Texas Commission on Environmental Quality

Chapter 115 - Control of Air Pollution from Volatile Organic Compounds

Subchapter E : Solvent-Using Processes

DIVISION 6 : INDUSTRIAL CLEANING SOLVENTS
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Sections 460, 461, 463, 464, 465, 468 and 469:
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Outline:

****************************end outline tx5E6d168***************v5u******
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~~procedures to determine compliance with its rules. The new sections are also adopted under Federal Clean Air Act (FCAA), 42 United States Code (USC), §§7401, *et seq.*, which requires states to submit state implementation plan revisions that specify the manner in which the National Ambient Air Quality Standards will be achieved and maintained within each air quality control region of the state.~~

~~The new sections implement THSC, §§382.002, 382.011, 382.012, 382.016, 382.017, and 382.021; and FCAA, 42 USC, §§7401 *et seq.*~~

§115.460. Applicability and Definitions.

(a) Applicability. Except as specified in §115.461 of this title (relating to Exemptions), the requirements in this division apply to solvent cleaning operations in the Dallas-Fort Worth and Houston-Galveston-Brazoria areas, as defined in §115.10 of this title (relating to Definitions). Residential cleaning and janitorial cleaning are not considered solvent cleaning operations.

(b) Definitions. Unless specifically defined in the Texas Clean Air Act (Texas Health and Safety Code, Chapter 382) or in §§3.2, 101.1, or 115.10 of this title (relating to Definitions), the terms in this division have the meanings commonly used in the field of air pollution control. In addition, the following meanings apply in this division unless the context clearly indicates otherwise.

(1) **Aerosol can**--A hand-held, non-refillable container that expels pressurized product by means of a propellant-induced force.

(2) **Electrical and electronic components**--Components and assemblies of components that generate, convert, transmit, or modify electrical energy. Electrical and electronic components include, but are not limited to, wires, windings, stators, rotors, magnets, contacts, relays, printed circuit boards, printed wire assemblies, wiring boards, integrated circuits, resistors, capacitors, and transistors. Cabinets that house electrical and electronic components are not considered electrical and electronic components.

(3) **Janitorial cleaning**--The cleaning of building or building components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, bathrooms, furnishings, and exterior surfaces of office equipment, excluding the cleaning of work areas where manufacturing or repair activity is performed.

(4) **Magnet wire**--Wire used in electromagnetic field application in electrical machinery and equipment such as transformers, motors, generators, and magnetic tape recorders.

(5) **Magnet wire coating operation**--The process of applying insulation coatings such as varnish or enamel on magnet wire where wire is continuously drawn through a coating applicator.

(6) **Medical device**--An instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar article, including any component or accessory that is, intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of diseases; intended to affect the structure or any function of the body; or defined in the National Formulary or the United States Pharmacopoeia or any supplement to it.

(7) **Medical device and pharmaceutical preparation operations**--Medical devices, pharmaceutical products, and associated manufacturing and product handling equipment and material, work surfaces, maintenance tools, and room surfaces that are subject to the United States Federal Drug Administration current Good Manufacturing/Laboratory Practice, or Center for Disease Control or National Institute of Health guidelines for biological disinfection of surfaces.

(8) **Polyester resin operation**--The fabrication, rework, repair, or touch-up of composite products for commercial, military, or industrial uses by mixing, pouring, manual application, molding, impregnating, injecting, forming, spraying, pultrusion, filament winding, or centrifugally casting with polyester resins.

(9) **Precision optics**--The optical elements used in electro-optical devices that are designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes of light energy levels.

(10) **Solvent cleaning operation**--The removal of uncured adhesives, inks, and coatings; and contaminants such as dirt, soil, oil, and grease from parts, products, tools, machinery, equipment, vessels, floors, walls, and other work production-related areas.

(11) **Volatile organic compound (VOC) composite partial pressure**--The sum of the partial pressures of the compounds that meet the definition of VOC in §101.1 of this title (relating to Definitions). The VOC composite partial pressure is calculated as follows.

Figure: 30 TAC §115.460(b)(11)

$$PPc = \sum_{i-1}^{n} \frac{\left(\frac{Wi}{MWi} \times Vpi\right)}{\frac{Ww}{MWw} + \sum_{e-1}^{n} \frac{We}{MWe} + \sum_{i-1}^{n} \frac{Wi}{MWi}}$$

Where:

PPc = The volatile organic compound (VOC) composite partial vapor pressure of a solution at 20 degrees Celsius in millimeters of mercury (mmHg).

Wi = The weight of VOC i in grams (g).

MWi = The molecular weight of VOC i in g per g-mole.

