

3745-256-30**Applicability and definitions - air emission standards for process vents.**

(A) Applicability. Rules 3745-256-30 to 3745-256-35 of the Administrative Code apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in rule 3745-65-01 of the Administrative Code).

(B) Except for paragraphs (D) and (E) of rule 3745-256-34 of the Administrative Code, rules 3745-256-30 to 3745-256-35 of the Administrative Code apply to process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least ten parts per million by weight, if these operations are conducted in one of the following:

(1) A unit that is subject to the permitting requirements of rules 3745-50-40 to 3745-50-235 of the Administrative Code; or

(2) A unit (including a hazardous waste recycling unit) that is not exempt from permitting under the rule 3745-52-17 of the Administrative Code (i.e., a hazardous waste recycling unit that is not a ninety-day tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of rules 3745-50-40 to 3745-50-235 of the Administrative Code; or

(3) A unit that is exempt from permitting under rule 3745-52-17 of the Administrative Code (i.e., a "ninety-day" tank or container) and is not a recycling unit under the requirements of rule 3745-51-06 of the Administrative Code.

[Comment: Rules 3745-256-32 to 3745-256-35 of the Administrative Code apply to process vents on hazardous waste recycling units previously exempt under paragraph (C)(1) of rule 3745-51-06 of the Administrative Code. Other exemptions under rule 3745-51-04 and paragraph (C) of rule 3745-65-01 of the Administrative Code are not affected by these requirements.]

(C) [Reserved.]

(D) Rules 3745-256-30 to 3745-256-35 of the Administrative Code do not apply to the process vents at a facility where the facility owner or operator certifies that all of the process vents that would otherwise be subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code are equipped with and operating air emission controls in accordance with the process vent requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63. The documentation of compliance under regulations at 40 CFR Part 60, Part 61, or Part 63 shall be kept with, or made readily available with, the facility operating record.

(E) Definitions. As used in rules 3745-256-30 to 3745-256-35 of the Administrative Code, all terms have the meaning given in rule 3745-205-31 of the Administrative Code, and Chapters 3745-50, 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-266 of the Administrative Code.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-32**Process vents - air emission standards for process vents.**

- (A) The owner or operator of a facility with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction or air or steam stripping operations managing hazardous wastes with organic concentrations at least ten parts per million by weight shall either:
- (1) Reduce total organic emissions from all affected process vents at the facility below 1.4 kilograms per hour (kg/h) [three pounds per hour (lb/h)] and 2.8 Megagrams per year (Mg/yr) [3.1 ton per year (tons/yr)]; or
  - (2) Reduce, by use of a control device, total organic emissions from all affected process vents at the facility by ninety-five weight per cent.
- (B) If the owner or operator installs a closed-vent system and control device to comply with paragraph (A) of this rule, the closed-vent system and control device shall meet the requirements of rule 3745-256-33 of the Administrative Code.
- (C) Determinations of vent emissions and emission reductions or total organic compound concentrations achieved by add-on control devices may be based on engineering calculations or performance tests. If performance tests are used to determine vent emissions, emission reductions, or total organic compound concentrations achieved by add-on control devices, the performance tests shall conform with the requirements of paragraph (C) of rule 3745-256-34 of the Administrative Code.
- (D) When an owner or operator and the director do not agree on determinations of vent emissions or emission reductions or total organic compound concentrations achieved by add-on control devices based on engineering calculations, the test methods in paragraph (C) of rule 3745-256-34 of the Administrative Code shall be used to resolve the disagreement.

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3745-256-33**Closed-vent systems and control devices - process vents.**

(A)

(1) Owners or operators of closed-vent systems and control devices used to comply with rules 3745-256-30 to 3745-256-35 of the Administrative Code shall comply with this rule.

(2)

(a) The owner or operator of an existing facility who cannot install a closed-vent system and control device to comply with rules 3745-256-30 to 3745-256-35 of the Administrative Code on the effective date that the facility becomes subject to the requirements of rules 3745-256-30 to 3745-256-35 of the Administrative Code shall prepare an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The controls shall be installed as soon as possible, but the implementation schedule may allow up to thirty months after the effective date that the facility becomes subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code for installation and startup.

(b) Any unit that begins operation after December 21, 1990 and is subject to the requirements of rules 3745-256-30 to 3745-256-35 of the Administrative Code when operation begins, shall comply with the rules immediately (i.e., shall have control devices installed and operating on startup of the affected unit); the thirty-month implementation schedule does not apply.

(c) The owner or operator of any facility in existence on the effective date of a statutory or Ohio EPA regulatory amendment that renders the facility subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code shall comply with all requirements of rules 3745-256-30 to 3745-256-35 of the Administrative Code as soon as practicable but no later than thirty months after the amendment's effective date. When control equipment required by rules 3745-256-30 to 3745-256-35 of the Administrative Code cannot be installed and begin operation by the effective date of the amendment, the facility owner or operator shall prepare an implementation schedule that includes specific calendar dates for award of contracts or issuance of purchase orders for the control equipment, initiation of on-site installation of the control equipment, completion of the control equipment installation, and performance of any testing to demonstrate that the installed equipment meets the applicable standards of rules 3745-256-30 to 3745-256-35 of the Administrative Code. The owner or operator shall enter the implementation schedule in

the operating record or in a permanent, readily available file located at the facility.

(d) Owners and operators of facilities and units that become newly subject to the requirements of rules 3745-256-30 to 3745-256-35 of the Administrative Code after December 8, 1997, due to an action other than those described in paragraph (A)(2)(c) of this rule shall comply with all applicable requirements immediately (i.e., shall have control devices installed and operating on the date the facility or unit becomes subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code; the thirty-month implementation schedule does not apply).

(B) A control device involving vapor recovery (e.g., a condenser or adsorber) shall be designed and operated to recover the organic vapors vented to the control device with an efficiency of ninety-five weight per cent or greater unless the total organic emission limits of paragraph (A)(1) of rule 3745-256-32 of the Administrative Code for all affected process vents can be attained at an efficiency less than ninety-five weight per cent.

(C) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall be designed and operated to reduce the organic emissions vented to it by ninety-five weight per cent or greater; to achieve a total organic compound concentration of twenty parts per million by volume (ppmv), expressed as the sum of the actual compounds, not carbon equivalents, on a dry basis corrected to three per cent oxygen; or to provide a minimum residence time of 0.50 seconds at a minimum temperature of seven hundred sixty degrees Celsius. If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame combustion zone of the boiler or process heater.

(D)

(1) A flare shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (E)(1) of this rule, except for periods not to exceed a total of five minutes during any two consecutive hours.

(2) A flare shall be operated with a flame present at all times, as determined by the methods specified in paragraph (F)(2)(c) of this rule.

(3) A flare shall be used only if the net heating value of the gas being combusted is 11.2 MegaJoules per standard cubic meter of gas (MJ/scm) [three hundred British thermal units per standard cubic foot (Btu/scf)] or greater, if the flare is steam-assisted or air-assisted; or if the net heating value of the gas being combusted is 7.45 MJ/scm (two hundred Btu/scf) or greater if the flare is non-

assisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (E)(2) of this rule.

(4)

(a) A steam-assisted or non-assisted flare shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (E)(3) of this rule, of less than 18.3 meters per second (m/s) [sixty feet per second (ft/s)], except as provided in paragraphs (D)(4)(b) and (D)(4)(c) of this rule.

(b) A steam-assisted or non-assisted flare designed for and operated with an exit velocity, as determined by the methods specified in paragraph (E)(3) of this rule, equal to or greater than 18.3 m/s (sixty ft/s) but less than one hundred twenty-two m/s (four hundred ft/s) is allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (one thousand Btu/scf).

(c) A steam-assisted or non-assisted flare designed for and operated with an exit velocity, as determined by the methods specified in paragraph (E)(3) of this rule, less than the velocity,  $V_{max}$ , as determined by the method specified in paragraph (E)(4) of this rule, and less than one hundred twenty-two m/s (four hundred ft/s) is allowed.

(5) An air-assisted flare shall be designed and operated with an exit velocity less than the velocity,  $V_{max}$ , as determined by the method specified in paragraph (E)(5) of this rule.

(6) A flare used to comply with this rule shall be steam-assisted, air-assisted, or non-assisted.

(E)

(1) Reference method 22 in 40 CFR Part 60 shall be used to determine the compliance of a flare with the visible emission provisions of rules 3745-256-30 to 3745-256-35 of the Administrative Code. The observation period is two hours and shall be used according to method 22.

(2) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:



$$H_T = K \left[ \sum_{i=1}^n C_i H_i \right]$$

Where:

$H_T$  = Net heating value of the sample, MJ/scm; where the net enthalpy per mole (mol) of offgas is based on combustion at twenty-five degrees Celsius and seven hundred sixty millimeters of mercury (mm Hg), but the standard temperature for determining the volume corresponding to one mol is twenty degrees Celsius;

$K$  = Constant,  $1.74 \times 10^{-7}$  (1/ppm) (g mol/scm) (MJ/kcal) where standard temperature for (g mol/scm) is twenty degrees Celsius; ppm means parts per million, g mol/scm means gram mole per standard cubic meter of gas, MJ/kcal means MegaJoules per kilocalorie;

$C_i$  = Concentration of sample component  $i$  in ppm on a wet basis, as measured for organics by reference method 18 in 40 CFR Part 60 and measured for hydrogen and carbon monoxide by ASTM D1946-82 (incorporated by reference in rule 3745-50-11 of the Administrative Code); and

$H_i$  = Net heat of combustion of sample component  $i$ , kcal/g mol at twenty-five degrees Celsius and seven hundred sixty mm Hg. The heats of combustion may be determined using ASTM D2382-83 (incorporated by reference as specified in rule 3745-50-11 of the Administrative Code) if published values are not available or cannot be calculated.

- (3) 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, method 2A, method 2C, or method 2D in 40 CFR Part 60 as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

(4) The maximum allowed velocity in m/s,  $V_{max}$ , for a flare complying with paragraph (D)(4)(c) of this rule shall be determined by the following equation:

$$\text{Log}_{10}(V_{max}) = \frac{(H_T + 28.8)}{31.7}$$


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Where:

$H_T$  = The net heating value as determined in paragraph (E)(2) of this rule.

28.8 = Constant.

31.7 = Constant.

(5) The maximum allowed velocity in m/s,  $V_{max}$ , for an air-assisted flare shall be determined by the following equation:

$$\underline{V_{max} = 8.706 + 0.7084 (H_T)}$$

Where:

8.706 = Constant.

0.7084 = Constant.

$H_T$  = The net heating value as determined in paragraph (E)(2) of this rule.

(F) The owner or operator shall monitor and inspect each control device required to comply with this rule to ensure proper operation and maintenance of the control device by implementing the following requirements:

(1) Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow from each affected process vent to the control device at least once every hour. The flow indicator sensor shall be installed in the vent stream at the nearest feasible

point to the control device inlet, but before being combined with other vent streams.

(2) Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor control device operation as specified here:

(a) For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. The temperature sensor shall be installed at a location in the combustion chamber downstream of the combustion zone.

(b) For a catalytic vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature at two locations and have an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. One temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet and a second temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed outlet.

(c) For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame.

(d) For a boiler or process heater having a design heat input capacity less than forty-four megawatts (MW), a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. The temperature sensor shall be installed at a location in the furnace downstream of the combustion zone.

(e) For a boiler or process heater having a design heat input capacity greater than or equal to forty-four MW, a monitoring device equipped with a continuous recorder to measure parameters that indicate good combustion operating practices are being used.

(f) For a condenser, either:

- (i) A monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the condenser; or
    - (ii) A temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature with an accuracy of plus or minus one per cent of the temperature being monitored in degrees Celsius or plus or minus 0.5 degrees Celsius, whichever is greater. The temperature sensor shall be installed at a location in the exhaust vent stream from the condenser exit (i.e., product side).
  - (g) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly in the control device, either:
    - (i) A monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the carbon bed; or
    - (ii) A monitoring device equipped with a continuous recorder to measure a parameter that indicates the carbon bed is regenerated on a regular, predetermined time cycle.
- (3) Inspect the readings from each monitoring device required by paragraphs (F)(1) and (F)(2) of this rule at least once each operating day to check control device operation and, if necessary, immediately implement the corrective measures necessary to ensure the control device operates in compliance with the requirements of this rule.
- (G) An owner or operator using a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly on-site in the control device, shall replace the existing carbon in the control device with fresh carbon at a regular, predetermined time interval that is no longer than the carbon service life established as a requirement of paragraph (B)(4)(c)(vi) of rule 3745-256-35 of the Administrative Code.
- (H) An owner or operator using a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly on-site in the control device shall replace the existing carbon in the control device with fresh carbon on a regular basis by using one of the following procedures:
  - (1) Monitor the concentration level of the organic compounds in the exhaust vent stream from the carbon adsorption system on a regular schedule and replace

the existing carbon with fresh carbon immediately when carbon breakthrough is indicated. The monitoring frequency shall be daily or at an interval no greater than twenty per cent of the time required to consume the total carbon working capacity established as a requirement of paragraph (B)(4)(c)(vii) of rule 3745-256-35 of the Administrative Code, whichever is longer.

(2) Replace the existing carbon with fresh carbon at a regular, predetermined time interval that is less than the design carbon replacement interval established as a requirement of paragraph (B)(4)(c)(vii) of rule 3745-256-35 of the Administrative Code.

(I) An owner or operator of an affected facility seeking to comply with rules 3745-256-30 to 3745-256-35 of the Administrative Code by using a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system is required to develop documentation including sufficient information to describe the control device operation and identify the process parameter or parameters that indicate proper operation and maintenance of the control device.

(J) A closed-vent system shall meet either of the following design requirements:

(1) A closed-vent system shall be designed to operate with no detectable emissions, as indicated by an instrument reading of less than five hundred ppmv above background as determined by the procedure in paragraph (B) of rule 3745-256-34 of the Administrative Code, and by visual inspections; or

(2) A closed-vent system shall be designed to operate at a pressure below atmospheric pressure. The system shall be equipped with at least one pressure gauge or other pressure measurement device that can be read from a readily accessible location to verify that negative pressure is being maintained in the closed-vent system when the control device is operating.

