall be equipped with an internal floating roof meeting the following specifications or a vapor control system meeting the specification of Part 9 of this Subparagraph:

(Rule 1200-03-18-.48, continued)

1. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof, except during initial fill and during those intervals when the storage vessel is emptied or subsequently emptied and refilled.

2. Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

   (i) A foam-or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam-or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

   (ii) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

   (iii) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

3. Each opening in a noncontact interval floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

4. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

5. Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

6. Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

7. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

8. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

9. A closed vent system and control device meeting the following specifications:

(Rule 1200-03-18-.48, continued)

(i) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emission as indicated by an instrument reading of less than 500 ppm above background, and;

(ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater.

(b) Each external floating roof tank shall meet the following specifications:

1. Each external floating roof shall be equipped with a closure device between the wall of the storage vessel and the roof edge. The closure device is to consist of two seals, one above the other. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.

2. The primary seal shall completely cover the annular space between the edge of the floating roof and tank wall and shall be either a liquid mounted seal or a shoe seal.

3. The secondary seal shall completely cover the annular space between the external floating roof and the wall of the storage vessel in a continuous fashion.

4. The tank shall be equipped with the closure device after the effective date of this rule.

5. Except for automatic bleeder vents and rim space vents, each opening in a noncontact external floating roof shall provide a projection below the liquid surface. Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is to be equipped with a gasketed cover, seal, or lid that is to be maintained in a closed position at all times (i.e., no visible gap) except with the device is in actual use. Automatic bleeder vents are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. Rim vents are to be set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting. Automatic bleeder vents and rim space vents are to be gasketed. Each emergency roof drain is to be provided with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening.

6. The roof shall be floating on the liquid at all times (i.e., off the roof leg supports) except when the tank is completely emptied and subsequently refilled. The process of filling, emptying, or refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible.

(c) The owner or operator of each storage vessel subject to the Parts (1)(a)1., and 2. of this rule shall equip each storage vessel with a closed vent system and control device as specified in part 9. of Subparagraph (3)(a) of this rule.

(d) The owner or operator of each storage vessel subject to the Parts (1)(a)1., and 2. and Subparagraph (b) of this rule shall equip each storage vessel port with a cap which is consistent with the vessels manufacturer's requirements, unless the port is used for pressure relief valve.

(4) The owner or operator of an affected source is subject to the following reporting and recordkeeping requirements:

(Rule 1200-03-18-.48, continued)

(a) The owner or operator of an affected source subject to the emission standards in Paragraph (3) of this rule shall demonstrate compliance with those provisions and with the initial compliance certification requirements of rule 1200-03-18-.04, except that the date for submittal of the initial compliance certification for each existing source as of August 2, 1996, is November 15, 1996, and for each new sources after August 2, 1996, is within 180 days after the start-up of that source.

(b) If a storage vessel has a potential VOC emissions of less than 100 tons per year , the owner or operator of such vessel shall maintain records which document that the potential VOC emissions from those vessels are less than the applicability threshold as specified in Subparagraph (1)(a) of this rule. An owner or operator of such vessel shall submit, upon request by the Technical Secretary, records that document that the vessel is exempt from these requirements. These records shall be submitted to the Technical Secretary within 30 calendar days from the date of request.

(c) The owner or operator of the subject VOC vessel shall perform all testing and maintain the results of all tests and calculations required under Paragraphs (1) and (3) of this rule to demonstrate that the subject source is in compliance and shall maintain these records for a minimum of 5 years, and shall make these records available to the Technical Secretary upon request.

(5) With respect to petitioning for a source-specific compliance schedule according to and as provided for in Rule .07 of this chapter, insure the petition is received by the Technical Secretary no later than February 2, 1997, or October 1, 1996, whichever is earlier, rather than October 22, 1993. Under this paragraph, the applicable date on which a source must be an existing source or before which a state or local agency's construction permit must have been issued for the source to be eligible to petition for a source-specific compliance schedule is August 2, 1996, rather than April 22, 1993, as specified in the first sentence of Paragraph .07(1) of this chapter.

Authority: *T.C.A. §§ 4-5-201 et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed May 22, 1996; effective August 2, 1996.*

1200-03-18-.49 THROUGH 1200-03-18-.77 RESERVED.

1200-03-18-.78 OTHER FACILITIES THAT EMIT VOLATILE ORGANIC COMPOUNDS (VOC'S) OF FIFTY TONS PER YEAR.

(1) Applicability of this rule is as follows:

(a) This rule applies to the sources at any facility in Davidson, Rutherford, Sumner, Williamson, or Wilson County for which the aggregate potential VOC emissions from the sources at the facility total 45.4 megagrams (Mg) (50 tons) or more per calendar year on or after November 15, 1996. In calculation to determine whether this applicability threshold is exceeded, potential VOC emissions from the following sources are not included:

1. Any sources subject to standards in Rules .11 through .77 of this chapter;

2. Any sources subject to source-specific standards (Division Rule 1200-03-18-.02(7) approved in lieu of standards in Rules .11 through .77 of this chapter; and

3. Any sources which are within the source categories listed in Subparagraph (c) of this paragraph.

(Rule 1200-03-18-.78, continued)

(b) After publication of the notice specified in Paragraph (7) of this rule, the owner or operator of a facility which has potential VOC emissions which are below the applicability threshold of Subparagraph (a) of this paragraph, but which otherwise would be subject to this rule, shall comply with the certification, recordkeeping, and reporting requirements of Paragraph (4) of this rule.