VPi = The vapor pressure of VOC i at 20 degrees Celsius in mmHg.

Ww = The weight of water in g.

MWw = The molecular weight of water in g per g-mole.

We = The weight of non-water exempt compound e in g.

MWe = The molecular weight of non-water exempt compound e in g per g-mole.

§115.461. Exemptions.

(a) Solvent cleaning operations located on a property with total actual volatile organic compounds (VOC) emissions of less than 3.0 tons per calendar year from all cleaning solvents, when uncontrolled, are exempt from the requirements of this division, except as specified in §115.468(b)(2) of this title (relating to Monitoring and Recordkeeping Requirements). When calculating the VOC emissions, solvents used for cleaning operations that are exempt from this division under subsections (b) - (e) of this section are excluded.

(b) The owner or operator of any process or operation subject to another division of this chapter that specifies solvent cleaning operation requirements related to that process or operation is exempt from the requirements in this division.

(c) A solvent cleaning operation is exempt from this division if:

(1) the process or operation that the solvent cleaning operation is associated with is subject to another division in this chapter; and

(2) the VOC emissions from the solvent cleaning operation are controlled in accordance with an emission specification or control requirement of the division that the process or operation is subject to.

(d) The following are exempt from the VOC limits in §115.463(a) of this title (relating to Control Requirements):

(1) electrical and electronic components;

(2) precision optics;

(3) numisimatic dies;

(4) resin mixing, molding, and application equipment;

(5) coating, ink, and adhesive mixing, molding, and application equipment;

(6) stripping of cured inks, cured adhesives, and cured coatings;

(7) research and development laboratories;

(8) medical device or pharmaceutical preparation operations;

(9) performance or quality assurance testing of coatings, inks, or adhesives;

(10) architectural coating manufacturing and application operations;

(11) magnet wire coating operations;

(12) semiconductor wafer fabrication;

(13) coating, ink, resin, and adhesive manufacturing;

(14) polyester resin operations;

(15) flexographic and rotogravure printing processes;

(16) screen printing operations; and

(17) digital printing operations.

(e) Cleaning solvents supplied in aerosol cans are exempt from the VOC limits in §115.463(a) of this title if total use for the property is less than 160 fluid ounces per day.

§115.463. Control Requirements.

(a) The owner or operator shall limit the volatile organic compounds (VOC) content of cleaning solutions to:

(1) 0.42 pound of VOC per gallon of solution (lb VOC/gal solution), as applied; or

(2) limit the composite partial vapor pressure of the cleaning solution to 8.0 millimeters of mercury at 20 degrees Celsius (68 degrees Fahrenheit).

(b) As an alternative to subsection (a) of this section, the owner or operator shall operate a vapor control system capable of achieving an overall control efficiency of 85% by mass. Control device and capture efficiency testing must be performed in accordance with the testing requirements in §115.465 of this title (relating to Approved Test Methods and Testing Requirements).

(c) The owner or operator of a solvent cleaning operation shall implement the following work practices during the handling, storage, and disposal of cleaning solvents and shop towels:

(1) cover open containers and used applicators;

(2) minimize air circulation around solvent cleaning operations;

(3) properly dispose of used solvent and shop towels; and

(4) implement equipment practices that minimize emissions (e.g. maintaining cleaning equipment to repair solvent leaks).

(d) A solvent cleaning operation that becomes subject to subsection (a) of this section by exceeding the exemption limits in §115.461 of this title (relating to Exemptions) is subject to the provisions in subsection (a) of this section even if throughput or emissions later fall below exemption limits unless emissions are maintained at or below the controlled emissions level achieved while complying with subsection (a) of this section and one of the following conditions is met.

(1) The project that caused throughput or emission rate to fall below the exemption limits in §115.461 of this title must be authorized by a permit, permit amendment, standard permit, or permit by rule required by Chapter 116 or Chapter 106 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification; and Permits by Rule, respectively). If a permit by rule is available for the project, the owner or operator shall continue to comply with subsection (a) of this section for 30 days after the filing of documentation of compliance with that permit by rule.

(2) If authorization by permit, permit amendment, standard permit, or permit by rule is not required for the project, the owner or operator shall provide the executive director 30 days notice of the project in writing.

§115.464. Alternate Control Requirements.

For solvent cleaning operations subject to §115.463 of this title (relating to Control Requirements), alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division may be approved by the executive director in accordance with §115.910 of this title (relating to Availability of Alternate Means of Control) if emission reductions are demonstrated to be substantially equivalent.

§115.465. Approved Test Methods and Testing Requirements.

The owner or operator shall demonstrate compliance with the control requirements in §115.463 of this title (relating to Control Requirements) by applying the following test methods, as appropriate.