(K) The owner or operator shall monitor and inspect each closed-vent system required to comply with this rule to ensure proper operation and maintenance of the closed-vent system by implementing the following requirements:

(1) Each closed-vent system that is used to comply with paragraph (J)(1) of this rule shall be inspected and monitored in accordance with the following requirements:

(a) An initial leak detection monitoring of the closed-vent system shall be conducted by the owner or operator on or before the date that the system becomes subject to this rule. The owner or operator shall monitor the

closed-vent system components and connections using the procedures specified in paragraph (B) of rule 3745-256-34 of the Administrative Code to demonstrate that the closed-vent system operates with no detectable emissions, as indicated by an instrument reading of less than five hundred ppmv above background.

- (b) After initial leak detection monitoring required in paragraph (K)(1)(a) of this rule, the owner or operator shall inspect and monitor the closed-vent system as follows:
- (i) Closed-vent system joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted and gasketed ducting flange) shall be visually inspected at least once per year to check for defects that could result in air pollutant emissions. The owner or operator shall monitor a component or connection using the procedures specified in paragraph (B) of rule 3745-256-34 of the Administrative Code to demonstrate that it operates with no detectable emissions following any time the component is repaired or replaced (e.g., a section of damaged hard piping is replaced with new hard piping) or the connection is unsealed (e.g., a flange is unbolted).
  - (ii) Closed-vent system components or connections other than those specified in paragraph (K)(1)(b)(i) of this rule shall be monitored annually and at other times as requested by the director, except as provided for in paragraph (N) of this rule, using the procedures specified in paragraph (B) of rule 3745-256-34 of the Administrative Code to demonstrate that the components or connections operate with no detectable emissions.
- (c) In the event that a defect or leak is detected, the owner or operator shall repair the defect or leak in accordance with the requirements of paragraph (K)(3) of this rule.
- (d) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in rule 3745-256-35 of the Administrative Code.
- (2) Each closed-vent system that is used to comply with paragraph (J)(2) of this rule shall be inspected and monitored in accordance with the following requirements:

- (a) The closed-vent system shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork or piping or loose connections.
  - (b) The owner or operator shall perform an initial inspection of the closed-vent system on or before the date that the system becomes subject to this rule. Thereafter, the owner or operator shall perform the inspections at least once every year.
  - (c) In the event that a defect or leak is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (K)(3) of this rule.
  - (d) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in rule 3745-256-35 of the Administrative Code.
- (3) The owner or operator shall repair all detected defects as follows:
- (a) Detectable emissions, as indicated by visual inspection, or by an instrument reading greater than five hundred ppmv above background, shall be controlled as soon as practicable, but not later than fifteen calendar days after the emission is detected, except as provided for in paragraph (K)(3)(c) of this rule.
  - (b) A first attempt at repair shall be made no later than five calendar days after the emission is detected.
  - (c) Delay of repair of a closed-vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown, or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next process unit shutdown.
  - (d) The owner or operator shall maintain a record of the defect repair in accordance with the requirements specified in rule 3745-256-35 of the Administrative Code.
- (L) Closed-vent systems and control devices used to comply with rules 3745-256-30 to 3745-256-35 of the Administrative Code shall be operated at all times when emissions may be vented to them.

(M) The owner or operator using a carbon adsorption system to control air pollutant emissions shall document that all carbon that is a hazardous waste and that is removed from the control device is managed in one of the following manners, regardless of the average volatile organic concentration of the carbon:

(1) Regenerated or reactivated in a thermal treatment unit that meets one of the following:

(a) The owner or operator of the unit has been issued a final permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implements the requirements of rules 3745-57-90 to 3745-57-93 of the Administrative Code; or

(b) The unit is equipped with and operating air emission controls in accordance with the applicable requirements of rules 3745-256-30 to 3745-256-35 and 3745-256-80 to 3745-256-90 of the Administrative Code, or rules 3745-205-30 to 3745-205-36 and 3745-205-80 to 3745-205-90 of the Administrative Code; or

(c) The unit is equipped with and operating air emission controls in accordance with a national emission standard for hazardous air pollutants under 40 CFR Part 61 or 40 CFR Part 63.

(2) Incinerated in a hazardous waste incinerator for which the owner or operator either:

(a) Has been issued a final permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implements the requirements of rules 3745-57-40 to 3745-57-51 of the Administrative Code; or

(b) Has designed and operates the incinerator in accordance with the interim status requirements of rules 3745-68-40 to 3745-68-52 of the Administrative Code.

(3) Burned in a boiler or industrial furnace for which the owner or operator either:

(a) Has been issued a final permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implements the requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code; or

(b) Has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code.



(N) Any components of a closed-vent system that are designated, as described in paragraph (C)(9) of rule 3745-256-35 of the Administrative Code, as unsafe to monitor are exempt from the requirements of paragraph (K)(1)(b)(ii) of this rule if:

- (1) The owner or operator of the closed-vent system determines that the components of the closed-vent system are unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (K)(1)(b)(ii) of this rule; and
- (2) The owner or operator of the closed-vent system adheres to a written plan that requires monitoring the closed-vent system components using the procedure specified in paragraph (K)(1)(b)(ii) of this rule as frequently as practicable during safe-to-monitor times.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

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3745-256-34**Test methods and procedures - process vents.**

- (A) Each owner or operator subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code shall comply with the test methods and procedures requirements provided in this rule.
- (B) When a closed-vent system is tested for compliance with no detectable emissions, as required in paragraph (K) of rule 3745-256-33 of the Administrative Code, the test shall comply with the following requirements:
- (1) Monitoring shall comply with reference method 21 in 40 CFR Part 60.
  - (2) The detection instrument shall meet the performance criteria of reference method 21.
  - (3) The instrument shall be calibrated before use on each day of its use by the procedures specified in reference method 21.
  - (4) Calibration gases shall be:
    - (a) Zero air (less than ten parts per million (ppm) of hydrocarbon in air).
    - (b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand ppm methane or n-hexane.
  - (5) The background level shall be determined as provided in reference method 21.
  - (6) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.
  - (7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with five hundred ppm for determining compliance.
- (C) Performance tests to determine compliance with paragraph (A) of rule 3745-256-32 of the Administrative Code and with the total organic compound concentration limit of paragraph (C) of rule 3745-256-33 of the Administrative Code shall comply with the following:
- (1) Performance tests to determine total organic compound concentrations and mass flow rates entering and exiting control devices shall be conducted and data reduced in accordance with the following reference methods and calculation procedures:
    - (a) Method 2 in 40 CFR Part 60 for velocity and volumetric flow rate.

- (b) Method 18 or method 25A in 40 CFR Part 60 appendix A, for organic content. If method 25A is used, the organic hazardous air pollutants (HAP) used as the calibration gas shall be the single organic HAP representing the largest per cent by volume of the emissions. The use of method 25A is acceptable if the response from the high-level calibration gas is at least twenty times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.
- (c) Each performance test shall consist of three separate runs; each run conducted for at least one hour under the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. For the purpose of determining total organic compound concentrations and mass flow rates, the average of results of all runs shall apply. The average shall be computed on a time-weighted basis.
- (d) Total organic mass flow rates shall be determined by the following equation:
- (i) For sources utilizing method 18.

$$E_h = Q_{2sd} \left\{ \sum_{i=1}^n C_i MW_i \right\} [0.0416][10^{-6}]$$

Where:

$E_h$  = Total organic mass flow rate, kilograms per hour (kg/h);

$Q_{2sd}$  = Volumetric flow rate of gases entering or exiting control device, as determined by method 2, standard cubic meter of dry gas per hour (dscm/h);

$n$  = Number of organic compounds in the vent gas;

$C_i$  = Organic concentration in ppm, dry basis, of compound  $i$  in the vent gas, as determined by method 18;

MW<sub>i</sub> = Molecular weight of organic compound i in the vent gas, kilogram per kilogram mole (kg/kg-mol);

0.0416 = Conversion factor for molar volume, kg-mol/m<sup>3</sup> [at two hundred ninety-three Kelvin and seven hundred sixty milligrams of mercury (mm Hg);

10<sup>-6</sup> = Conversion from ppm.

(ii) For sources utilizing method 25A.

$$E_h = (O)(C)(MW)(0.0416)(10^{-6})$$

Where:

E<sub>h</sub> = Total organic mass flow rate, kg/h;

Q = Volumetric flow rate of gases entering or exiting control device, as determined by method 2, dscm/h;

C = Organic concentration in ppm, dry basis, as determined by method 25A;

MW = Molecular weight of propane, 44;

0.0416 = Conversion factor for molar volume, kg-mol/m<sup>3</sup> (at two hundred ninety-three Kelvin and seven hundred sixty mm Hg);

10<sup>-6</sup> = Conversion from ppm.

(e) The annual total organic emission rate shall be determined by the following equation:

$$E_A = (E_h)(H)$$

Where:

E<sub>A</sub> = Total organic mass emission rate, kilograms per year (kg/y);

E<sub>h</sub> = Total organic mass flow rate for the process vent, kg/h;

H = Total annual hours of operations for the affected unit, h.

- (f) Total organic emissions from all affected process vents at the facility shall be determined by summing the hourly total organic mass emission rates [ $E_h$ , as determined in paragraph (C)(1)(d) of this rule] and by summing the annual total organic mass emission rates [ $E_A$ , as determined in paragraph (C)(1)(e) of this rule] for all affected process vents at the facility.
- (2) The owner or operator shall record such process information as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.
- (3) The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:
- (a) Sampling ports adequate for the test methods specified in paragraph (C)(1) of this rule.
- (b) Safe sampling platforms.
- (c) Safe access to sampling platforms.
- (d) Utilities for sampling and testing equipment.
- (4) For the purpose of making compliance determinations, the time-weighted average of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs shall be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the director's approval, be determined using the average of the results of the two other runs.
- (D) To show that a process vent associated with a hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation is not subject to the requirements of rules 3745-256-30 to 3745-256-35 of the Administrative Code, the owner or operator shall make an initial determination that the time-weighted, annual average total organic concentration of the waste managed by the waste management unit is less than ten parts per million by weight (ppmw) using one of the following two methods:
- (1) Direct measurement of the organic concentration of the waste using the following procedures:

- (a) The owner or operator shall take a minimum of four grab samples of waste for each waste stream managed in the affected unit under process conditions expected to cause the maximum waste organic concentration.
  - (b) For waste generated on-site, the grab samples shall be collected at a point before the waste is exposed to the atmosphere such as in an enclosed pipe or other closed system that is used to transfer the waste after generation to the first affected distillation fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation. For waste generated offsite, the grab samples shall be collected at the inlet to the first waste management unit that receives the waste provided the waste has been transferred to the facility in a closed system such as a tank truck and the waste is not diluted or mixed with other waste.
  - (c) Each sample shall be analyzed and the total organic concentration of the sample shall be computed using method 9060A of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA publication SW-846; or analyzed for its individual organic constituents.
  - (d) The arithmetic mean of the results of the analyses of the four samples shall apply for each waste stream managed in the unit in determining the time-weighted, annual average total organic concentration of the waste. The time-weighted average is to be calculated using the annual quantity of each waste stream processed and the mean organic concentration of each waste stream managed in the unit.
- (2) Using knowledge of the waste to determine that its total organic concentration is less than ten ppmw. Documentation of the waste determination is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to generate a waste stream having a total organic content less than ten ppmw, or prior speciation analysis results on the same waste stream where it also can be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.
- (E) The determination that distillation fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations manage hazardous wastes with time-weighted annual average total organic concentrations less than ten ppmw shall be made as follows:

- (1) By the effective date that the facility becomes subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code or by the date when the waste is first managed in a waste management unit, whichever is later; and
  - (2) For continuously generated waste, annually; or
  - (3) Whenever there is a change in the waste being managed or a change in the process that generates or treats the waste.
- (F) When an owner or operator and the director do not agree on whether a distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation manages a hazardous waste with organic concentrations of at least ten ppmw based on knowledge of the waste, the dispute may be resolved using direct measurement as specified at paragraph (D)(1) of this rule.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]



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Certification

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Date

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3745-256-35**Recordkeeping - process vents.****(A)**

(1) Each owner or operator subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code shall comply with the recordkeeping requirements of this rule.

(2) An owner or operator of more than one hazardous waste management unit subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code may comply with the recordkeeping requirements for these hazardous waste management units in one recordkeeping system if the system identifies each record by each hazardous waste management unit.

**(B) Owners and operators shall record the following information in the facility operating record:**

(1) For facilities that comply with paragraph (A)(2) of rule 3745-256-33 of the Administrative Code, an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The schedule also shall include a rationale of why the installation cannot be completed at an earlier date. The implementation schedule shall be in the facility operating record by the effective date that the facility becomes subject to rules 3745-256-30 to 3745-256-35 of the Administrative Code.

(2) Up to date documentation of compliance with the process vent standards in rule 3745-256-32 of the Administrative Code, including:

(a) Information and data identifying all affected process vents, annual throughput and operating hours of each affected unit, estimated emission rates for each affected vent and for the overall facility (i.e., the total emissions for all affected vents at the facility), and the approximate location within the facility of each affected unit (e.g., identify the hazardous waste management units on a facility plot plan); and

(b) Information and data supporting determinations of vent emissions and emission reductions achieved by add-on control devices based on engineering calculations or source tests. For the purpose of determining compliance, determinations of vent emissions and emission reductions shall be made using operating parameter values (e.g., temperatures, flow rates or vent stream organic compounds and concentrations) that represent the conditions that result in maximum organic emissions, such as when the waste management unit is operating at the highest load or capacity level reasonably expected to occur. If the owner or operator takes

any action (e.g., managing a waste of different composition or increasing operating hours of affected waste management units) that would result in an increase in total organic emissions from affected process vents at the facility, then a new determination is required.