(c) This rule will not apply to:

Barge loading facilities;
Coke ovens (including by-product recovery plants);
Fuel combustion sources;
Iron and steel production;
Jet engine test cells;
Vegetable oil processing facilities; and
Wastewater treatment facilities;

(d) (Reserved)

(e) The standards and requirements of this rule shall not apply to the following sources:

1. Sources subject to standards in Rules .11 through .77 and in Rule .79 of this chapter;

2. Sources subject to source-specific standards approved in lieu of standards in Rules .11 through .77 and in Rule .79 of this chapter; and

3. Sources which are within the source categories listed in Subparagraph (c) of this paragraph."

(2) After publication of the notice specified in Paragraph (7) of this rule, the owner or operator of any source subject to this rule shall:

(a) Install and operate:

1. An emission capture system which:

(i) Achieves 90 percent capture, or

(ii) Is constructed and operated in accordance with the guidelines of the Industrial Ventilation Manual, 20th Edition, of the American Conference of Governmental Industrial Hygienists, and

2. An emission control device which achieves 90 percent destruction or removal.

(b) For any coating or printing line, limit the weighted average VOC content to 0.40 kilograms VOC per liter (kg VOC/L) 3.5 pounds VOC per gallon (lbvoc/gal) or less of coating or ink, as applied, (excluding water and/or exempt compounds) as calculated in this chapter; or

(c) Comply with a control plan that employs reasonably available control technology and has been approved as a state implementation plan revision. The control plan shall;

1. Be submitted by May 15, 1997; and

2. Be accompanied by a demonstration of the technical or economic infeasibility of complying with the requirements in Subparagraph (a) or (b) of this paragraph.

(Rule 1200-03-18-.78, continued)

(3) After publication of the notice specified in Paragraph (7) of this rule, the owner or operator of any source subject to this rule shall demonstrate compliance with this paragraph by using the applicable test methods specified in this chapter.

(4) After publication of the notice specified in Paragraph (7) of this rule, reporting and recordkeeping requirements for sources referenced in Subparagraph (1)(b) of this rule apply as follow:

(a) An owner or operator shall maintain records which document potential VOC emissions are less than the applicability threshold specified in Subparagraph (1)(a) of this rule.

(b) An owner or operator shall submit, upon request by the Technical Secretary, records that document that the source is exempt from these requirements. These records shall be submitted to the Technical Secretary within 30 calendar days from the date of request.

(5) After publication of the notice specified in Paragraph (7) of this rule, compliance certification, reporting and recordkeeping, and testing requirements for sources other than those referenced in Subparagraph (1)(b) of this rule apply as follows:

(a) The owner or operator of the subject VOC source shall perform all testing and maintain the results of all test and calculations required under Paragraphs (2) and (3) of this rule to demonstrate that the subject source is in compliance.

(b) This owner or operator of the subject VOC source shall maintain these records for a minimum of 3 years, and shall make these records available to the Technical Secretary upon request.

(c) The owner or operator of any subject source shall comply with the requirements in Rule .03 or .04 of this chapter, as appropriate for such source, except that the date for compliance certification, initiation of recordkeeping and reporting, and completion of control system compliance testing shall be by November 15, 1997, rather than by April 22, 1994, as specified in Rules .03 and .04.

(6) After publication of the notice specified in Paragraph (7) of this rule, the owner or operator of a source which is an existing source as of November 15, 1996, or of a source which has a state or local agency's construction permit before November 15, 1996, and is subject to this rule may petition for a source-specific compliance schedule according to and as provided for in Rule .07 of this chapter. The April 22, 1993, date of Rule .07 shall not be pertinent for sources subject to Rule .78 of this chapter. For sources subject to Rule .78 of this chapter, the petition for the source-specific schedule must be received by the Technical Secretary no later than May 15, 1997.

(7) The standards and requirements of this rule shall apply only after the failure to attain by November 15, 1996, the ambient air quality standard for ozone in the counties listed in Subparagraph (1)(a) of this rule and after the Technical Secretary publishes legal notice of this failure in a major Nashville newspaper which has distribution throughout the five counties listed in Subparagraph (1)(a) of this rule.

Authority: *T.C.A. §§ 4-5-201, et. seq. and 68-201-105.* ***Administrative History:*** *Original rule filed August 11, 1995; effective October 25, 1995.*

1200-03-18-.79 OTHER FACILITIES THAT EMIT VOLATILE ORGANIC COMPOUNDS (VOC'S) OF ONE HUNDRED TONS PER YEAR.

(Rule 1200-03-18-.79, continued)

(1) Applicability of this rule is as follows:

(a) This rule applies to any facility in Davidson, Rutherford, Shelby, Sumner, Williamson, or Wilson County having sources that in the aggregate have potential VOC emissions of 90.7 megagrams (Mg) (100 tons) or more per calendar year. In calculation to determine whether this applicability threshold is exceeded, potential VOC emissions are not included from handling, storage, use and disposal of VOC's subject to the requirements of Rule .06 of this chapter and from the sources as follow:

1. Any sources subject to standards in Rules .11 through .77 of this chapter;

2. Any sources subject to source-specific standards approved in lieu of standards in Rules .11 through .77 of this chapter; and

3. Any sources which are within the sources categories listed in Subparagraph (c) of this paragraph.

(b) The owner or operator of a facility which has potential VOC emissions which are below the applicability threshold of Subparagraph (a) of this paragraph, but which otherwise would be subject to this rule, shall comply with the certification, recordkeeping, and reporting requirements of Paragraph (4) of this rule.

(c) This rule will not apply to:

Barge loading facilities;
Coke ovens (including by-product recovery plants);
Fuel combustion sources;
Iron and steel production;
Jet engine test cells;
Vegetable oil processing facilities;
Wastewater treatment facilities; and

(d) (Reserved)

(e) The standards and requirements of this rule shall not apply to handling, storage, use, and disposal of VOC's subject to the requirements of Rule .06 of this chapter and to sources as follows:

1. Sources subject to standards in Rules 1200-03-18-.11 through 1200-03-18-.77 of this chapter;

2. Sources subject to source-specific standards approved in lieu of standards in Rules 1200-03-18-.11 through 1200-03-18-.77 of this chapter; and

3. Sources which are within the source categories listed in Subparagraph (c) of this paragraph."

(2) The owner or operator of any source subject to this rule shall:

(a) Install and operate:

1. An emission capture system which:

(i) Achieves 90 percent capture, or

(Rule 1200-03-18-.79, continued)

(ii) Is constructed and operated in accordance with the guidelines of the Industrial Ventilation Manual, 20th Edition, of the American Conference of Governmental Industrial Hygienists, and

2. An emission control device which achieves 90 percent destruction or removal.

(b) For any coating or printing line, limit the weighted average VOC content to 0.40 kilograms VOC per liter (kg VOC/L) (3.5 pounds VOC per gallon [lb VOC/gal]) or less of coating or ink, as applied, (excluding water and/or exempt compounds) as calculated in this chapter; or

(c) Comply with a control plan that employs reasonably available control technology and has been approved as a State Implementation Plan revision. The control plan shall:

1. Be submitted by October 22, 1993, and

2. Be accompanied by a demonstration of the technical or economic infeasibility of complying with the requirements in Subparagraph (a) or (b) of this paragraph.