(1) Compliance with the volatile organic compound (VOC) limits in §115.463(a) of this title must be determined by the following methods, as applicable:

(A) Method 24 (40 Code of Federal Regulations (CFR) Part 60, Appendix A);

(B) American Society for Testing and Materials Method D2879, Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope to demonstrate compliance with §115.463(a)(2) of this title;

(C) using standard reference texts for the true vapor pressure of each VOC component to demonstrate compliance with §115.463(a)(2) of this title; or

(D) using analytical data from the cleaning solvent supplier or manufacturer's material safety data sheet.

(2) The owner or operator subject to §115.463(b) of this title shall measure the capture efficiency using applicable procedures outlined in 40 CFR §52.741, Subpart O, Appendix B (as amended through October 21, 1996 (61 FR 54559)). These procedures are: Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure; Procedure L - VOC Input; Procedure G.2 - Captured VOC Emissions (Dilution Technique); Procedure F.1 - Fugitive VOC Emissions from Temporary Enclosures; and Procedure F.2-Fugitive VOC Emissions from Building Enclosures.

(A) The following exemptions apply to capture efficiency testing requirements.

(i) If a source installs a permanent total enclosure that meets the specifications of Procedure T and that directs all VOC to a control device, then the capture efficiency is assumed to be 100%, and the source is exempted from capture efficiency testing requirements. This does not exempt the source from performance of any control device efficiency testing that may be required. In addition, a source must demonstrate all criteria for a permanent total enclosure are met during testing for control efficiency.

(ii) If a source uses a vapor control system designed to collect and recover VOC (e.g., carbon adsorption system), an explicit measurement of capture efficiency is not necessary if the following conditions are met. The overall control of the system can be determined by directly comparing the input liquid VOC to the recovered liquid VOC. The general procedure for use in this situation is given in 40 CFR §60.433 (as amended through October 17, 2000 (65 FR 61761)), with the following additional restrictions.

(I) The source must be able to equate solvent usage with solvent recovery on a 24-hour (daily) basis, rather than a 30-day weighted average. This verification must be done within 72 hours following each 24-hour period of the 30-day period.

(II) The solvent recovery system (i.e., capture and control system) must be dedicated to a single process line (e.g., one process line venting to a carbon adsorber system) or if the solvent recovery system controls multiple process lines, the source must be able to demonstrate that the overall control (i.e., the total recovered solvent VOC divided by the sum of liquid VOC input to all process lines venting to the control system) meets or exceeds the most stringent standard applicable for any process line venting to the control system.

(B) The capture efficiency must be calculated using one of the following protocols referenced. Any affected source must use one of these protocols,

unless a suitable alternative protocol is approved by the executive director and the United States Environmental Protection Agency (EPA).

(i) Gas/gas method using temporary total enclosure (TTE). The EPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T. The capture efficiency equation to be used for this protocol is:

Figure: 30 TAC §115.465(2)(B)(i)

$$CE = \frac{Gw}{(Gw + Fw)}$$

Where:
CE = The capture efficiency, decimal fraction.
Gw = The mass of volatile organic compounds (VOC) captured and delivered to control device using a temporary total enclosure (TTE) (use Procedure G.2).
Fw = The mass of fugitive VOC that escapes from a TTE (use Procedure F.1).

(ii) Liquid/gas method using TTE. The EPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T. The capture efficiency equation to be used for this protocol is:

Figure: 30 TAC §115.465(2)(B)(ii)

$$CE = \frac{(L - F)}{L}$$

Where:
CE = The capture efficiency, decimal fraction.
L = The mass of liquid volatile organic compounds (VOC) input to process (use Procedure L).
F = The mass of fugitive VOC that escapes from a temporary total enclosure (use Procedure F.1).

(iii) Gas/gas method using the building or room enclosure (BE) in which the affected source is located and in which the mass of VOC captured and delivered to a control device and the mass of fugitive VOC that escapes from the BE are measured while operating only the affected facility. All fans and blowers in the BE must be operating as they would under normal production. The capture efficiency equation to be used for this protocol is:

Figure: 30 TAC §115.465(2)(B)(iii)

$$CE = \frac{G}{(G + F_B)}$$

Where:
CE = The capture efficiency, decimal fraction.
G = The mass of volatile organic compounds (VOC) captured and delivered to a control device (use Procedure G.2).
F_B = The mass of fugitive VOC that escapes from building or room enclosure (use Procedure F.2).