(3) Where an owner or operator chooses to use test data to determine the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan. The test plan shall include:

(a) A description of how it is determined that the planned test is going to be conducted when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. This shall include the estimated or design flow rate and organic content of each vent stream and define the acceptable operating ranges of key process and control device parameters during the test program.

(b) A detailed engineering description of the closed-vent system and control device including:

(i) Manufacturer's name and model number of control device.

(ii) Type of control device.

(iii) Dimensions of the control device.

(iv) Capacity.

(v) Construction materials.

(c) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(4) Documentation of compliance with rule 3745-256-33 of the Administrative Code shall include the following information:

(a) A list of all information references and sources used in preparing the documentation.

(b) Records, including the dates, of each compliance test required by paragraph (J) of rule 3745-256-33 of the Administrative Code.

- (c) If engineering calculations are used, a design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of "APTI Course 415: Control of Gaseous Emissions" or other engineering texts acceptable to the director that present basic control device design information. Documentation provided by the control device manufacturer or vendor that describes the control device design in accordance with paragraphs (B)(4)(c)(i) to (B)(4)(c)(vii) of this rule may be used to comply with this requirement. The design analysis shall address the vent stream characteristics and control device operation parameters as specified below.
- (i) For a thermal vapor incinerator, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall establish the design minimum and average temperature in the combustion zone and the combustion zone residence time.
- (ii) For a catalytic vapor incinerator, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall establish the design minimum and average temperatures across the catalyst bed inlet and outlet.
- (iii) For a boiler or process heater, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall establish the design minimum and average flame zone temperatures, combustion zone residence time, and description of method and location where the vent stream is introduced into the combustion zone.
- (iv) For a flare, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis also shall consider the requirements specified in paragraph (D) of rule 3745-256-33 of the Administrative Code.
- (v) For a condenser, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis also shall establish the design outlet organic compound concentration level, design average temperature of the condenser exhaust vent stream, and design average temperatures of the coolant fluid at the condenser inlet and outlet.

- (vi) For a carbon adsorption system such as a fixed-bed adsorber that regenerates the carbon bed directly on-site in the control device, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis also shall establish the design exhaust vent stream organic compound concentration level, number and capacity of carbon beds, type and working capacity of activated carbon used for carbon beds, design total steam flow over the period of each complete carbon bed regeneration cycle, duration of the carbon bed steaming and cooling and drying cycles, design carbon bed temperature after regeneration, design carbon bed regeneration time, and design service life of carbon.
- (vii) For a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly on-site in the control device, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis also shall establish the design outlet organic concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.
- (d) A statement signed and dated by the owner or operator certifying that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur.
- (e) A statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of ninety-five per cent or greater unless the total organic concentration limit of paragraph (A) of rule 3745-256-32 of the Administrative Code is achieved at an efficiency less than ninety-five weight per cent or the total organic emission limits of paragraph (A) of rule 3745-256-32 of the Administrative Code for affected process vents at the facility can be attained by a control device involving vapor recovery at an efficiency less than ninety-five weight per cent. A statement provided by the control device manufacturer or vendor certifying that the control equipment meets the design specifications may be used to comply with this requirement.

(f) If performance tests are used to demonstrate compliance, all test results.

(C) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with rules 3745-256-30 to 3745-256-35 of the Administrative Code shall be recorded and kept up to date in the facility operating record. The information shall include:

(1) Description and date of each modification that is made to the closed-vent system or control device design.

(2) Identification of operating parameter, description of monitoring device, and diagram of monitoring sensor location or locations used to comply with paragraphs (F)(1) and (F)(2) of rule 3745-256-33 of the Administrative Code.

(3) Monitoring, operating and inspection information required by paragraphs (F) to (K) of rule 3745-256-33 of the Administrative Code.

(4) Date, time, and duration of each period that occurs while the control device is operating when any monitored parameter exceeds the value established in the control device design analysis as specified here:

(a) For a thermal vapor incinerator designed to operate with a minimum residence time of 0.50 seconds at a minimum temperature of seven hundred sixty degrees Celsius, period when the combustion temperature is below seven hundred degrees Celsius.

(b) For a thermal vapor incinerator designed to operate with an organic emission reduction efficiency of ninety-five per cent or greater, period when the combustion zone temperature is more than twenty-eight degrees Celsius below the design average combustion zone temperature established as a requirement of paragraph (A)(4)(c)(i) of this rule.

(c) For a catalytic vapor incinerator, period when:

(i) Temperature of the vent stream at the catalyst bed inlet is more than twenty-eight degrees Celsius below the average temperature of the inlet vent stream established as a requirement of paragraph (B)(4)(c)(ii) of this rule; or

(ii) Temperature difference across the catalyst bed is less than eighty per cent of the design average temperature difference established as a requirement of paragraph (B)(4)(c)(ii) of this rule.

(d) For a boiler or process heater, period when:

- (i) Flame zone temperature is more than twenty-eight degrees Celsius below the design average flame zone temperature established as a requirement of paragraph (B)(4)(c)(iii) of this rule; or
  - (ii) Position changes where the vent stream is introduced to the combustion zone from the location established as a requirement of paragraph (B)(4)(c)(iii) of this rule.
- (e) For a flare, period when the pilot flame is not ignited.
- (f) For a condenser that complies with paragraph (F)(2)(f)(i) of rule 3745-256-33 of the Administrative Code, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the condenser are more than twenty per cent greater than the design outlet organic compound concentration level established as a requirement of paragraph (B)(4)(c)(v) of this rule.
- (g) For a condenser that complies with paragraph (F)(2)(f)(ii) of rule 3745-256-33 of the Administrative Code, period when:
  - (i) Temperature of the exhaust vent stream from the condenser is more than six degrees Celsius above the design average exhaust vent stream temperature established as a requirement of paragraph (B)(4)(c)(v) of this rule; or
  - (ii) Temperature of the coolant fluid exiting the condenser is more than six degrees Celsius above the design average coolant fluid temperature at the condenser outlet established as a requirement of paragraph (B)(4)(c)(v) of this rule.
- (h) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly on-site in the control device and complies with paragraph (F)(2)(g)(i) of rule 3745-256-33 of the Administrative Code, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the carbon bed are more than twenty per cent greater than the design exhaust vent stream organic compound concentration level established as a requirement of paragraph (B)(4)(c)(vi) of this rule.
- (i) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly on-site in the control device and complies with paragraph (F)(2)(g)(ii) of rule 3745-256-33 of the Administrative Code, period when the vent stream continues to

flow through the control device beyond the predetermined carbon bed regeneration time established as a requirement of paragraph (B)(4)(c)(vi) of this rule.

- (5) Explanation for each period recorded under paragraph (C)(4) of this rule of the cause for control device operating parameter exceeding the design value and the measures implemented to correct the control device operation.
- (6) For carbon adsorption systems operated subject to requirements specified in paragraph (G) or (H)(2) of rule 3745-256-33 of the Administrative Code, date when existing carbon in the control device is replaced with fresh carbon.
- (7) For carbon adsorption systems operated subject to requirements specified in paragraph (H)(1) of rule 3745-256-33 of the Administrative Code, a log that records:
  - (a) Date and time when control device is monitored for carbon breakthrough and the monitoring device reading.
  - (b) Date when existing carbon in the control device is replaced with fresh carbon.
- (8) Date of each control device startup and shutdown.
- (9) An owner or operator designating any components of a closed-vent system as unsafe to monitor pursuant to paragraph (N) of rule 3745-256-33 of the Administrative Code shall record in a log that is kept in the facility operating record the identification of closed-vent system components that are designated as unsafe to monitor in accordance with the requirements of paragraph (N) of rule 3745-256-33 of the Administrative Code, an explanation for each closed-vent system component stating why the closed-vent system component is unsafe to monitor, and the plan for monitoring each closed-vent system component.
- (10) When each leak is detected as specified in paragraph (K) of rule 3745-256-33 of the Administrative Code, the following information shall be recorded:
  - (a) The instrument identification number, the closed-vent system component identification number, and the operator name, initials, or identification number.
  - (b) The date the leak was detected and the date of first attempt to repair the leak.
  - (c) The date of successful repair of the leak.



- (d) Maximum instrument reading measured by method 21 of 40 CFR Part 60 appendix A after the leak is successfully repaired or determined to be nonrepairable.
- (e) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

  - (i) The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
  - (ii) If delay of repair was caused by depletion of stocked parts, there shall be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
- (D) Records of the monitoring, operating, and inspection information required by paragraphs (C)(3) to (C)(10) of this rule shall be maintained by the owner or operator for at least three years following the date of each occurrence, measurement, maintenance, corrective action, or record.
- (E) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, monitoring and inspection information indicating proper operation and maintenance of the control device shall be recorded in the facility operating record.
- (F) Up to date information and data used to determine whether or not a process vent is subject to the requirements in rule 3745-256-32 of the Administrative Code including supporting documentation as required by paragraph (D)(2) of rule 3745-256-34 of the Administrative Code when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used, shall be recorded in a log that is kept in the facility operating record.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

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Five Year Review (FYR) Dates: Exempt

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Certification

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3745-256-50**Applicability and definitions - air emission standards for equipment leaks.**

- (A) Applicability. Rules 3745-256-50 to 3745-256-64 of the Administrative Code apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in rule 3745-65-01 of the Administrative Code).
- (B) Except as provided in paragraph (K) of rule 3745-256-64 of the Administrative Code, rules 3745-256-50 to 3745-256-64 of the Administrative Code apply to equipment that contains or contacts hazardous wastes with organic concentrations of at least ten per cent by weight that are managed in one of the following:
- (1) A unit that is subject to the permitting requirements of rules 3745-50-40 to 3745-50-235 of the Administrative Code, or
  - (2) A unit (including a hazardous waste recycling unit) that is not exempt from permitting under rule 3745-52-17 of the Administrative Code (i.e., a hazardous waste recycling unit that is not a ninety-day tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of rules 3745-50-40 to 3745-50-235 of the Administrative Code, or
  - (3) A unit that is exempt from permitting under rule 3745-52-17 of the Administrative Code (i.e., a "ninety-day" tank or container) and is not a recycling unit under rule 3745-51-06 of the Administrative Code.
- (C) Each piece of equipment to which rules 3745-256-50 to 3745-256-64 of the Administrative Code apply shall be marked in such a manner that the equipment can be distinguished readily from other pieces of equipment.
- (D) Equipment that is in vacuum service is excluded from the requirements of rules 3745-256-52 to 3745-256-60 of the Administrative Code if the equipment is identified as required in paragraph (G)(5) of rule 3745-256-64 of the Administrative Code.
- (E) Equipment that contains or contacts hazardous waste with an organic concentration of at least ten per cent by weight for less than three hundred hours per calendar year is excluded from the requirements of rules 3745-256-52 to 3745-256-60 of the Administrative Code if the equipment is identified, as required in paragraph (G)(6) of rule 3745-256-64 of the Administrative Code.
- (F) [Reserved.]

(G) Purged coatings and solvents from surface coating operations subject to the national emission standards for hazardous air pollutants (NESHAP) for the surface coating of automobiles and light-duty trucks at 40 CFR Part 63 subpart IIII, are not subject to the requirements of rules 3745-256-50 to 3745-256-64 of the Administrative Code.

(H) Definitions. As used in rules 3745-256-50 to 3745-256-64 of the Administrative Code, all terms have the meaning given in rule 3745-205-31, Chapters 3745-50, 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-266 of the Administrative Code, and in the Resource Conservation and Recovery Act.

[Comment: Rules 3745-256-52 to 3745-256-64 of the Administrative Code apply to equipment associated with hazardous waste recycling units previously exempt under paragraph (C)(1) of rule 3745-51-06 of the Administrative Code. Other exemptions under rule 3745-51-04 and paragraph (C) of rule 3745-65-01 of the Administrative Code are not affected by these requirements.]

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3745-256-52

**Pumps in light liquid service - equipment leaks.**

(A)

- (1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph (B) of rule 3745-256-63 of the Administrative Code, except as provided in paragraphs (D), (E), and (F) of this rule.
- (2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(B)

- (1) If an instrument reading of ten thousand parts per million (ppm) or greater is measured, a leak is detected.
- (2) If there are indications of liquids dripping from the pump seal, a leak is detected.

(C)

- (1) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-256-59 of the Administrative Code.
- (2) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than five calendar days after each leak is detected.

(D) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (A) of this rule, provided the following requirements are met:

- (1) Each dual mechanical seal system shall be:
  - (a) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
  - (b) Equipped with a barrier fluid degassing reservoir that is connected by a closed-vent system to a control device that complies with the requirements of rule 3745-256-60 of the Administrative Code; or
  - (c) Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.
- (2) The barrier fluid system shall not be a hazardous waste with organic concentrations ten per cent or greater by weight.

- (3) Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, the barrier fluid system or both.
- (4) Each pump shall be checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.
- (5)

  - (a) Each sensor as described in paragraph (D)(3) of this rule shall be checked daily or be equipped with an audible alarm that shall be checked monthly to ensure that it is functioning properly.
  - (b) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (6)

  - (a) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in paragraph (D)(5)(b) of this rule, a leak is detected.
  - (b) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-256-59 of the Administrative Code.
  - (c) A first attempt at repair (e.g., relapping the seal) shall be made no later than five calendar days after each leak is detected.
- (E) Any pump that is designated, as described in paragraph (G)(2) of rule 3745-256-64 of the Administrative Code, for no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, is exempt from the requirements of paragraph (A), (C), and (D) of this rule if the pump meets the following requirements; the pump shall:

  - (1) Have no externally actuated shaft penetrating the pump housing.
  - (2) Operate with no detectable emissions as indicated by an instrument reading of less than five hundred ppm above background as measured by the methods specified in paragraph (C) of rule 3745-256-63 of the Administrative Code.
  - (3) Be tested for compliance with paragraph (E)(2) of this rule initially upon designation, annually, and at other times as requested by the director.

(F) If any pump is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device that complies with the requirements of rule 3745-256-60 of the Administrative Code, the pump is exempt from the requirements of paragraphs (A) to (E) of this rule.