3. "The standards and requirements of Rule .06 and Rules .11 through .77 for source categories and types of operations shall be accepted, if proposed for the control plan by the owner or operator, as reasonably available control technology for any operation which fulfills the source category or type operation criteria specified in those rules. For example, the standards and requirements specified in Rule .35 for flexographic printing presses may be proposed for a control plan by the owner or operator of a flexographic printing press subject to this Rule .79, and these standards and requirements shall be accepted as reasonably available control technology for that press even if the facility's printing presses do not have total potential VOC emissions of 100 tons per year. In addition, if the control plan includes only standards and requirements of Rule .06 and Rules .11 through .77 as proposed reasonably available control technology, the requirement for approval of this plan as a state implementation plan revision shall not apply. Also, for those operations for which reasonably available control technology is as specified in Rule .06 and Rules .11 through .77, the requirement in Part 2 of this subparagraph for demonstration of infeasibility shall not apply. However, the control plan shall be submitted as specified in Part 1 of this subparagraph, and the compliance certification, reporting, and recordkeeping, and testing requirements of this Rule .79 shall be satisfied".

(3) The owner or operator of any source subject to this rule shall demonstrate compliance with this paragraph by using the applicable test methods specified in this chapter.

(4) Reporting and recordkeeping requirements for sources referenced in Subparagraph (1)(b) of this rule apply as follow:

(a) An owner or operator shall maintain records which document potential VOC emissions are less than the applicability threshold specified in Subparagraph (1)(a) of this rule.

(b) An owner or operator shall submit, upon request by the Technical Secretary, records that document that the source is exempt from these requirements. These records shall be submitted to the Technical Secretary within 30 calendar days from the date of request.

(5) Reporting and recordkeeping requirements for subject non-coating and non-printing sources apply as follow:

(Rule 1200-03-18-.79, continued)

(a) The owner or operator of the subject VOC sources shall perform all testing and maintain the results of all tests and calculations required under Paragraphs (2) and (3) of this rule to demonstrate that the subject source is in compliance.

(b) This owner or operator of the subject VOC source shall maintain these records for a minimum of 3 years, and shall make these records available to the Technical Secretary upon request.

(c) The owner or operator of any facility containing subject sources shall comply with the requirements in Rule 1200-03-18-.04 of this chapter.

(6) The owner or operator of any source which on October 25, 1995, became, but before this date was not subject to the standards and requirements of Paragraph (2) of this rule shall:

(a) With respect to compliance certification, initiation of recordkeeping and reporting, and completion of control system compliance testing for that source, comply with the requirements of Rule .03 or .04 of this chapter, as appropriate for such source, except the applicable date for compliance is October 25, 1996, rather than April 22, 1994;

(b) With respect to submitting a control plan for the source, as provided for in Subparagraph (2)(c)of this rule, submit the plan by April 25, 1996, rather than October 22, 1993; and

(c) With respect to petitioning for a source-specific compliance schedule according to and as provided for in Rule .07 of this chapter, insure the petition is received by the Technical Secretary no later than April 25, 1996, rather than October 22, 1993. The applicable date on which a source must be an existing source or before which a state or local agency's construction permit must have been issued for the source to be eligible to petition for a source specific compliance schedule is October 25, 1995, rather than April 22, 1993, as specified in the first sentence of Paragraph .07(1) of this chapter.

Authority: *T.C.A. §§ 4-5-201, et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed August 11, 1995; effective October 25, 1995. Amendment filed May 16, 1997; effective July 30, 1997. Amendment filed May 21, 1997; effective August 4, 1997.*

1200-03-18-.80 TEST METHODS AND COMPLIANCE PROCEDURES: GENERAL PROVISIONS.

(1) The owner or operator of any volatile organic compound (VOC) source required to comply with Rules 1200-03-18-.11 through 1200-03-18-.79 of this chapter shall demonstrate or have demonstrated compliance by using the applicable methods of Rules 1200-03-18-.80 through 1200-03-18-.85 of this chapter, applicable methods specified within the rule (Rules 1200-03-18-.11 through 1200-03-18-.79) for the source category of the source, or alternative methods approved by the Technical Secretary and the EPA.

(2) At least 30 days before the initiation of a required test under Rule 1200-03-18-.83 of this chapter, the owner or operator shall submit a test plan to the Technical Secretary. This test plan shall include the following minimum information:

(a) The purpose of the proposed test and the applicable provision of Rule 1200-03-18-.11 through 1200-03-18-.79 of this chapter;

(b) A detailed description of the facility to be tested, including a line diagram of the facility, locations of test sites, and facility operation conditions for the test;

(Rule 1200-03-18-.80, continued)

(c) A detailed description of the test methods and procedures, equipment, and sampling sites, i.e., a test plan;

(d) A time table for the following:

1. Date for the compliance test;

2. Date of submittal of final test report (not later than 60 days after completion of on-site sampling); and

(e) (Reserved)

(f) An internal QA program that shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision. An example of internal QA is the sampling and analysis of replicable samples.

(g) External QA program as follows:

1. The external QA program shall include, at a minimum, application of plans for a test method performance audit (PA) during the compliance test.

2. The external QA program may also include systems audits, which include the opportunity for on-site evaluation by the Technical Secretary of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

3. The PA's shall consist of blind audit samples provided by the Technical Secretary and analyzed during the compliance test to provide a measure of test data bias as follows:

(i) The Technical Secretary shall require the owner or operator to analyze PA samples during each compliance test when audit samples are available.

(ii) Information concerning the availability of audit materials for a specific compliance test may be obtained from the Technical Secretary.

(iii) The evaluation criteria applied to the interpretation of the PA results and the subsequent remedial actions required of the owner or operator are the sole responsibility of the Technical Secretary.

(3) The owner or operator shall be responsible for providing:

(a) Sampling ports, pipes, lines, or appurtenances for the collection of samples and data required by the test methods and procedures;

(b) Safe access to the sample and data collection locations; and

(c) Light, electricity, and the utilities required for sample and data collection.