(iv) Liquid/gas method using a BE in which the mass of liquid VOC input to process and the mass of fugitive VOC that escapes from the BE are

measured while operating only the affected facility. All fans and blowers in the BE must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

Figure: 30 TAC §115.465(2)(B)(iv)

$$CE = \frac{L}{F_B - L}$$

Where:
CE = The capture efficiency, decimal fraction.
L = The mass of liquid volatile organic compounds (VOC) input to process (use Procedure L).
F_B = The mass of fugitive VOC that escapes from a building or room enclosure (use Procedure F.2).

(C) The operating parameters selected for monitoring of the capture system for compliance with the requirements in §115.468(a) of this title (relating to Monitoring and Recordkeeping Requirements) must be monitored and recorded during the initial capture efficiency testing and thereafter during facility operation. The executive director may require a new capture efficiency test if the operating parameter values change significantly from those recorded during the initial capture efficiency test.

(3) In addition to the requirements of paragraph (2) of this section, the owner or operator shall determine compliance with §115.463(b) of this title by applying the following test methods, as appropriate:

(A) Methods 1 - 4 (40 CFR Part 60, Appendix A) for determining flow rates, as necessary;

(B) Method 25 (40 CFR Part 60, Appendix A) for determining total gaseous nonmethane organic emissions as carbon;

(C) Method 25A or 25B (40 CFR Part 60, Appendix A) for determining total gaseous organic concentrations using flame ionization or nondispersive infrared analysis; and

(D) additional performance test procedures described in 40 CFR §60.444 (as amended through October 18, 1983 (48 FR 48375)).

(4) Minor modifications to the methods in paragraphs (1) - (3) of this section maybe approved by the executive director. Methods other than those specified in paragraphs (1) - (3) of this section may be used if approved by the executive director and validated using Method 301 (40 CFR Part 63, Appendix A). For the purposes of this paragraph, substitute "executive director" each place that Method 301 references "administrator."

§115.468. Monitoring and Recordkeeping Requirements.

(a) Monitoring requirements. The following monitoring requirements apply to the owner or operator of a solvent cleaning operation subject to this division that uses a vapor control system in accordance with §115.463(b) of this title (relating to Control Requirements). The owner or operator shall install and maintain monitors to accurately measure and record operational parameters of all required control devices, as necessary, to ensure the proper functioning of those devices in accordance with design specifications, including:

(1) continuous monitoring of the exhaust gas temperature immediately downstream of direct-flame incinerators or the gas temperature immediately upstream and downstream of any catalyst bed;

(2) the total amount of volatile organic compounds (VOC) recovered by carbon adsorption or other solvent recovery systems during a calendar month;

(3) continuous monitoring of carbon adsorption bed exhaust; and

(4) appropriate operating parameters for vapor control systems other than those specified in paragraphs (1) - (3) of this subsection.

(b) Recordkeeping requirements. The following recordkeeping requirements apply to the owner or operator of a solvent cleaning operation subject to this division.

(1) The owner or operator shall maintain records of the testing data, the material safety data sheet, or documentation of the standard reference texts used to determine the true vapor pressure of each VOC component, in accordance with the requirements in §115.465(1) of this title (relating to Approved Test Methods and Testing Requirements). The concentration of all VOC used to prepare the cleaning solution and, if diluted prior to use, the proportions that each of these materials is used must be recorded. Records must be sufficient to demonstrate continuous compliance with the VOC limits in §115.463(a) of this title.

(2) The owner or operator claiming an exemption in §115.461 of this title (relating to Exemptions) shall maintain records sufficient to demonstrate continuous compliance with the applicable exemption criteria.

(3) The owner or operator claiming exemption from this division in accordance with §115.461(c) of this title shall maintain records indicating the applicable division the process or operation is subject to as specified in §115.461(c)(1) of this title and the control requirements or emission specifications used to control the VOC emissions from the solvent cleaning operation as specified in §115.461(c)(2) of this title. The owner or operator shall also comply with the applicable recordkeeping requirements from the division the process or operation is subject to sufficient to demonstrate that the VOC emissions from the solvent cleaning operation are controlled in accordance with the control requirements or emission specifications of that division.

(4) The owner or operator shall maintain records of any testing conducted in accordance with the provisions specified in §115.465(2) - (4) of this title.

(5) Records must be maintained a minimum of two years and be made available upon request to authorized representatives of the executive director, the United States Environmental Protection Agency, or any local air pollution agency with jurisdiction.

§115.469. Compliance Schedules.

(a) The owner or operator of a solvent cleaning operation subject to this division shall comply with the requirements in this division no later than March 1, 2013.

(b) The owner or operator of a solvent cleaning operation that becomes subject to this division on or after March 1, 2013, shall comply with the requirements in this division no later than 60 days after becoming subject.