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3745-256-53

**Compressors - equipment leaks.**

(A) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of total organic emissions to the atmosphere, except as provided in paragraphs (H) and (I) of this rule.

(B) Each compressor seal system as required in paragraph (A) of this rule shall be:

(1) Operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure; or

(2) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of rule 3745-256-60 of the Administrative Code; or

(3) Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to atmosphere.

(C) The barrier fluid shall not be a hazardous waste with organic concentrations ten per cent or greater by weight.

(D) Each barrier fluid system as described in paragraphs (A) to (C) of this rule shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(E)

(1) Each sensor as required in paragraph (D) of this rule shall be checked daily or shall be equipped with an audible alarm that shall be checked monthly to ensure that it is functioning properly unless the compressor is located within the boundary of an unmanned plant site, in which case the sensor shall be checked daily.

(2) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system or both.

(F) If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under paragraph (E)(2) of this rule, a leak is detected.

(G)

(1) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-256-59 of the Administrative Code.

- (2) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than five calendar days after each leak is detected.
- (H) A compressor is exempt from the requirements of paragraphs (A) and (B) of this rule if the compressor is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of rule 3745-256-60 of the Administrative Code, except as provided in paragraph (I) of this rule.
- (I) Any compressor that is designated, as described in paragraph (G)(2) of rule 3745-256-64 of the Administrative Code, for no detectable emission as indicated by an instrument reading of less than five hundred parts per million above background is exempt from the requirements of paragraphs (A) to (H) of this rule if the compressor:
- (1) Is determined to be operating with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in paragraph (C) of rule 3745-256-63 of the Administrative Code.
  - (2) Is tested for compliance with paragraph (I)(1) of this rule initially upon designation, annually, and at other times as requested by the director.

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3745-256-54**Pressure relief devices in gas or vapor service - equipment leaks.**

- (A) Except during pressure releases, each pressure relief device in gas or vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in paragraph (C) of rule 3745-256-63 of the Administrative Code.
- (B)
- (1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million (ppm) above background, as soon as practicable, but no later than five calendar days after each pressure release, except as provided in rule 3745-256-59 of the Administrative Code.
- (2) No later than five calendar days after the pressure release, the pressure relief device shall be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, as measured by the method specified in paragraph (C) of rule 3745-256-63 of the Administrative Code.
- (C) Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in rule 3745-256-60 of the Administrative Code is exempt from the requirements of paragraphs (A) and (B) of this rule.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-55**Sampling connection systems - equipment leaks.**

- (A) Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system. This system shall collect the sample purge for return to the process or for routing to the appropriate treatment system. Gases displaced during filling of the sample container are not required to be collected or captured.
- (B) Each closed-purge, closed-loop, or closed-vent system as required in paragraph (A) of this rule shall:
- (1) Return the purged process fluid directly to the process line; or
  - (2) Collect and recycle the purged process fluid; or
  - (3) Be designed and operated to capture and transport all the purged process fluid to a waste management unit that complies with the applicable requirements of rules 3745-256-85 to 3745-256-87 of the Administrative Code or a control device that complies with the requirements of rule 3745-256-60 of the Administrative Code.
- (C) In-situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (A) and (B) of this rule.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
Statutory Authority: 3734.12  
Rule Amplifies: 3734.12



3745-256-56**Open-ended valves or lines - equipment leaks.**(A)

(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve.

(2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring hazardous waste stream flow through the open-ended valve or line.

(B) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the hazardous waste stream end is closed before the second valve is closed.

(C) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (A) of this rule at all other times.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-57**Valves in gas or vapor service or in light liquid service - equipment leaks.**

(A) Each valve in gas or vapor or light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph (B) of rule 3745-256-63 of the Administrative Code and shall comply with paragraphs (B) to (E) of this rule, except as provided in paragraphs (F), (G), and (H) of this rule, and rules 3745-256-61 and 3745-256-62 of the Administrative Code.

(B) If an instrument reading of ten thousand parts per million (ppm) or greater is measured, a leak is detected.

(C)

(1) Any valve for which a leak is not detected for two successive months may be monitored the first month of every succeeding quarter, beginning with the next quarter, until a leak is detected.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months.

(D)

(1) When a leak is detected, the leak shall be repaired as soon as practicable, but no later than fifteen calendar days after the leak is detected, except as provided in rule 3745-256-59 of the Administrative Code.

(2) A first attempt at repair shall be made no later than five calendar days after each leak is detected.

(E) First attempts at repair include, but are not limited to, the following best practices where practicable:

(1) Tightening of bonnet bolts.

(2) Replacement of bonnet bolts.

(3) Tightening of packing gland nuts.

(4) Injection of lubricant into lubricated packing.

(F) Any valve that is designated, as described in paragraph (G)(2) of rule 3745-256-64 of the Administrative Code, for no detectable emissions, as indicated by an instrument reading of less than five hundred ppm above background, is exempt from the requirements of paragraph (A) of this rule if the valve:

- (1) Has no external actuating mechanism in contact with the hazardous waste stream.
  - (2) Is operated with emissions less than five hundred ppm above background as determined by the method specified in paragraph (C) of rule 3745-256-63 of the Administrative Code.
  - (3) Is tested for compliance with paragraph (F)(2) of this rule initially upon designation, annually, and at other times as requested by the director.
- (G) Any valve that is designated, as described in paragraph (H)(1) of rule 3745-256-64 of the Administrative Code, as an unsafe-to-monitor valve is exempt from the requirements of paragraph (A) of this rule if:
- (1) The owner or operator of the valve determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (A) of this rule.
  - (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.
- (H) Any valve that is designated, as described in paragraph (H)(2) of rule 3745-256-64 of the Administrative Code, as a difficult-to-monitor valve is exempt from the requirements of paragraph (A) of this rule if:
- (1) The owner or operator of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than two meters above a support surface.
  - (2) The hazardous waste management unit within which the valve is located was in operation before June 21, 1990.
  - (3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Rule Amplifies: 3734.12

3745-256-58

**Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors - equipment leaks.**

(A) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors shall be monitored within five days by the method specified in paragraph (B) of rule 3745-256-63 of the Administrative Code if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

(B) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(C)

(1) When a leak is detected, the leak shall be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected, except as provided in rule 3745-256-59 of the Administrative Code.

(2) The first attempt at repair shall be made no later than five calendar days after each leak is detected.

(D) First attempts at repair include, but are not limited to, the best practices described under paragraph (E) of rule 3745-256-57 of the Administrative Code.

(E) Any connector that is inaccessible or is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined) is exempt from the monitoring requirements of paragraph (A) of this rule and from the recordkeeping requirements of rule 3745-256-64 of the Administrative Code.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-59

**Delay of repair - equipment leaks.**

- (A) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a hazardous waste management unit shutdown. In such a case, repair of this equipment shall occur before the end of the next hazardous waste management unit shutdown.
- (B) Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the hazardous waste management unit and that does not continue to contain or contact hazardous waste with organic concentrations at least ten per cent by weight.
- (C) Delay of repair for valves will be allowed if:
- (1) The owner or operator determines that emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair.
  - (2) When repair procedures are completed, the purged material is collected and destroyed or recovered in a control device complying with rule 3745-256-60 of the Administrative Code.
- (D) Delay of repair for pumps will be allowed if:
- (1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system.
  - (2) Repair is completed as soon as practicable, but not later than six months after the leak was detected.
- (E) Delay of repair beyond a hazardous waste management unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the hazardous waste management 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 hazardous waste management unit shutdown will not be allowed unless the next hazardous waste management unit shutdown occurs sooner than six months after the first hazardous waste management unit shutdown.



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Five Year Review (FYR) Dates: Exempt

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Certification

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Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-60**Closed-vent systems and control devices - equipment leaks.**

(A) Owners and operators of closed-vent systems and control devices subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code shall comply with rule 3745-256-33 of the Administrative Code.

(B)

(1) The owner or operator of an existing facility who cannot install a closed-vent system and control device to comply with rules 3745-256-50 to 3745-256-64 of the Administrative Code on the effective date that the facility becomes subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code shall prepare an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The controls shall be installed as soon as possible, but the implementation schedule may allow up to thirty months after the effective date that the facility becomes subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code for installation and startup.

(2) Any units that begin operation after December 21, 1990, and are subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code when operation begins, shall comply with the hazardous waste rules immediately (i.e., shall have control devices installed and operating on startup of the affected unit); the thirty-month implementation schedule does not apply.

(3) The owner or operator of any facility in existence on the effective date of a statutory or Ohio EPA regulatory amendment that renders the facility subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code shall comply with all requirements of rules 3745-256-50 to 3745-256-64 of the Administrative Code as soon as practicable but no later than thirty months after the amendment's effective date. When control equipment required by rules 3745-256-50 to 3745-256-64 of the Administrative Code cannot be installed and begin operation by the effective date of the amendment, the facility owner or operator shall prepare an implementation schedule that includes specific calendar dates for award of contracts or issuance of purchase orders for the control equipment, initiation of on-site installation of the control equipment, completion of the control equipment installation, and performance of any testing to demonstrate that the installed equipment meets the applicable standards of rules 3745-256-50 to 3745-256-64 of the Administrative Code. The owner or operator shall enter the implementation schedule in the operating record or in a permanent, readily available file located at the facility.

(4) Owners and operators of facilities and units that become newly subject to the requirements of rules 3745-256-50 to 3745-256-64 of the Administrative

Code after December 8, 1997 due to an action other than those described in paragraph (B)(3) of this rule shall comply with all applicable requirements immediately (i.e., shall have control devices installed and operating on the date the facility or unit becomes subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code; the thirty-month implementation schedule does not apply).

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Rule Amplifies: 3734.12

3745-256-61

**Alternative standards for valves in gas or vapor service or in light liquid service; percentage of valves allowed to leak - equipment leaks.**

(A) An owner or operator subject to the requirements of rule 3745-256-57 of the Administrative Code may elect to have all valves within a hazardous waste management unit comply with an alternative standard which allows no greater than two per cent of the valves to leak.

(B) The following requirements shall be met if an owner or operator decides to comply with the alternative standard of allowing two per cent of valves to leak:

(1) Performance test as specified in paragraph (C) of this rule shall be conducted initially upon designation, annually, and at other times requested by the director.

(2) If a valve leak is detected, the leak shall be repaired in accordance with paragraph (D) and (E) of rule 3745-256-57 of the Administrative Code.

(C) Performance tests shall be conducted in the following manner:

(1) All valves subject to the requirements in rule 3745-256-57 of the Administrative Code within the hazardous waste management unit shall be monitored within one week by the methods specified in part (B) of rule 3745-256-63 of the Administrative Code.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves subject to the requirements in rule 3745-256-57 of the Administrative Code for which leaks are detected by the total number of valves subject to the requirements in rule 3745-256-57 of the Administrative Code within the hazardous waste management unit.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Rule Amplifies: 3734.12

3745-256-62**Alternate standards for valves in gas or vapor service or in light liquid service; skip period leak detection and repair - equipment leaks.**

(A) An owner or operator subject to the requirements of rule 3745-256-57 of the Administrative Code may elect for all valves within a hazardous waste management unit to comply with one of the alternative work practices specified in paragraphs (B)(2) and (B)(3) of this rule.

(B)

(1) An owner or operator shall comply with the requirements for valves, as described in rule 3745-256-57 of the Administrative Code, except as described in paragraphs (B)(2) and (B)(3) of this rule.

(2) After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two per cent, an owner or operator may begin to skip one of the quarterly leak detection periods (i.e., monitor for leaks once every six months) for the valves subject to the requirements in rule 3745-256-57 of the Administrative Code.

(3) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two per cent, an owner or operator may begin to skip three of the quarterly leak detection periods (i.e., monitor for leaks once every year) for the valves subject to the requirements in rule 3745-256-57 of the Administrative Code.

(4) If the percentage of valves leaking is greater than two per cent, the owner or operators shall monitor monthly in compliance with the requirements in rule 3745-256-57 of the Administrative Code, but may again elect to use this rule after meeting the requirements of paragraph (C)(1) of rule 3745-256-57 of the Administrative Code.

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Statutory Authority: 3734.12  
Rule Amplifies: 3734.12



3745-256-63**Test methods and procedures - equipment leaks.**

- (A) Each owner or operator subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code shall comply with the test methods and procedures requirements provided in this rule.
- (B) Leak detection monitoring, as required in rules 3745-256-52 to 3745-256-62 of the Administrative Code, shall comply with the following requirements:
- (1) Monitoring shall comply with reference method 21 in 40 CFR Part 60.
  - (2) The detection instrument shall meet the performance criteria of reference method 21.
  - (3) The instrument shall be calibrated before use on each day of the instrument's use by the procedures specified in reference method 21.
  - (4) Calibration gases shall be:
    - (a) Zero air (less than ten parts per million (ppm) of hydrocarbon in air).
    - (b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand ppm methane or n-hexane.
  - (5) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.
- (C) When equipment is tested for compliance with no detectable emissions, as required in paragraph (E) of rule 3745-256-52, paragraph (I) of rule 3745-256-53, rule 3745-256-54, and paragraph (F) of rule 3745-256-57 of the Administrative Code, the test shall comply with the following requirements:
- (1) The requirements of paragraphs (B)(1) to (B)(4) of this rule.
  - (2) The background level shall be determined, as provided in reference method 21.
  - (3) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.
  - (4) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with five hundred ppm for determining compliance.
- (D) In accordance with the waste analysis plan required by paragraph (B) of rule 3745-65-13 of the Administrative Code, an owner or operator of a facility shall determine, for

each piece of equipment, whether the equipment contains or contacts a hazardous waste with organic concentration that equals or exceeds ten per cent by weight using the following:

- (1) Methods described in ASTM methods D2267-88, E169-16, E168-16, E260-96 (2019) (incorporated by reference in rule 3745-50-11 of the Administrative Code);
  - (2) Method 9060A (incorporated by reference in rule 3745-50-11 of the Administrative Code) of "Test Methods for Evaluating Solid Waste," U.S. EPA publication SW-846 or analyzed for its individual organic constituents; or
  - (3) Application of the knowledge of the nature of the hazardous waste stream or the process by which the hazardous waste stream was produced. Documentation of a waste determination by knowledge is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to have a total organic content less than ten per cent, or prior speciation analysis results on the same waste stream where it also can be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.
- (E) If an owner or operator determines that a piece of equipment contains or contacts a hazardous waste with organic concentrations at least ten per cent by weight, the determination can be revised only after following the procedures in paragraph (D)(1) or (D)(2) of this rule.
- (F) When an owner or operator and the director do not agree on whether a piece of equipment contains or contacts a hazardous waste with organic concentrations at least ten per cent by weight, the procedures in paragraph (D)(1) or (D)(2) of this rule can be used to resolve the dispute.
- (G) Samples used in determining the percent organic content shall be representative of the highest total organic content hazardous waste that is expected to be contained in or contact the equipment.
- (H) To determine if pumps or valves are in light liquid service, the vapor pressures of constituents may be obtained from standard reference texts or may be determined by ASTM D2879-86.