(4) (Reserved)

(5) No later than 60 days after completion of the on-site sampling, the owner or operator shall submit a test report to the Technical Secretary. The test report shall include the following minimum information:

(a) Process description;

(Rule 1200-03-18-.80, continued)

(b) Air pollution capture system and control device description;

(c) Process conditions during testing;

(d) Test results and example calculations;

(e) Description of sampling locations and test methods;

(f) Quality assurance measures; and

(g) Field and analytical data.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.81 TEST METHODS AND COMPLIANCE PROCEDURES: DETERMINING THE VOLATILE ORGANIC COMPOUND (VOC) CONTENT OF COATINGS AND INKS.

(1) Sampling procedures shall follow the guidelines presented in:

(a) ASTM D3925: Standard practice for sampling liquid paints and related pigment coatings; or

(b) ASTM E300: Standard practice for sampling industrial chemicals.

(2) The analytical methods and procedures specified as follow shall be used to determine VOC content:

(a) For coatings and for inks other than solvent - borne (solvent reducible) publication rotogravure inks (See Subparagraph (b) of this paragraph for explanation of solvent - borne (solvent reducible) publication rotogravure inks.):

1. Reference Method 24 shall be used in the determination of total volatile organic content, water content, and density.

2. To determine the total volatile organic content, water content, and density of multicomponent coatings, the following procedures shall be used in addition to Reference Method 24:

(i) The components shall be mixed in a storage container in proportions the same as those in the coating, as applied. The mixing shall be accomplished by weighing the components in the proper proportion into a container which is closed between additions and during mixing. About 100 ml of coating shall be prepared in a container just large enough to hold the mixture prior to withdrawing a sample.

(ii) For determination of volatile content, a sample shall be withdrawn from the mixed coating, and then transferred to a dish where the sample shall stand for at least 1 hour, but no more than 24 hours prior to being oven dried.

(iii) For determination of the water content and density of multicomponent coatings, samples shall be taken from the same 100 ml mixture of coating and shall be analyzed by the appropriate ASTM methods referenced in Reference Method 24.

(Rule 1200-03-18-.81, continued)

(b) Reference Method 24A shall be used in the determination of total volatile organic compound (VOC) content and density of solvent - borne (solvent reducible) publication rotogravure inks. A solvent - borne publication rotogravure ink is an ink used in publication rotogravure printing, as defined in Paragraph .35(2) of this chapter, whose volatile portion consists essentially of VOC solvent with not more than five weight percent water, as applied to the gravure cylinder.

(c) The following ASTM method may be used as an additional procedure related to determining VOC:

1. ASTM D4457-85: Standard test method for determination of dichloromethane and 1,1,1 trichloroethane in paints and coatings by direct injection into a gas chromatograph (the procedure delineated above may be used to develop protocols for any compounds specifically exempted from the definition of VOC).

(3) Use of an adaptation or alternative to any of the analytical methods and procedures specified in Paragraph (2) of this rule shall be approved by the Technical Secretary and the EPA on a case-by-case basis. An owner or operator shall submit sufficient documentation to verify that the analytical methods specified in Subparagraphs (2)(a), (2)(b), and (2)(c) will yield inaccurate results and that the proposed adaptation is appropriate, or that the proposed adaptation will yield results as accurate as will the specified analytical methods.

(4) Each sample collected for analysis shall meet the following criteria:

(a) Each sample shall be at least 1 pint taken into a 1 pint container at a location and time such that the sample will be representative of the coating or ink, as applied (i.e., the sample shall include any dilution solvent or VOC added during the manufacturing process);

(b) If a sample larger than 1 pint is obtained, the sample container shall be of a size such that the sample completely fills the container;

(c) The container shall be tightly sealed immediately after the sample is taken;

(d) Any solvent or other VOC added after the sample is taken shall be measured and accounted for in the calculations in Paragraph (3) of this rule; and

(e) For multiple-component coatings, separate samples of each component shall be obtained.

(5) Calculations for determining the VOC content of coatings and inks from data as determined by Reference Method 24 or 24A shall follow the guidance provided in the following documents:

(a) “A Guideline for Surface Coating Calculations” EPA-340/1-86-016; and

(b) “Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink and Other Coatings.” (Revised June 1986) EPA-450/3-84-019.

(6) In lieu of determining VOC content by the methods and procedures specified in the other paragraphs of this rule, formulation data shall be used if approved by the EPA and the Technical Secretary.

Authority: *T.C.A. §§ 4-5-202, et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993 effective April 22, 1993. Amendment filed January 31, 1997; effective April 16, 1997.*

1200-03-18-.82 TEST METHODS AND COMPLIANCE PROCEDURES: ALTERNATIVE COMPLIANCE METHODS FOR SURFACE COATING.

(1) The weighted average VOC content, in units of mass of VOC per volume of coating and/or ink, excluding water and/or exempt compounds, as applied, of the coatings and/or inks used on a day on a coating line or operation shall be calculated using the following equation:

$$VOCw = \frac{\sum_{i=1}^{n} Vi\ Ci}{VT}$$

where:

VOCw = The weighted average VOC content of the coatings and/or inks, as applied, used on a line or operation in units of kilograms of VOC per liter of coating and/or ink (kg VOC/L) (pounds of VOC per gallon of coating and/or ink [lb VOC/gal]), excluding water and/or exempt compounds;

n = The number of different coatings and/or inks, as applied, each day on a line or operation;

Vi = The volume of each coating or ink, as applied, each day on a line or operation in units of L (gal), excluding water and/or exempt compounds; and

Ci = The VOC content of each coating or ink, as applied, each day on a line or operation in units of kg VOC/L of coating or ink (lb VOC/gal), excluding water and/or exempt compounds; and

VT = The total volume of all coating and/or ink, as applied, each day on a line or operation in units of L (gal), excluding water and/or exempt compounds.

(2) [Reserved]

(3) The overall emission reduction efficiency needed to demonstrate compliance is determined each day as follows:

(a) Obtain the emission limitation from the applicable rule of this chapter.

(b) Calculate the emission limitation on a solids basis according to the following equation:

$$S = \frac{C}{1 - C_d}$$

where:

S = The VOC emission limitation in terms of kg VOC/L of coating or ink solids (lb VOC/gal);

C = The VOC emissions limitation in terms of kg VOC/L of coating or ink (lb/gal), excluding water and/or exempt compounds; and

(Rule 1200-03-18-.82, continued)

d = The density of VOC for converting emission limitation to a solids basis. The density equals 0.882 kg/L (7.36 lb/gal).

(c) Calculate the required overall emission reduction efficiency of the control system for the day according to the following equation:

$$E = \frac{(VOCa - S)}{VOCa} \times 100$$

where:

E = The required overall emission reduction efficiency of the control system;

VOCa = 1. The maximum VOC content of the coatings and/or inks, as applied, used each day on the subject line or operation, in units of kg VOC/L of solids (lb/gal), as determined by the applicable test methods and procedures specified in this chapter; or

2. The weighted average VOC content, as applied, of the coatings and/or inks used each day on the subject line or operation, in units of kg VOC/L of solids (lb/gal), as determined by the applicable test methods and procedures specified in this chapter and the procedure in Subparagraph (d) of this paragraph; and

S = VOC emission limitation in terms of kg VOC/L of solids (lb VOC/gal).

(d) The weighted average VOC content, as applied, of the coatings and/or inks used on a coating line or operation in units of mass of VOC per unit volume of coating and/or ink solids shall be calculated by the following equation:

$$VOCws = \frac{\sum_{i=1}^{n} Wvoci\ Di\ Vi}{\sum_{i=1}^{n} Vi\ VS1}$$

where:

VOCws = The weighted average VOC content, as applied, of the coatings and/or inks used on the line or operation in units of mass of VOC per unit volume of coating and/or ink solids;

n = The number of different coatings and/or inks, as applied, used in a day on the line or operation;

Vi = The volume of each coating or ink (i), as applied, used in a day on the line or operation in units of liters (L) (gallons[gal]);

Wvoci = The weight fraction of VOC in each coating or ink (i), as applied, used in a day on the line or operation in units of kg VOC/kg coating or ink (lb/lb);

(Rule 1200-03-18-.82, continued)

Di = The density of each coating or ink (i) as applied, used in a day on the line or operation in units of kg/L of coating or ink (lb/gal);

VSi = The volume fraction solids content of each coating or ink (i), as applied, used in a day on the line or operation in units of L solids/L coating or ink (gal/gal).

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed January 20, 1997; effective April 15, 1997.*

1200-03-18-.83 TEST METHODS AND COMPLIANCE PROCEDURES: EMISSION CAPTURE AND DESTRUCTION OR REMOVAL EFFICIENCY AND MONITORING REQUIREMENTS.

(1) The methods and procedures for determining the efficiency of volatile organic compound (VOC) capture systems shall be as specified in the EPA's Capture Efficiency Testing Guidance, dated January 9, 1995, unless an alternate method or procedure has been approved by the EPA and the Technical Secretary. This EPA guidance document can be obtained from the Technology Transfer Network (TTN) bulletin board, located in the Emission Measurement Technical Information (EMTIC) section, document number GD - 035.

(2) The methods and procedures for determining the destruction or removal efficiency and monitoring parameters of incinerators and carbon adsorbers shall be according to the following, unless an alternate method or procedure has been approved by the EPA and the Technical Secretary:

(a) Testing shall be as follows:

1. The control device destruction or removal efficiency shall be determined from data obtained by simultaneously measuring the inlet and outlet gas-phase VOC concentrations and gas volumetric flow rates in accordance with the gas-phase test methods specified in this chapter. The control device destruction or removal efficiency shall be calculated using the following equation:

$$E = \frac{\sum_{i=1}^{n} Q_i C_i - \sum_{j=1}^{m} Q_j C_j}{\sum_{i=1}^{N} Q_i C_i}$$

where:

E = VOC destruction efficiency of the control device;

Qi = Volumetric flow rate of the effluent gas flowing through stack i entering the control device, dry standard cubic meters per hour (dscmh);

Ci = Concentration of VOC (as carbon) in the effluent gas flowing through stack i entering the control device, ppmv;

Qj = Volumetric flow rate of the effluent gas flowing through stack j leaving the control device, dscmh;

(Rule 1200-03-18-.83, continued)

Cj = Concentration of VOC (as carbon) in the effluent gas flowing through stack j leaving the control device, ppmv;

n = The number of vents to the control device; and

m = The number of vents after the control device.

2. and 3. (Reserved)

(b) Monitoring shall be as follows:

1. Any owner or operator who uses an incinerator or carbon adsorber for which stack emission testing is required to demonstrate compliance with any standard of this chapter shall install, calibrate, certify to the Technical Secretary, operate, and maintain continuous monitoring equipment. The continuous monitoring equipment shall monitor the following parameters:

(i) Combustion chamber temperature of each thermal incinerator or afterburner;

(ii) Temperature immediately before the catalytic incinerator and temperature rise across each catalytic incinerator bed; and

(iii) The VOC concentration of the outlet from each carbon adsorption bed.

2. The continuous temperature monitoring equipment must be equipped with a continuous recorder and have an accuracy of ± 1 percent of the combustion temperature being measured expressed in degrees Celsius ($^{\circ}$C) or $\pm 0.5^{\circ}$C, whichever is greater.

(3) The overall emission reduction efficiency of the emission control system shall be determined as the product of the capture efficiency and the control device destruction or removal efficiency; or for each emission control system in which solvent is recovered, by a method approved by the EPA and Technical Secretary. The results of a capture efficiency test and control device destruction or removal efficiency test remain valid until a subsequent test is performed. The results of any valid test may be used until superseded by the results of a valid test subsequently performed.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.84 TEST METHODS AND COMPLIANCE PROCEDURES: DETERMINING THE DESTRUCTION OR REMOVAL EFFICIENCY OF A CONTROL DEVICE.

(1) One of the following test methods must be used to determine volatile organic compound (VOC) concentrations of a gas stream:

(a) Reference Method 18;

(b) Reference Method 25; or

(c) Reference Method 25A.

(2) Reference Method 25 or 25A shall be used for determining destruction efficiency of incinerators and catalytic incinerators, unless an alternate method is approved by the Technical Secretary and the EPA.