(I) Performance tests to determine if a control device achieves ninety-five weight per cent organic emission reduction shall comply with the procedures of paragraphs (C)(1) to (C)(4) of rule 3745-256-34 of the Administrative Code.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

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3745-256-64**Recordkeeping - equipment leaks.****(A)**

**(1) Each owner or operator subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code shall comply with the recordkeeping requirements of this rule.**

**(2) An owner or operator of more than one hazardous waste management unit subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code may comply with the recordkeeping requirements for these hazardous waste management units in one recordkeeping system if the system identifies each record by each hazardous waste management unit.**

**(B) Owners and operators shall record the following information in the facility operating record:**

**(1) For each piece of equipment to which rules 3745-256-50 to 3745-256-64 of the Administrative Code applies:**

**(a) Equipment identification number and hazardous waste management unit identification.**

**(b) Approximate locations within the facility (e.g., identify the hazardous waste management unit on a facility plot plan).**

**(c) Type of equipment (e.g., a pump or pipeline valve).**

**(d) Per cent-by-weight total organics in the hazardous waste stream at the equipment.**

**(e) Hazardous waste state at the equipment (e.g., gas or vapor or liquid).**

**(f) Method of compliance with the standard (e.g., "monthly leak detection and repair" or "equipped with dual mechanical seals").**

**(2) For facilities that comply with paragraph (A)(2) of rule 3745-256-33 of the Administrative Code, an implementation schedule as specified in paragraph (A)(2) of rule 3745-256-33 of the Administrative Code.**

**(3) Where an owner or operator chooses to use test data to demonstrate the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan as specified in paragraph (B)(3) of rule 3745-256-35 of the Administrative Code.**

- (4) Documentation of compliance with rule 3745-256-60 of the Administrative Code, including the detailed design documentation or performance test results specified in paragraph (B)(4) of rule 3745-256-35 of the Administrative Code.
- (C) When each leak is detected as specified in rules 3745-256-52, 3745-256-53, 3745-256-57, and 3745-256-58 of the Administrative Code, the following requirements apply:
- (1) A weatherproof and readily visible identification, marked with the equipment identification number, the date evidence of a potential leak was found in accordance with paragraph (A) of rule 3745-256-58 of the Administrative Code, and the date the leak was detected, shall be attached to the leaking equipment.
  - (2) The identification on equipment, except on a valve, may be removed after the equipment has been repaired.
  - (3) The identification on a valve may be removed after the valve has been monitored for two successive months as specified in paragraph (C) of rule 3745-256-57 of the Administrative Code and no leak has been detected during those two months.
- (D) When each leak is detected as specified in rules 3745-256-52, 3745-256-53, 3745-256-57, and 3745-256-58 of the Administrative Code, the following information shall be recorded in an inspection log and shall be kept in the facility operating record:
- (1) The instrument and operator identification numbers and the equipment identification number.
  - (2) The date evidence of a potential leak was found in accordance with paragraph (A) of rule 3745-256-58 of the Administrative Code.
  - (3) The date the leak was detected and the dates of each attempt to repair the leak.
  - (4) Repair methods applied in each attempt to repair the leak.
  - (5) "Above ten thousand" if the maximum instrument reading measured by the methods specified in paragraph (B) of rule 3745-256-63 of the Administrative Code after each repair attempt is equal to or greater than ten thousand parts per million.
  - (6) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

- (7) Documentation supporting the delay of repair of a valve in compliance with paragraph (C) of rule 3745-256-59 of the Administrative Code.
- (8) The signature of the owner or operator (or designate) whose decision it was that repair could not be completed without a hazardous waste management unit shutdown.
- (9) The expected date of successful repair of the leak if a leak is not repaired within fifteen calendar days.
- (10) The date of successful repair of the leak.
- (E) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with rule 3745-256-60 of the Administrative Code shall be recorded and kept up to date in the facility operating record as specified in paragraph (C) of rule 3745-256-35 of the Administrative Code. Design documentation is specified in paragraphs (C)(1) and (C)(2) of rule 3745-256-35 of the Administrative Code and monitoring, operating, and inspection information in paragraphs (C)(3) to (C)(8) of rule 3745-256-35 of the Administrative Code.
- (F) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, monitoring and inspection information indicating proper operation and maintenance of the control device shall be recorded in the facility operating record.
- (G) The following information pertaining to all equipment subject to the requirements in rules 3745-256-52 to 3745-256-60 of the Administrative Code shall be recorded in a log that is kept in the facility operating record:

  - (1) A list of identification numbers for equipment (except welded fittings) subject to the requirements of rules 3745-256-50 to 3745-256-64 of the Administrative Code.
  - (2)

    - (a) A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, under paragraph (E) of rule 3745-256-52, paragraph (I) of rule 3745-256-53, and paragraph (F) of rule 3745-256-57 of the Administrative Code.

- (b) The designation of this equipment as subject to the requirements of paragraph (E) of rule 3745-256-52, paragraph (I) of rule 3745-256-53, and paragraph (F) of rule 3745-256-57 of the Administrative Code shall be signed by the owner or operator.
- (3) A list of equipment identification numbers for pressure relief devices required to comply with paragraph (A) of rule 3745-256-54 of the Administrative Code.
- (4)

  - (a) The dates of each compliance test required in paragraph (E) of rule 3745-256-52, paragraph (I) of rule 3745-256-53, rule 3745-256-54, and paragraph (F) of rule 3745-256-57 of the Administrative Code.
  - (b) The background level measured during each compliance test.
  - (c) The maximum instrument reading measured at the equipment during each compliance test.
- (5) A list of identification numbers for equipment in vacuum service.
- (6) Identification, either by list or location (area or group) of equipment that contains or contacts hazardous waste with an organic concentration of at least ten per cent by weight for less than three hundred hours per calendar year.
- (H) The following information pertaining to all valves subject to the requirements of paragraphs (G) and (H) of rule 3745-256-57 of the Administrative Code shall be recorded in a log that is kept in the facility operating record:

  - (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.
  - (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 planned schedule for monitoring each valve.
- (I) The following information shall be recorded in the facility operating record for valves complying with rule 3745-256-62 of the Administrative Code:

  - (1) A schedule of monitoring.
  - (2) The per cent of valves found leaking during each monitoring period.



(J) The following information shall be recorded in a log that is kept in the facility operating record:

- (1) Criteria required in paragraph (D)(5)(b) of rule 3745-256-52 and paragraph (E)(2) of rule 3745-256-53 of the Administrative Code and an explanation of the criteria.
- (2) Any changes to these criteria and the reasons for the changes.

(K) The following information shall be recorded in a log that is kept in the facility operating record for use in determining exemptions as provided in rule 3745-256-50 of the Administrative Code and other specific provisions:

- (1) An analysis determining the design capacity of the hazardous waste management unit.
- (2) A statement listing the hazardous waste influent to and effluent from each hazardous waste management unit subject to the requirements in rules 3745-256-52 to 3745-256-60 of the Administrative Code and an analysis determining whether these hazardous wastes are heavy liquids.
- (3) An up to date analysis and the supporting information and data used to determine whether or not equipment is subject to the requirements in rules 3745-256-52 to 3745-256-60 of the Administrative Code. The record shall include supporting documentation as required by paragraph (D)(3) of rule 3745-256-63 of the Administrative Code when application of the knowledge of the nature of the hazardous waste stream or the process by which the hazardous waste stream was produced is used. If the owner or operator takes any action (e.g., changing the process that produced the waste) that could result in an increase in the total organic content of the waste contained in or contacted by equipment determined not to be subject to the requirements in rules 3745-256-52 to 3745-256-60 of the Administrative Code, then a new determination is required.

(L) Records of the equipment leak information required by paragraph (D) of this rule and the operating information required by paragraph (E) of this rule need be kept only three years.

(M) The owner or operator of any facility with equipment that is subject to rules 3745-256-50 to 3745-256-64 of the Administrative Code and to leak detection, monitoring, and repair requirements under regulations at 40 CFR Part 60, Part 61, or Part 63 may elect to determine compliance with rules 3745-256-50 to 3745-256-64 of the Administrative Code either by documentation pursuant to rule 3745-256-64 of the Administrative Code, or by documentation of compliance with the regulations at 40

CFR Part 60, Part 61, or Part 63 pursuant to the relevant provisions of the regulations at 40 Part 60, Part 61, or Part 63. The documentation of compliance under regulation at 40 CFR Part 60, Part 61, or Part 63 shall be kept with or made readily available with the facility operating record.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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3745-256-80**Applicability - air emission standards for tanks, surface impoundments, and containers.**

(A) Rules 3745-256-80 to 3745-256-90 of the Administrative Code apply to owners and operators of all facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers subject to either rules 3745-66-70 to 3745-66-78, 3745-66-90 to 3745-66-102, or rules 3745-67-20 to 3745-67-31 of the Administrative Code, except as provided in rule 3745-65-01 of the Administrative Code and paragraph (B) of this rule.

(B) Rules 3745-256-80 to 3745-256-90 of the Administrative Code do not apply to the following waste management units at the facility:

- (1) A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996.
- (2) A container that has a design capacity less than or equal to 0.1 m<sup>3</sup>.
- (3) A tank in which an owner or operator has stopped adding hazardous waste and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan.
- (4) A surface impoundment in which an owner or operator has stopped adding hazardous waste (except to implement an approved closure plan) and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan.
- (5) A waste management unit that is used solely for on-site treatment or storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under the corrective action authorities of Section 3004(u), Section 3004(v), or Section 3008(h) of RCRA; CERCLA authorities; or similar federal or state authorities.
- (6) A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act.
- (7) A hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63. For the purpose of complying with this paragraph, a tank for which the air emission control includes an enclosure, as opposed to a cover, shall be in compliance with the enclosure and control

device requirements of paragraph (I) of rule 3745-256-85 of the Administrative Code, except as provided in paragraph (C)(5) of rule 3745-256-83 of the Administrative Code.

(8) A tank that has a "process vent" as defined in rule 3745-205-31 of the Administrative Code.

(C) For the owner and operator of a facility subject to this subpart who has received a final Ohio hazardous waste management permit prior to December 6, 1996, the following requirements apply:

(1) The requirements of rules 3745-205-80 to 3745-205-90 of the Administrative Code shall be incorporated into the permit when the permit is reissued in accordance with the requirements of 40 CFR 124.15 or reviewed in accordance with the requirements of paragraph (D) of rule 3745-50-54 of the Administrative Code.

(2) Until the date when the permit is reissued in accordance with the requirements of 40 CFR 124.15 or reviewed in accordance with the requirements of paragraph (D) of rule 3745-50-54 of the Administrative Code, the owner and operator is subject to the requirements of rules 3745-256-80 to 3745-256-90 of the Administrative Code.

(D) Rules 3745-256-80 to 3745-256-90 of the Administrative Code, except for the recordkeeping requirements specified in paragraph (I) of rules 3745-256-90 of the Administrative Code, are exempt for a tank or a container used for the management of hazardous waste generated by organic peroxide manufacturing and the tank's or container's associated laboratory operations when the owner or operator of the unit meets all of the following conditions:

(1) The owner or operator identifies that the tank or container receives hazardous waste generated by an organic peroxide manufacturing process producing more than one functional family of organic peroxides or multiple organic peroxides within one functional family, that one or more of these organic peroxides could potentially undergo self-accelerating thermal decomposition at or below ambient temperatures, and that organic peroxides are the predominant products manufactured by the process. For the purpose of meeting the conditions of this paragraph, "organic peroxide" means an organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

- (2) The owner or operator prepares documentation, in accordance with the requirements of paragraph (I) of rule 3745-256-90 of the Administrative Code, explaining why an undue safety hazard would be created if air emission controls specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code are installed and operated on the tanks and containers used at the facility to manage the hazardous waste generated by the organic peroxide manufacturing process or processes meeting the conditions of paragraph (D)(1) of this rule.
- (3) The owner or operator notifies the director in writing that hazardous waste generated by an organic peroxide manufacturing process or processes meeting the conditions of paragraph (D)(1) of this rule are managed at the facility in tanks or containers meeting the conditions of paragraph (D)(2) of this rule. The notification shall state the name and address of the facility, and be signed and dated by an authorized representative of the facility owner or operator.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-81**Definitions - air emission standards for tanks, surface impoundments, and containers.**

As used in rules 3745-256-80 to 3745-256-90 of the Administrative Code, all terms not defined herein have the meaning given in Chapters 3745-50, 3745-51, 3745-52, 3745-53, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, and 3745-266 of the Administrative Code and the Resource Conservation and Recovery Act.

(A) "Average volatile organic concentration" or "average VO concentration" means the mass-weighted average volatile organic concentration of a hazardous waste as determined in accordance with the requirements of rule 3745-256-84 of the Administrative Code.

(B) [Reserved.]

(C)

(1) "Closure device" means a cap, hatch, lid, plug, seal, valve, or other type of fitting that blocks an opening in a cover such that when the device is secured in the closed position the closure device prevents or reduces air pollutant emissions to the atmosphere. Closure devices include devices that are detachable from the cover (e.g., a sampling port cap), manually operated (e.g., a hinged access lid or hatch), or automatically operated (e.g., a spring-loaded pressure relief valve).