(Rule 1200-03-18-.84, continued)

(3) Except as indicated in Subparagraphs (a) and (b) of this paragraph, a test shall consist of three separate runs, each lasting a minimum of 60 minutes (min):

(a) When the method is to be used to determine the efficiency of a fixed-bed carbon adsorption system with a common exhaust stack for all of the individual adsorber vessels, the test shall consist of three separate runs, each coinciding with one or more complete sequences through the adsorption cycles of all the individual adsorber vessels.

(b) When the method is to be used to determine the efficiency of a fixed-bed carbon adsorption system with individual exhaust stacks for each adsorber vessel, each adsorber vessel shall be tested individually. The test for each adsorber vessel shall consist of three separate runs. Each run shall coincide with one or more complete adsorption cycles.

(4) Reference Method 1 or 1A shall be used for velocity traverses.

(5) Reference Method 2, 2A, 2C, or 2D shall be used for velocity and volumetric flow rates.

(6) Reference Method 3 or 3A shall be used for O2 or CO2 analysis.

(7) Reference Method 4 shall be used for stack gas moisture.

(8) Reference Methods 2, 2A, 2C, 2D, 3, 3A, and 4 shall be performed, as applicable, at least twice during each test run.

(9) Use of an adaptation or alternative to any of the methods specified in this rule shall be approved by the Technical Secretary and EPA on a case-by-case basis. An owner or operator shall submit sufficient documentation for the Technical Secretary and EPA to find that the analytical methods specified will yield inaccurate results and that the proposed adaptation or alternative is appropriate, or that the proposed adaptation or alternative will yield results as accurate as will the specified analytical methods.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.85 TEST METHODS AND COMPLIANCE PROCEDURES: LEAK DETECTION METHODS FOR VOLATILE ORGANIC COMPOUNDS (VOC'S).

(1) Owners or operators required to carry out a leak detection monitoring program shall comply with the following requirements:

(a) Monitoring shall be performed in accordance with Reference Method 21.

(b) The detection instrument shall meet the performance criteria of Reference Method 21.

(c) The detection instrument shall be calibrated before and after use on each day of its use by the methods specified in Reference Method 21. Failure to achieve a post-use calibration precision of less than 10 percent shall constitute grounds for rejecting all tests performed since the last pre-use calibration. In such cases, required leak tests must be reperformed.

(d) Calibration gases shall be:

1. Zero air (less than 10 parts per million [ppm] of hydrocarbon in air); and

(Rule 1200-03-18-.85, continued)

2. A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.

(e) The detection instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.

(2) When equipment is tested for compliance with the requirement that there be no detectable emissions, the test shall comply with the following:

(a) The requirements of Paragraph (1) of this rule shall apply and shall be met, and

(b) The background level shall be determined as set forth in Reference Method 21.

(3) Leak detection tests shall be performed consistent with:

(a) "APTI Course SI 417-Controlling Volatile Organic Compound Emissions from Leaking Process Equipment," EPA-450/2-82-015;

(b) "Portable Instrument User's Manual for Monitoring VOC Sources," EPA-340/1-86-015;

(c) "Protocols for Generating Unit--Specific Emission Estimates for Equipment Leaks of VOC and VHAP," EPA-450/3-88-010; and

(d) "Petroleum Refinery Enforcement Manual," EPA-340/1-90-008.

(4) Use of an adaptation to any of the analytical methods specified in this rule shall be approved by the Technical Secretary and EPA on a case-by-case basis. An owner or operator shall submit sufficient documentation for the Technical Secretary and EPA to find that the analytical methods specified will yield inaccurate results and that the proposed adaptation is appropriate, or that the proposed adaptation will yield results as accurate as will the specified analytical methods.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.86 PERFORMANCE SPECIFICATIONS FOR CONTINUOUS EMISSIONS MONITORING OF TOTAL HYDROCARBONS.

(1) Applicability of this rule is as follows:

(a) This method applies to the measurement of total hydrocarbons as a surrogate measure for the total gaseous organic concentration of the combustion gas stream. The concentration is expressed in terms of propane.

(b) The use of gas conditioning, including cooling to between 4.4 and 18°C (40 and 64°F), and condensate traps to reduce the moisture content of the sample gas may be approved if the owner/operator:

1. Successfully demonstrates to the Technical Secretary and the EPA that the use of such system is necessary for the specific application; and

2. Includes in the demonstration a quantification of the total hydrocarbon concentration (THC) lost to the gas conditioning system.

(Rule 1200-03-18-.86, continued)

(2) Monitoring is by the principle that a gas sample is extracted from the source through a heated sample line and heated glass fiber filter to a flame ionization detector (FID). Results are reported as volume concentration equivalents of the propane.

(3) For the purpose of this rule, the following definitions apply:

(a) "Calibration drift" means the difference in the measurement system response to a mid-level calibration gas before and after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place.

(b) "Calibration error" means the difference between the gas concentration indicated by the measurement system and the known concentration of the calibration system.

(c) "Calibration gas" means a known concentration of a gas in an appropriate diluent gas.

(d) "Measurement system" means the total equipment required for the determination of the inlet and outlet gas concentrations, percent capture efficiency, and gas outlet emission rate. The system consists of the following major subsystems:

1. Sample interface--the portion of the system that is used for one or more of the following:

(i) Sample acquisition;

(ii) Sample transportation;

(iii) Sample conditioning; or

(iv) Protection of the analyzer from the effects of the stack effluent;

2. Organic analyzer--the portion of the system that senses organic concentration and generates an output proportional to the gas concentration;

3. Data recorder--the portion of the system that records a permanent record of the measurement values; and

4. Flow rate system--a gas volume meter meeting the requirements of Reference Method 2A, Section 2.1.

(e) "Response time" means the time interval from a step change in pollutant concentration at the inlet to the emission measurement system to the time at which 95 percent of the corresponding final value is reached as displayed on the recorder.

(f) "Span value" means, for most incinerators, a 50 parts per million (ppm) propane span. Higher span values may be necessary if propane emissions are significant. For convenience, the span value should correspond to 100 percent of the recorder scale.

(g) "Zero drift" means the difference in the measurement system response to a zero level calibration gas before and after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place.

(4) An acceptable measurement system includes a sample interface system, a calibration valve, gas filter and a pump preceding the analyzer. THC measurement systems are designated HOT or COLD systems based on the operating temperatures of the system. In HOT systems, all components in contact with the sample gas (probe, calibration valve, filter, and sample lines) as well as all parts of the flame ionization analyzer between the sample inlet

(Rule 1200-03-18-.86, continued)

and the FID must be maintained between 1500 to 1750C. This includes the sample pump if it is located on the inlet side of the FID. A condensate trap may be installed, if necessary, to prevent any condensate entering the FID. The essential components of the measurement system are as follows:

(a) An FID capable of meeting or exceeding the specifications in this method.

(b) A sample probe as follows:

1. Stainless steel, or equivalent, three-hole rake type. Sample holes shall be 4 millimeters (mm) (0.2 inches [in.] in diameter or smaller and located at 16.7, 50, and 83.3 percent of the equivalent stack diameter; or

2. A single opening probe so that a gas sample is collected from the centrally located 10 percent area of the stack cross section.

(c) Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line from the heated probe shall be heated to between 150° and 175°C (302° and347°F).

(d) A calibration valve assembly as follows:

1. A heated three-way valve assembly to direct the zero and calibration gases to the analyzers; or

2. Other methods, such as quick-connect lines, to route calibration gas to the analyzers.

(e) An in-stack or an out-of-stack glass fiber filter if exhaust gas particulate loading is significant. An out-of-stack filter must be heated.

(f) A strip-chart recorder, analog computer, or digital recorder for recording measurement data. The minimum data recording shall be one measurement value per minute.

(5) Calibration gases and other gases shall be as follows:

(a) Gases used for calibration, fuel, and combustion air shall be contained in compressed gas cylinders.

(b) Preparation of calibration gases shall be done according to the procedure in Protocol No. 1, listed in the reference in Subparagraph (12)(b) of this rule.

(c) The recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ±2 percent from the certified value shall be obtained from the cylinder manufacturer.

(d) The following calibration and other gases shall be used:

1. As fuel, a 40 percent hydrogen and 60 percent helium or 40 percent hydrogen and 60 percent nitrogen gas mixture to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

(Rule 1200-03-18-.86, continued)

2. As zero gas, high purity air with less than 0.1 parts per million by volume (ppmv) of organic material methane or carbon equivalent or less than 0.1 percent of the span value, whichever is greater.

3. As low-level calibration gas, propane calibration gas (in air or nitrogen) with a concentration equivalent to 20 to 30 percent of the applicable span value.

4. As mid-level calibration gas, propane calibration gas with a concentration equivalent to 45 to 55 percent of the applicable span value.

5. As high-level calibration gas, propane calibration gas with a concentration equivalent to 80 to 90 percent of the applicable span value.

(6) Measurement system performance specifications as follow apply:

(a) Zero drift shall be less than ±3 percent of the span value.

(b) Calibration drift shall be less than ±3 percent of the span value.

(c) Calibration error shall be less than ±5 percent of the calibration gas value.

(7) Pretest preparations include the following:

(a) Sampling site selection as follows:

1. The location of the sampling site shall be determined from the applicable regulation or purpose of the test (i.e., exhaust stack, inlet line, etc).

2. The sample port shall be located at least 1.5 meters (4.9 feet) or 2 equivalent diameters upstream of the gas discharge to the atmosphere.

(b) The sample probe must be installed so that the probe is centrally located in the stack, pipe or duct and is sealed tightly at the stack port connection.

(c) Prior to the emission test, the measurement system must be assembled following the manufacturer's written instructions in preparing the sample interface and the organic analyzer. The system must be operable.

(d) Calibration error test as follows:

1. Immediately prior to the test series (within 2 hours of the start of the test), zero gas and high-level calibration gas shall be introduced at the calibration valve assembly.

2. The analyzer output shall be adjusted to the appropriate levels, if necessary.

3. The predicted response for the low-level and mid-level gases shall be calculated based on a linear response line between the zero and high-level responses.

4. Low-level and mid-level calibration gases shall be introduced successively to the measurement system.

5. The analyzer responses for low-level and mid-level calibration gases shall be recorded, and the differences between the measurement system responses and the predicted responses shall be determined. These differences must be less than ±5 percent of the respective calibration gas value. If not, the measurement

(Rule 1200-03-18-.86, continued)

system shall be deemed not acceptable and must be replaced or repaired prior to testing. No adjustments to the measurement system shall be conducted after the calibration and before the drift determination found in Paragraph (8)(b) of this section.

6. If adjustments are necessary before the completion of the test series, the drift checks shall be performed prior to the required adjustments, and the calibration following the adjustments shall be repeated.

7. If multiple electronic ranges are to be used, each additional range must be checked with a mid-level calibration gas to verify the multiplication factor.

(e) Response time test as follows:

1. Zero gas shall be introduced into the measurement system at the calibration valve assembly.

2. When the system output has stabilized, the owner or operator shall switch quickly to the high-level calibration gas.

3. The time shall be recorded from the concentration change to the measurement system response equivalent to 95 percent of the step change.

4. The test shall be repeated three times and the results averaged.

(8) Emission measurement test procedure includes the following:

(a) Organic measurement as follows:

1. Sampling shall begin at the start of the test period.

2. Time and any required process information shall be recorded, as appropriate.

3. Periods of process interruption or cyclic operation shall be noted on the recording chart.

(b) Drift determination as follows:

1. Immediately following the completion of the test period and hourly during the test period, the zero and mid-level calibration gases shall be introduced, one at a time, to the measurement system at the calibration valve assembly. No adjustments to the measurement system shall be made until after both the zero and calibration drift checks are made.

2. The analyzer response shall be recorded.

3. If the drift values exceed the specified limits, the test results shall be invalidated preceding the check, and the test shall be repeated following corrections to the measurement system.

4. Alternatively, the test measurement system may be recalibrated as in Subparagraph (7)(d) of this rule and the results reported using both sets of calibration data (i.e., data determined prior to the test period and data determined following the test period).

(Rule 1200-03-18-.86, continued)

(9) The average organic concentration shall be determined in terms of ppmv propane by the integration of the output recording over the period specified in the applicable regulation.