(2) "Continuous seal" means a seal that forms a continuous closure that completely covers the space between the edge of the floating roof and the wall of a tank. A continuous seal may be a vapor-mounted seal, liquid-mounted seal, or metallic shoe seal. A continuous seal may be constructed of fastened segments so as to form a continuous seal.

(3) "Cover" means a device that provides a continuous barrier over the hazardous waste managed in a unit to prevent or reduce air pollutant emissions to the atmosphere. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the unit on which the cover is used. A cover may be a separate piece of equipment which can be detached and removed from the unit or a cover may be formed by structural features permanently integrated into the design of the unit.

(D) [Reserved.]

(E)



(1) "Enclosure" means a structure that surrounds a tank or container, captures organic vapors emitted from the tank or container, and vents the captured vapors through a closed-vent system to a control device.

(2) "External floating roof" means a pontoon-type or double-deck type cover that rests on the surface of the material managed in a tank with no fixed roof.

(F)

(1) "Fixed roof" means a cover that is mounted on a unit in a stationary position and does not move with fluctuations in the level of the material managed in the unit.

(2) "Floating membrane cover" means a cover consisting of a synthetic flexible membrane material that rests upon and is supported by the hazardous waste being managed in a surface impoundment.

(3) "Floating roof" means a cover consisting of a double deck, pontoon single deck, or internal floating cover which rests upon and is supported by the material being contained, and is equipped with a continuous seal.

(G) [Reserved.]

(H) "Hard-piping" means pipe or tubing that is manufactured and properly installed in accordance with relevant standards and good engineering practices.

(I)

(1) "In light material service" means the container is used to manage a material for which both the vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (kPa) at twenty degrees Celsius; and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at twenty degrees Celsius is equal to or greater than twenty per cent by weight.

(2) "Internal floating roof" means a cover that rests or floats on the material surface (but not necessarily in complete contact with the material surface) inside a tank that has a fixed roof.

(J) [Reserved.]

(K) [Reserved.]

(L) "Liquid-mounted seal" means a foam or liquid-filled primary seal mounted in contact with the hazardous waste between the tank wall and the floating roof continuously around the circumference of the tank.

(M)

(1) "Malfunction" means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(2) "Maximum organic vapor pressure" means the sum of the individual organic constituent partial pressures exerted by the material contained in a tank, at the maximum vapor pressure-causing conditions (i.e., temperature, agitation, pH effects of combining wastes, etc.) reasonably expected to occur in the tank. For the purpose of rules 3745-256-80 to 3745-256-90 of the Administrative Code, maximum organic vapor pressure is determined using the procedures specified in paragraph (C) of rule 3745-256-84 of the Administrative Code.

(3) "Metallic shoe seal" means a continuous seal that is constructed of metal sheets which are held vertically against the wall of the tank by springs, weighted levers, or other mechanisms and is connected to the floating roof by braces or other means. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(N) "No detectable organic emissions" means no escape of organics to the atmosphere as determined using the procedure specified in paragraph (D) of rule 3745-256-84 of the Administrative Code.

(O) [Reserved.]

(P)

(1) "Point of waste origination" means as follows:

(a) When the facility owner or operator is the generator of the hazardous waste, the point of waste origination means the point where a waste produced by a system, process, or waste management unit is determined to be a "hazardous waste" as defined in Chapter 3745-51 of the Administrative Code.

[Comment: In this case, this term is being used in a manner similar to the use of the term "point of generation" in air standards established for

waste management operations under authority of the Clean Air Act in 40 CFR Part 60, Part 61, and Part 63.]

(b) When the facility owner and operator are not the generator of the hazardous waste, point of waste origination means the point where the owner or operator accepts delivery or takes possession of the hazardous waste.

(2) "Point of waste treatment" means the point where a hazardous waste to be treated in accordance with paragraph (C)(2) of rule 3745-256-83 of the Administrative Code exits the treatment process. Any waste determination shall be made before the waste is conveyed, handled, or otherwise managed in a manner that allows the waste to volatilize to the atmosphere.

(Q) [Reserved.]

(R) [Reserved.]

(S)

(1) "Safety device" means a closure device such as a pressure relief valve, frangible disc, fusible plug, or any other type of device which functions exclusively to prevent physical damage or permanent deformation to a unit or the unit's air emission control equipment by venting gases or vapors directly to the atmosphere during unsafe conditions resulting from an unplanned, accidental, or emergency event. For the purpose of rules 3745-256-80 to 3745-256-90 of the Administrative Code, a safety device is not used for routine venting of gases or vapors from the vapor headspace underneath a cover such as during filling of the unit or to adjust the pressure in this vapor headspace in response to normal daily diurnal ambient temperature fluctuations. A safety device is designed to remain in a closed position during normal operations and open only when the internal pressure, or another relevant parameter, exceeds the device threshold setting applicable to the air emission control equipment as determined by the owner or operator based on manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials.

(2) "Single-seal system" means a floating roof having one continuous seal. This seal may be vapor-mounted, liquid-mounted, or a metallic shoe seal.

(T) [Reserved.]

(U) [Reserved.]

(V)

- (1) "Vapor-mounted seal" means a continuous seal that is mounted such that there is a vapor space between the hazardous waste in the unit and the bottom of the seal.
- (2) "Volatile organic concentration" or "VO concentration" means the fraction by weight of the volatile organic compounds contained in a hazardous waste expressed in terms of parts per million (ppmw) as determined by direct measurement or by knowledge of the waste in accordance with the requirements of rule 3745-256-84 of the Administrative Code. To determine the VO concentration of a hazardous waste, organic compounds with a Henry's law constant value of at least 0.1 mole-fraction-in-the-gas-phase/ mole-fraction-in the liquid-phase (0.1 Y/X) (which also can be expressed as  $1.8 \times 10^{-6}$  atmospheres/gram-mole/m<sup>3</sup>) at twenty-five degrees Celsius shall be included. The appendix to rule 3745-256-84 of the Administrative Code presents a list of compounds known to have a Henry's law constant value less than the cutoff level.

(W)

- (1) "Waste determination" means performing all applicable procedures in accordance with the requirements of rule 3745-256-84 of the Administrative Code to determine whether a hazardous waste meets standards specified in rule 3745-256-80 to 3745-256-90 of the Administrative Code. Examples of a waste determination include performing the procedures in accordance with the requirements of rule 3745-256-84 of the Administrative Code to determine the average VO concentration of a hazardous waste at the point of waste origination; the average VO concentration of a hazardous waste at the point of waste treatment and comparing the results to the exit concentration limit specified for the process used to treat the hazardous waste; the organic reduction efficiency and the organic biodegradation efficiency for a biological process used to treat a hazardous waste and comparing the results to the applicable standards; or the maximum volatile organic vapor pressure for a hazardous waste in a tank and comparing the results to the applicable standards.
- (2) "Waste stabilization process" means any physical or chemical process used to either reduce the mobility of hazardous constituents in a hazardous waste or eliminate free liquids as determined by test method 9095B ("Paint Filter Liquids Test") in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA publication SW-846, as incorporated by reference in rule 3745-50-11 of the Administrative Code. A waste stabilization process includes mixing the hazardous waste with binders or other materials, and curing the

resulting hazardous waste and binder mixture. Other synonymous terms used to refer to this process are "waste fixation" or "waste solidification." This does not include the adding of absorbent materials to the surface of a waste, without mixing, agitation, or subsequent curing, to absorb free liquid.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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3745-256-82**Schedule to implement air emission standards - tanks, surface impoundments, and containers.**

(A) Owners or operators of facilities existing on December 6, 1996 and subject to rules 3745-66-70 to 3745-66-78, 3745-66-90 to 3745-66-102, and 3745-67-20 to 3745-67-31 of the Administrative Code shall meet the following requirements:

(1) Install and begin operation of all control equipment or waste management units required to comply with rules 3745-256-80 to 3745-256-90 of the Administrative Code and complete modifications of production or treatment processes to satisfy exemption criteria in accordance with paragraph (C) of rule 3745-256-83 of the Administrative Code by December 6, 1996, except as provided for in paragraph (A)(2) of this rule.

(2) When control equipment or waste management units required to comply with rules 3745-256-80 to 3745-256-90 of the Administrative Code cannot be installed and in operation or modifications of production or treatment processes to satisfy exemption criteria in accordance with paragraph (C) of rule 3745-256-83 of the Administrative Code cannot be completed by December 6, 1996, the owner or operator shall:

(a) Install and begin operation of the control equipment and waste management units, and complete modifications of production or treatment processes as soon as possible but no later than December 8, 1997.

(b) Prepare an implementation schedule that includes specific calendar dates for award of contracts or issuance of purchase orders for control equipment, waste management units, and production or treatment process modifications; initiation of on-site installation of control equipment or waste management units, and modifications of production or treatment processes; completion of control equipment or waste management unit installation, and production or treatment process modifications; and performance of testing to demonstrate that the installed equipment or waste management units, and modified production or treatment processes meet the applicable standards of rules 3745-256-80 to 3745-256-90 of the Administrative Code.

(c) For facilities subject to the recordkeeping requirements of rules 3745-65-73 of the Administrative Code, the owner or operator shall enter the implementation schedule specified in paragraph (A)(2)(b) of this rule in the operating record no later than December 6, 1996.

(d) For facilities not subject to rules 3745-65-73 of the Administrative Code, the owner or operator shall enter the implementation schedule specified

in paragraph (A)(2)(b) of this rule in a permanent, readily available file located at the facility no later than December 6, 1996.

(B) Owners or operators of facilities and units in existence on the effective date of a statutory or Ohio EPA regulatory amendment that renders the facility subject to rules 3745-66-70 to 3745-66-78, or rules 3745-66-90 to 3745-66-102, or rules 3745-67-20 to 3745-67-31 of the Administrative Code shall meet the following requirements:

(1) Install and begin operation of control equipment or waste management units required to comply with rules 3745-256-80 to 3745-256-90 of the Administrative Code, and complete modifications of production or treatment processes to satisfy exemption criteria of paragraph (C) of rule 3745-256-83 of the Administrative Code by the effective date of the amendment, except as provided for in paragraph (B)(2) of this rule.

(2) When control equipment or waste management units required to comply with rules 3745-256-80 to 3745-256-90 of the Administrative Code cannot be installed and begin operation, or when modifications of production or treatment processes to satisfy exemption criteria of paragraph (C) of rule 3745-256-83 of the Administrative Code cannot be completed by the effective date of the amendment, the owner or operator shall:

(a) Install and begin operation of the control equipment or waste management unit, and complete modification of production or treatment processes as soon as possible but no later than thirty months after the effective date of the amendment.

(b) For facilities subject to the recordkeeping requirements of rule 3745-65-73 of the Administrative Code, enter and maintain the implementation schedule specified in paragraph (A)(2)(b) of this rule in the operating record no later than the effective date of the amendment, or

(c) For facilities not subject to rule 3745-65-73 of the Administrative Code, the owner or operator shall enter and maintain the implementation schedule specified in paragraph (A)(2)(b) of this rule in a permanent, readily available file located at the facility site no later than the effective date of the amendment.

(C) Owners and operators of facilities and units that become newly subject to the requirements of rules 3745-256-80 to 3745-256-90 of the Administrative Code after December 8, 1997 due to an action other than those described in paragraph (B) of this rule shall comply with all applicable requirements immediately (i.e., shall have control devices installed and operating on the date the facility or unit becomes subject



to rules 3745-256-80 to 3745-256-90 of the Administrative Code; the thirty-month implementation schedule does not apply).

- (D) The director may elect to extend the implementation date for control equipment at a facility, on a case by case basis, to a date later than December 8, 1997, when special circumstances that are beyond the facility owner's or operator's control delay installation or operation of control equipment, and the owner or operator has made all reasonable and prudent attempts to comply with the requirements of rules 3745-256-80 to 3745-256-90 of the Administrative Code.

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3745-256-83**General - air emission standards for tanks, surface impoundments, and containers.**

- (A) This rule applies to the management of hazardous waste in tanks, surface impoundments, and containers subject to rules 3745-256-80 to 3745-256-90 of the Administrative Code.
- (B) The owner or operator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code, as applicable to the hazardous waste management unit, except as provided for in paragraph (C) of this rule.
- (C) A tank, surface impoundment, or container is exempt from standards specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code, as applicable, provided that the waste management unit is one of the following:
- (1) A tank, surface impoundment, or container for which all hazardous waste entering the unit has an average volatile organics (VO) concentration at the point of waste origination of less than five hundred parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in paragraph (A) of rule 3745-256-84 of the Administrative Code. The owner or operator shall review and update, as necessary, this determination at least once every twelve months after the date of the initial determination for the hazardous waste streams entering the unit.
  - (2) A tank, surface impoundment, or container for which the organic content of all the hazardous waste entering the waste management unit has been reduced by an organic destruction or removal process that achieves any one of the following conditions:
    - (a) A process that removes or destroys the organics contained in the hazardous waste to a level such that the average VO concentration of the hazardous waste at the point of waste treatment is less than the exit concentration limit (C<sub>i</sub>) established for the process. The average VO concentration of the hazardous waste at the point of waste treatment and the exit concentration limit for the process shall be determined using the procedures specified in paragraph (B) of rule 3745-256-84 of the Administrative Code.
    - (b) A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency (R) for the process is equal to or greater than ninety-five per cent, and the average VO concentration of the hazardous waste at the point of waste treatment is less than one hundred parts per million by weight (ppmw). The R for

the process and the average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in paragraph (B) of rule 3745-256-84 of the Administrative Code.

(c) A process that removes or destroys the organics contained in the hazardous waste to a level such that the actual organic mass removal rate (MR) for the process is equal to or greater than the required organic mass removal rate (RMR) established for the process. The RMR and the MR for the process shall be determined using the procedures specified in paragraph (B) of rule 3745-256-84 of the Administrative Code.