(10) Quality assurance includes the following:

(a) The owner or operator shall assure proper calibration, maintenance, and operation of the continuous emissions monitoring system on a continual basis.

(b) The owner or operator shall establish a quality assurance program to evaluate and monitor performance on a continual basis. The following checks shall routinely be done:

1. A daily calibration check for each monitor. The calibration shall be adjusted if the check indicates the instrument's calibration drift exceeds the specification established in Paragraph (6) of this rule;

2. A daily system audit which includes the following:

(i) A review of the calibration check data;

(ii) An inspection of the recording system;

(iii) An inspection of the control panel warning lights; and

(iv) An inspection of the sample transport/interface system (e.g., flowmeters, filters), as appropriate.

3. A quarterly calibration error test at the span midpoint; and

4. The entire performance specification test repeated every second year.

(11) Reporting of total hydrocarbon levels shall be as follows:

(a) The total hydrocarbon concentration (THC) levels from the initial compliance certification test shall be reported as ppm propane for inlet and outlet concentrations and as a percent reduction across the control device.

(b) THC levels shall be expressed in milligrams per second (mg/sec) (pounds per second [lb/sec]).

(c) This conversion shall be accomplished using the following equation:

THC, mg/sec = (THC ppm propane) x (stack gas flow) x 5.183 x 10-2

where:

THC ppm propane = The total hydrocarbon concentration as actually measured by this method in ppm propane at the inlet or outlet.

Stack gas flow = Measured in dry standard cubic feet per second as determined by the flowmeter system or Reference Methods 2 and 4.

5.183 x 10-2 = Constant to account for the conversion of units.

(12) References as follow are applicable for this rule:

(Rule 1200-03-18-.86, continued)

(a) Measurement of Volatile Organic Compounds--Guideline Series. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Publication No. EPA-450/2-78-041. June 1978. p. 46-54.

(b) Traceability Protocol for Establishing True Concentrations of Gases Used for Calibration and Audits of Continuous Source Emission Monitors (Protocol No. 1). U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory. Research Triangle Park, North Carolina. June 1973.

(c) Gasoline Vapor Emission Laboratory Evaluation--Part 2. U.S. Environmental Protection Agency. Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. EMB Report No. 75-GAS-6. August 1975.

(d) Appendix D: Performance Specifications for Continuous Emissions Monitoring of Total Hydrocarbons in Hazardous Waste Incinerators, Boilers and Industrial Furnaces. Federal Register. 54:206 pp. 43743-43745. October 26, 1989.

(13) Use of an adaptation to any of the requirements specified in this rule shall be approved by the Technical Secretary and EPA case-by-case. An owner or operator shall submit sufficient documentation for the Technical Secretary and EPA to find that the specified requirements will yield inaccurate results and that the proposed adaptation is appropriate, or that the proposed adaptation will yield results as accurate as will the specified requirements.

Authority: *T.C.A. §§ 4-5-201, et seq. and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed May 30, 1996; effective August 10, 1996.*

1200-03-18-.87 QUALITY CONTROL PROCEDURES FOR CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS).

(1) Each owner or operator of a CEMS shall develop and implement a CEMS QC program. At a minimum, each QC program shall include written procedures that describe in detail step-by-step procedures and operations for each of the following:

(a) Initial and routine periodic calibration of the CEMS.

(b) Calibration drift (CD) determination and adjustment of the CEMS.

(c) Preventative maintenance of the CEMS (including spare parts inventory).

(d) Data recording, calculations, and reporting.

(e) Accuracy audit procedures including sampling and analysis methods.

(f) Program of corrective action for malfunctioning CEMS.

(2) Out-of-control conditions are as follows:

(a) If either the zero (or low-level) or high-level CD exceeds twice the applicable drift specification in 40 C.F.R. Part 60, Appendix B, as of July 1, 1991, for five consecutive daily periods, the CEMS is out-of-control.

(b) If either the zero (or low-level) or high-level CD exceeds four times the applicable drift specification in 40 C.F.R. Part 60, Appendix B, as of July 1, 1991, during any CD check, the CEMS is out-of-control.

(Rule 1200-03-18-.87, continued)

(c) If the CEMS fails a performance audit (PA), the CEMS is out-of-control, and the owner or operator shall take necessary corrective action to eliminate the problem. Following the corrective action, the source owner or operator shall reconduct the appropriate failed portion of the audit and other applicable portions to determine whether the monitoring system is operating properly and within specifications. Monitoring data obtained during any out-of-control period may not be used for compliance determination or to meet any data capture requirements; however, the data can be used for identifying periods when there has been a failure to meet quality assurance/quality control criteria.

(3) Out-of-control time periods determination shall be as follows:

(a) The beginning of the out-of-control period is:

1. The time corresponding to the completion of the fifth consecutive daily CD check with CD in excess of two times the allowable limit, or

2. The time corresponding to completion of the daily CD check preceding the daily CD check that results in a CD in excess of four times the allowable limit.

(b) The end of the out-of-control period is the time corresponding to the completion of the CD check following corrective action that results in the CD's at both the zero (or low-level) and high-level measurement points being within the corresponding allowable CD limit (i.e., either two times or four times the allowable limit in 40 C.F.R. Part 60, Appendix B, as of July 1, 1991).

(c) If the CEMS failed a PA, the beginning of the out-of-control period is the time corresponding to the completion of the failed audit test. The end of the out-of-control period is the time corresponding to a successful retest of the PA sample.

(4) The owner or operator shall keep the QC procedure described in Paragraph (1) of this rule in a readily accessible location for at least 3 years and shall make the procedure available to the Technical Secretary upon request.

(5) Upon request, the owner or operator shall submit to the Technical Secretary a copy of all information and records documenting out-of-control periods including beginning and end dates and descriptions of corrective actions taken.

(6) Use of an adaptation to any of the requirements specified in this rule shall be approved by the Technical Secretary and EPA case-by-case. An owner or operator shall submit sufficient documentation for the Technical Secretary and EPA to find that the specified requirements are inappropriate and that the proposed adaptation is appropriate.

Authority: *T.C.A. §§ 4-5-202 and 68-201-105.* ***Administrative History:*** *Original rule filed March 8, 1993; effective April 22, 1993.*

1200-03-18-.88 THROUGH 1200-03-18-.99 RESERVED.