(d) A biological process that destroys or degrades the organics contained in the hazardous waste, such that either of the following conditions is met:

(i) The organic reduction efficiency (R) for the process is equal to or greater than ninety-five per cent, and the organic biodegradation efficiency ( $R_{\text{bio}}$ ) for the process is equal to or greater than ninety-five per cent. The R and the organic biodegradation efficiency for the process shall be determined using the procedures specified in paragraph (B) of rule 3745-256-84 of the Administrative Code.

(ii) The total actual organic mass biodegradation rate ( $MR_{\text{bio}}$ ) for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate (RMR). The RMR and the actual organic mass biodegradation rate for the process shall be determined using the procedures specified in paragraph (B) of rule 3745-256-84 of the Administrative Code.

(e) A process that removes or destroys the organics contained in the hazardous waste and meets all of the following conditions:

(i) From the point of waste origination through the point where the hazardous waste enters the treatment process, the hazardous waste is managed continuously in waste management units which use air emission controls in accordance with the standards specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code, as applicable to the waste management unit.

(ii) From the point of waste origination through the point where the hazardous waste enters the treatment process, any transfer of the hazardous waste is accomplished through continuous hard-piping or other closed system transfer that does not allow exposure of the

waste to the atmosphere. Ohio EPA considers a drain system that meets the requirements of 40 CFR Part 63 subpart RR "National Emission Standards for Individual Drain Systems" to be a closed system.

(iii) The average VO concentration of the hazardous waste at the point of waste treatment is less than the lowest average VO concentration at the point of waste origination determined for each of the individual waste streams entering the process or five-hundred ppmw, whichever value is lower. The average VO concentration of each individual waste stream at the point of waste origination shall be determined using the procedures specified in paragraph (A) of rule 3745-256-84 of the Administrative Code. The average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in paragraph (B) of rule 3745-256-84 of the Administrative Code.

(f) A process that removes or destroys the organics contained in the hazardous waste to a level such that the R for the process is equal to or greater than ninety-five per cent and the owner or operator certifies that the average VO concentration at the point of waste origination for each of the individual waste streams entering the process is less than ten thousand ppmw. The R for the process and the average VO concentration of the hazardous waste at the point of waste origination shall be determined using the procedures specified in paragraphs (B) and (A) of rule 3745-256-84 of the Administrative Code, respectively.

(g) A hazardous waste incinerator for which the owner or operator has either:

(i) Been issued a final permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implement the requirements of rules 3745-68-40 to 3745-68-52 of the Administrative Code; or

(ii) Has designed and operates the incinerator in accordance with the interim standards requirements of rules 3745-68-40 to 3745-68-52 of the Administrative Code.

(h) A boiler or industrial furnace for which the owner or operator has either:

(i) Been issued a final permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code which implement the requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code;  
or



- (a) The tank is located inside an enclosure vented to a control device that is designed and operated in accordance with all applicable requirements specified under 40 CFR Part 61 subpart FF- "National Emission Standards for Benzene Waste Operations" for a facility at which the total annual benzene quantity from the facility waste is equal to or greater than ten megagrams per year;
  - (b) The enclosure and control device serving the tank were installed and began operation prior to November 25, 1996; and
  - (c) The enclosure is designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical or electrical equipment; or to direct air flow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in Section 5.0 of "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" annually.
- (D) The director may at any time perform or request that the owner or operator perform a waste determination for a hazardous waste managed in a tank, surface impoundment, or container exempted from using air emission controls under this rule as follows:
- (1) The waste determination for average VO concentration of a hazardous waste at the point of waste origination shall be performed using direct measurement in accordance with the applicable requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code. The waste determination for a hazardous waste at the point of waste treatment shall be performed in accordance with the applicable requirements of paragraph (B) of rule 3745-256-84 of the Administrative Code.
  - (2) In performing a waste determination pursuant to paragraph (D)(1) of this rule, the sample preparation and analysis shall be conducted as follows:

    - (a) In accordance with the method used by the owner or operator to perform the waste analysis, except in the case specified in paragraph (D)(2)(b) of this rule.
    - (b) If the director determines that the method used by the owner or operator was not appropriate for the hazardous waste managed in the tank, surface

impoundment, or container, then the director may choose an appropriate method.

- (3) In a case when the owner or operator is requested to perform the waste determination, the director may elect to have an authorized representative observe the collection of the hazardous waste samples used for the analysis.
- (4) In a case when the results of the waste determination performed or requested by the director do not agree with the results of a waste determination performed by the owner or operator using knowledge of the waste, then the results of the waste determination performed in accordance with the requirements of paragraph (D) (1) of this rule shall be used to establish compliance with the requirements of rules 3745-256-80 to 3745-256-90 of the Administrative Code.
- (5) In a case when the owner or operator has used an averaging period greater than one hour for determining the average VO concentration of a hazardous waste at the point of waste origination, the director may elect to establish compliance with rules 3745-256-80 to 3745-256-90 of the Administrative Code by performing or requesting that the owner or operator perform a waste determination using direct measurement based on waste samples collected within a one-hour period as follows:

  - (a) The average VO concentration of the hazardous waste at the point of waste origination shall be determined by direct measurement in accordance with the requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code.
  - (b) Results of the waste determination performed or requested by the director showing that the average VO concentration of the hazardous waste at the point of waste origination is equal to or greater than five hundred ppmw shall constitute noncompliance with rules 3745-256-80 to 3745-256-90 of the Administrative Code except in a case as provided for in paragraph (D)(5)(c) of this rule.
  - (c) For the case when the average VO concentration of the hazardous waste at the point of waste origination previously has been determined by the owner or operator using an averaging period greater than one hour to be less than five hundred ppmw but because of normal operating process variations the VO concentration of the hazardous waste determined by direct measurement for any given one-hour period may be equal to or greater than five hundred ppmw, information that was used by the owner or operator to determine the average VO concentration of the hazardous waste (e.g., test results, measurements, calculations, and



other documentation) and recorded in the facility records in accordance with the requirements of paragraph (A) of rule 3745-256-84 and rule 3745-256-90 of the Administrative Code shall be considered by the director together with the results of the waste determination performed or requested by the director in establishing compliance with rules 3745-256-80 to 3745-256-90 of the Administrative Code.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

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3745-256-84Waste determination procedures - tanks, surface impoundments, and containers.

(A) Waste determination procedure to determine average volatile organic (VO) concentration of a hazardous waste at the point of waste origination.

(1) An owner or operator shall determine the average VO concentration at the point of waste origination for each hazardous waste placed in a waste management unit exempted under paragraph (C)(1) of rule 3745-256-83 of the Administrative Code from using air emission controls in accordance with standards specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code, as applicable to the waste management unit.

(a) An initial determination of the average VO concentration of the waste stream shall be made before the first time any portion of the material in the hazardous waste stream is placed in a waste management unit exempted under paragraph (C)(1) of rule 3745-256-83 of the Administrative Code from using air emission controls, and thereafter an initial determination of the average VO concentration of the waste stream shall be made for each averaging period that a hazardous waste is managed in the unit; and

(b) Perform a new waste determination whenever changes to the source generating the waste stream are reasonably likely to cause the average VO concentration of the hazardous waste to increase to a level that is equal to or greater than the VO concentration limit specified in paragraph (C)(1) of rule 3745-256-83 of the Administrative Code.

(2) For a waste determination that is required by paragraph (A)(1) of this rule, the average VO concentration of a hazardous waste at the point of waste origination shall be determined using either direct measurement as specified in paragraph (A)(3) of this rule or by knowledge as specified in paragraph (A)(4) of this rule.

(3) Direct measurement to determine average VO concentration of a hazardous waste at the point of waste origination.

(a) Identification. The owner or operator shall identify and record the point of waste origination for the hazardous waste.

(b) Sampling. Samples of the hazardous waste stream shall be collected at the point of waste origination in a manner such that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.

- (i) The averaging period to be used for determining the average VO concentration for the hazardous waste stream on a mass-weighted average basis shall be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but shall not exceed one year.
  - (ii) A sufficient number of samples, but no less than four samples, shall be collected and analyzed for a hazardous waste determination. All of the samples for a given waste determination shall be collected within a one-hour period. The average of the four or more sample results constitutes a waste determination for the waste stream. One or more waste determinations may be required to represent the complete range of waste compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the source or process generating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.
  - (iii) All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan shall describe the procedure by which representative samples of the hazardous waste stream are collected such that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the facility operating records. An example of acceptable sample collection and handling procedures for a total volatile organic constituent concentration may be found in method 25D in 40 CFR Part 60 appendix A.
  - (iv) Sufficient information, as specified in the "site sampling plan" required under paragraph (A)(3)(b)(iii) of this rule, shall be prepared and recorded to document the waste quantity represented by the samples and, as applicable, the operating conditions for the source or process generating the hazardous waste represented by the samples.
- (c) Analysis. Each collected sample shall be prepared and analyzed in accordance with method 25D in 40 CFR Part 60 appendix A for the total concentration of volatile organic constituents, or using one or more methods when the individual organic compound concentrations are

identified and summed and the summed waste concentration accounts for and reflects all organic compounds in the waste with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) [which also can be expressed as  $1.8 \times 10^{-6}$  atmospheres/gram-mole/m<sup>3</sup>] at twenty-five degrees Celsius. At the owner's or operator's discretion, the owner or operator may adjust test data obtained by any appropriate method to discount any contribution to the total volatile organic concentration that is a result of including a compound with a Henry's law constant value of less than 0.1 Y/X at twenty-five degrees Celsius. To adjust these data, the measured concentration of each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor ( $f_{m25D}$ ). If the owner or operator elects to adjust test data, the adjustment shall be made to all individual chemical constituents with a Henry's law constant value greater than or equal to 0.1 Y/X at twenty-five degrees Celsius contained in the waste. Constituent-specific adjustment factors ( $f_{m25D}$ ) can be obtained by contacting the "Waste and Chemical Processes Group, Office of Air Quality Planning and Standards, Research Triangle Park, NC" 27711. Other test methods may be used if they meet the requirements in paragraph (A)(3)(c)(i) or (A)(3)(c)(ii) of this rule and provided the requirement to reflect all organic compounds in the waste with Henry's law constant values greater than or equal to 0.1 Y/X [which also can be expressed as  $1.8 \times 10^{-6}$  atmospheres/gram-mole/m<sup>3</sup>] at twenty-five degrees Celsius, is met.

(i) Any U.S. EPA standard method that has been validated in accordance with "Alternative Validation Procedure for EPA Waste and Wastewater Methods," 40 CFR Part 63 appendix D.

(ii) Any other analysis method that has been validated in accordance with the procedures specified in Section 5.1 or Section 5.3, and the corresponding calculations in Section 6.1 or Section 6.3, of method 301 in 40 CFR Part 63 appendix A. The data are acceptable if the data meet the criteria specified in Section 6.1.5 or Section 6.3.3 of method 301. If correction is required under section 6.3.3 of method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of method 301 are not required.

(d) Calculations.

(i) The average VO concentration on a mass-weighted basis shall be calculated by using the results for all waste determinations

conducted in accordance with paragraphs (A)(3)(b) and (A)(3)(c) of this rule and the following equation:

$$\bar{C} = \frac{1}{Q_T} \times \sum_{i=1}^n (Q_i \times C_i)$$

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Where:

$\bar{C}$  = Average VO concentration of the hazardous waste at the point of waste origination on a mass-weighted basis, ppmw.

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$i$  = Individual waste determination "i" of the hazardous waste.

$n$  = Total number of waste determinations of the hazardous waste conducted for the averaging period (not to exceed one year).

$Q_i$  = Mass quantity of hazardous waste stream represented by  $C_i$ , kg/hr.

$Q_T$  = Total mass quantity of hazardous waste during the averaging period, kg/hr.

$C_i$  = Measured VO concentration of waste determination "i" as determined in accordance with the requirements of paragraph (A)(3)(c) of this rule (i.e. the average of the four or more samples specified in paragraph (A)(3)(b)(ii) of this rule), parts per million by weight (ppmw).

(ii) To determine  $C_i$ , for individual waste samples analyzed in accordance with paragraph (A)(3)(c) of this rule, the owner or operator shall account for VO concentrations determined to be below the limit of detection of the analytical method by using the following VO concentration:

- (a) If method 25D in 40 CFR Part 60 appendix A is used for the analysis, one-half the blank value determined in the method at Section 4.4 of method 25D in 40 CFR Part 60 appendix A.
- (b) If any other analytical method is used, one-half the sum of the limits of detection established for each organic constituent in the waste that has a Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/ mole-fraction-in-the-liquid-phase (0.1 Y/X) [which also can be expressed as  $1.8 \times 10^{-6}$  atmospheres/gram-mole/m<sup>3</sup>] at twenty-five degrees Celsius.
- (e) Provided that the test method is appropriate for the waste as required under paragraph (A)(3)(c) of this rule, Ohio EPA will determine compliance based on the test method used by the owner or operator as recorded pursuant to paragraph (F)(1) of rule 3745-256-90 of the Administrative Code.
- (4) Use of owner or operator knowledge to determine average VO concentration of a hazardous waste at the point of waste origination.
- (a) Documentation shall be prepared that presents the information used as the basis for the owner's or operator's knowledge of the hazardous waste stream's average VO concentration. Examples of information that may be used as the basis for knowledge include material balances for the source or process generating the hazardous waste stream; constituent-specific chemical test data for the hazardous waste stream from previous testing that are still applicable to the current waste stream; previous test data for other locations managing the same type of waste stream; or other knowledge based on information included in manifests, shipping papers, or waste certification notices.
- (b) If test data are used as the basis for knowledge, then the owner or operator shall document the test method, sampling protocol, and the means by which sampling variability and analytical variability are accounted for in the determination of the average VO concentration. For example, an owner or operator may use organic concentration test data for the hazardous waste stream that are validated in accordance with method 301 in 40 CFR Part 63 appendix A as the basis for knowledge of the waste.
- (c) An owner or operator using chemical constituent-specific concentration test data as the basis for knowledge of the hazardous waste may adjust the test data to the corresponding average VO concentration value which would have been obtained had the waste samples been analyzed using method

25D in 40 CFR Part 60 appendix A. To adjust these data, the measured concentration for each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor ( $f_{m25D}$ ).

- (d) In the event that the director and the owner or operator disagree on a determination of the average VO concentration for a hazardous waste stream using knowledge, then the results from a determination of average VO concentration using direct measurement as specified in paragraph (A) (3) of this rule shall be used to establish compliance with the applicable requirements of rules 3745-256-80 to 3745-256-90 of the Administrative Code. The director may perform or request that the owner or operator perform this determination using direct measurement. The owner or operator may choose one or more appropriate methods to analyze each collected sample in accordance with the requirements of paragraph (A) (3)(c) of this rule.

(B) Waste determination procedures for treated hazardous waste.

- (1) An owner or operator shall perform the applicable waste determination for each treated hazardous waste placed in a waste management unit exempted under paragraph (C)(2)(a) to (C)(2)(f) of rule 3745-256-83 of the Administrative Code from using air emission controls in accordance with standards specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code, as applicable to the waste management unit.

- (a) An initial determination of the average VO concentration of the waste stream shall be made before the first time any portion of the material in the treated waste stream is placed in a waste management unit exempted under paragraph (C)(2), (C)(3), or (C)(4) of rule 3745-256-83 of the Administrative Code from using air emission controls, and thereafter update the information used for the waste determination at least once every twelve months following the date of the initial waste determination; and

- (b) Perform a new waste determination whenever changes to the process generating or treating the waste stream are reasonably likely to cause the average VO concentration of the hazardous waste to increase to a level such that the applicable treatment conditions specified in paragraph (C) (2), (C)(3), or (C)(4) of rule 3745-256-83 of the Administrative Code are not achieved.



- (2) The owner or operator shall designate and record the specific provision in paragraph (C)(2) of rule 3745-256-83 of the Administrative Code under which the waste determination is being performed. The waste determination for the treated hazardous waste shall be performed using the applicable procedures specified in paragraphs (B)(3) to (B)(9) of this rule.
- (3) Procedure to determine the average VO concentration of a hazardous waste at the point of waste treatment.
- (a) Identification. The owner or operator shall identify and record the point of waste treatment for the hazardous waste.
- (b) Sampling. Samples of the hazardous waste stream shall be collected at the point of waste treatment in a manner such that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.
- (i) The averaging period to be used for determining the average VO concentration for the hazardous waste stream on a mass-weighted average basis shall be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but shall not exceed one year.
- (ii) A sufficient number of samples, but no less than four samples, shall be collected and analyzed for a hazardous waste determination. All of the samples for a given waste determination shall be collected within a one-hour period. The average of the four or more sample results constitutes a waste determination for the waste stream. One or more waste determinations may be required to represent the complete range of waste compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the process generating or treating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.
- (iii) All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan shall describe the procedure by which representative samples of the hazardous waste stream are collected such that a minimum loss of organics occurs throughout

the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the facility operating records. An example of acceptable sample collection and handling procedures for a total volatile organic constituent concentration may be found in method 25D in 40 CFR Part 60 appendix A.

- (iv) Sufficient information, as specified in the "site sampling plan" required under paragraph (B)(3)(b)(iii) of this rule, shall be prepared and recorded to document the waste quantity represented by the samples and, as applicable, the operating conditions for the process treating the hazardous waste represented by the samples.
- (c) Analysis. Each collected sample shall be prepared and analyzed in accordance with method 25D in 40 CFR art 60 appendix A for the total concentration of volatile organic constituents, or using one or more methods when the individual organic compound concentrations are identified and summed and the summed waste concentration accounts for and reflects all organic compounds in the waste with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) [which also can be expressed as  $1.8 \times 10^{-6}$  atmospheres/gram-mole/m<sup>3</sup>] at twenty-five degrees Celsius. When the owner or operator is making a waste determination for a treated hazardous waste that is to be compared to an average VO concentration at the point of waste origination or the point of waste entry to the treatment system to determine if the conditions of paragraphs (C)(2)(a) to (C)(2)(f) of rule 3745-205-82 of the Administrative Code, or paragraphs (C)(2)(a) to (C)(2)(f) of rule 3745-265-83 of the Administrative Code are met, then the waste samples shall be prepared and analyzed using the same method or methods as were used in making the initial waste determinations at the point of waste origination or at the point of entry to the treatment system. At the owner or operator's discretion, the owner or operator may adjust test data obtained by any appropriate method to discount any contribution to the total volatile organic concentration that is a result of including a compound with a Henry's law constant value less than 0.1 Y/X at twenty-five degrees Celsius. To adjust these data, the measured concentration of each individual chemical constituent in the waste is multiplied by the appropriate constituent-specific adjustment factor ( $f_{m25D}$ ). If the owner or operator elects to adjust test data, the adjustment shall be made to all individual chemical constituents with a Henry's law constant value greater than or equal to 0.1 Y/X at twenty-five degrees Celsius contained in the waste. Constituent-specific adjustment

factors ( $f_{m25D}$ ) can be obtained by contacting the "Waste and Chemical Processes Group, Office of Air Quality Planning and Standards, Research Triangle Park, NC" 27711. Other test methods may be used if meet the requirements in paragraph (A)(3)(c)(i) or (A)(3)(b)(ii) of this rule and provided the requirement to reflect all organic compounds in the waste with Henry's law constant values greater than or equal to 0.1 Y/X [which also can be expressed as  $1.8 \times 10^{-6}$  atmospheres/gram-mole/m<sup>3</sup>] at twenty-five degrees Celsius, is met.

(i) Any U.S. EPA standard method that has been validated in accordance with "Alternative Validation Procedure for EPA Waste and Wastewater Methods," 40 CFR Part 63 appendix D.

(ii) Any other analysis method that has been validated in accordance with the procedures specified in Section 5.1 or Section 5.3, and the corresponding calculations in Section 6.1 or Section 6.3, of method 301 in 40 CFR Part 63 appendix A. The data are acceptable if the data meet the criteria specified in Section 6.1.5 or Section 6.3.3 of method 301. If correction is required under Section 6.3.3 of method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of method 301 are not required.

(d) Calculations. The average VO concentration the on a mass-weighted basis shall be calculated by using the results for all waste determinations conducted in accordance with paragraphs (B)(3)(b) and (B)(3)(c) of this rule and the following equation:

$$\bar{C} = \frac{1}{Q_T} \times \sum_{i=1}^n (Q_i \times C_i)$$

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Where:

$\bar{C}$  = Average VO concentration of the hazardous waste at the point of waste origination on a mass-weighted basis, ppmw.

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i = Individual waste determination "i" of the hazardous waste.

n = Total number of waste determinations of the hazardous waste conducted for the averaging period (not to exceed one year).

Q<sub>i</sub> = Mass quantity of hazardous waste stream represented by C<sub>i</sub>, kg/hr.

Q<sub>T</sub> = Total mass quantity of hazardous waste during the averaging period, kg/hr.

C<sub>i</sub> = Measured VO concentration of waste determination "i" as determined in accordance with the requirements of paragraph (B)(3)(c) of this rule (i.e. the average of the four or more samples specified in paragraph (B)(3)(b)(ii) of this rule), ppmw.

(e) Provided that the test method is appropriate for the waste as required under paragraph (B)(3)(c) of this rule, compliance shall be determined based on the test method used by the owner or operator as recorded pursuant to paragraph (F)(1) of rule 3745-256-90 of the Administrative Code.

(4) Procedure to determine the exit concentration limit (C<sub>t</sub>) for a treated hazardous waste.

(a) The point of waste origination for each hazardous waste treated by the process at the same time shall be identified.

(b) If a single hazardous waste stream is identified in paragraph (B)(4)(a) of this rule, then the exit concentration limit (C<sub>t</sub>) shall be five hundred ppmw.

(c) If more than one hazardous waste stream is identified in paragraph (B)(4)(a) of this rule, then the average VO concentration of each hazardous waste stream at the point of waste origination shall be determined in accordance with the requirements of paragraph (A) of this rule. The exit concentration limit (C<sub>t</sub>) shall be calculated by using the results determined for each individual hazardous waste stream and the following equation:

$$C_t = \frac{\sum_{x=1}^m (Q_x \times \bar{C}_x) + \sum_{y=1}^n (Q_y \times 500 \text{ ppmw})}{\sum_{x=1}^m Q_x + \sum_{y=1}^n Q_y}$$


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Where:

$C_t$  = Exit concentration limit for treated hazardous waste, ppmw.

$x$  = Individual hazardous waste stream "x" that has an average VO concentration less than five hundred ppmw at the point of waste origination as determined in accordance with the requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code.

$y$  = Individual hazardous waste stream "y" that has an average VO concentration equal to or greater than five hundred ppmw at the point of waste origination as determined in accordance with the requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code.

$m$  = Total number of "x" hazardous waste streams treated by process.

$n$  = Total number of "y" hazardous waste streams treated by process.

$Q_x$  = Annual mass quantity of hazardous waste stream "x," kg/yr.

$Q_y$  = Annual mass quantity of hazardous waste stream "y," kg/yr.

$\bar{C}_x$  = Average VO concentration of hazardous waste stream "x" at the point of waste origination as determined in accordance with the requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code, ppmw.

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- (5) Procedure to determine the organic reduction efficiency (R) for a treated hazardous waste.
- (a) The R for a treatment process shall be determined based on results for a minimum of three consecutive runs.
- (b) All hazardous waste streams entering the treatment process and all hazardous waste streams exiting the treatment process shall be identified. The owner or operator shall prepare a sampling plan for measuring these streams that accurately reflects the retention time of the hazardous waste in the process.
- (c) For each run, information shall be determined for each hazardous waste stream identified in paragraph (B)(5)(b) of this rule using the following procedures:

(i) The mass quantity of each hazardous waste stream entering the process ( $Q_b$ ) and the mass quantity of each hazardous waste stream exiting the process ( $Q_a$ ) shall be determined.

(ii) The average VO concentration at the point of waste origination of each hazardous waste stream entering the process ( $\bar{C}_b$ ) during the run shall be determined in accordance with the requirements of paragraph (A)(3) of this rule. The average VO concentration at the point of waste treatment of each waste stream exiting the process ( $\bar{C}_a$ ) during the run shall be determined in accordance with the requirements of paragraph (B)(3) of this rule.

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(d) The waste volatile organic mass flow entering the process ( $E_b$ ) and the waste volatile organic mass flow exiting the process ( $E_a$ ) shall be calculated by using the results determined in accordance with paragraph (B)(5)(c) of this rule and the following equations:

$$E_b = \frac{1}{10^6} \sum_{j=1}^m (Q_{bj} \times \bar{C}_{bj})$$

$$E_a = \frac{1}{10^6} \sum_{j=1}^m (Q_{aj} \times \bar{C}_{aj})$$


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Where:

$E_a$  = Waste volatile organic mass flow exiting process, kg/hr.

$E_b$  = Waste volatile organic mass flow entering process, kg/hr.

$m$  = Total number of runs (at least three)

$j$  = Individual run "j"

$Q_b$  = Mass quantity of hazardous waste entering process during run "j," kg/hr.

$Q_a$  = Average mass quantity of hazardous waste exiting process during run "j," kg/hr.

$\bar{C}_a$  = Average VO concentration of hazardous waste exiting process during run "j" as determined in accordance with the requirements of paragraph (B)(3) of rule 3745-256-84 of the Administrative Code, ppmw.

$\bar{C}_b$  = Average VO concentration of hazardous waste entering process during run "j" as determined in accordance with the requirements of paragraph (A)(3) of rule 3745-256-84 of the Administrative Code, ppmw.

- (e) The R of the process shall be calculated by using the results determined in accordance with paragraph (B)(5)(d) of this rule and the following equation:

$$R = \frac{E_b - E_a}{E_b} \times 100\%$$

Where:

R = Organic reduction efficiency, per cent.

$E_b$  = Waste volatile organic mass flow entering process as determined in accordance with the requirements of paragraph (B)(5)(d) of this rule, kg/hr.

$E_a$  = Waste volatile organic mass flow exiting process as determined in accordance with the requirements of paragraph (B)(5)(d) of this rule, kg/hr.

(6) Procedure to determine the organic biodegradation efficiency ( $R_{bio}$ ) for a treated hazardous waste.

(a) The fraction of organics biodegraded ( $F_{bio}$ ) shall be determined using the procedure specified in 40 CFR Part 63 appendix C.

(b) The  $R_{bio}$  shall be calculated by using the following equation:

$$\underline{R_{bio} = F_{bio} \times 100\%}$$

Where:

$R_{bio}$  = Organic biodegradation efficiency, per cent.

$F_{bio}$  = Fraction of organic biodegraded as determined in accordance with the requirements of paragraph (B)(6)(a) of this rule.

(7) Procedure to determine the required organic mass removal rate (RMR) for a treated hazardous waste.

(a) All of the hazardous waste streams entering the treatment process shall be identified.

(b) The average VO concentration of each hazardous waste stream at the point of waste origination shall be determined in accordance with the requirements of paragraph (A) of this rule.

(c) For each individual hazardous waste stream that has an average VO concentration equal to or greater than five hundred ppmw at the point of waste origination, the average volumetric flow rate and the density of the hazardous waste stream at the point of waste origination shall be determined.

(d) The RMR shall be calculated by using the average VO concentration, average volumetric flow rate, and density determined for each individual hazardous waste stream, and the following equation:



$$RMR = \sum_{y=1}^n \left[ V_y \times k_y \times \frac{(\bar{C}_y - 500 \text{ ppmw})}{10^6} \right]$$

RMR = Required organic mass removal rate, kg/hr.

y = Individual hazardous waste stream "y" that has an average VO concentration equal to or greater than five hundred ppmw at the point of waste origination as determined in accordance with the requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code.

n = Total number of "y" hazardous waste streams treated by process.

V<sub>y</sub> = Average volumetric flow rate of hazardous waste stream "y" at the point of waste origination, m<sup>3</sup>/hr.

k<sub>y</sub> = Density of hazardous waste stream "y," kg/m<sup>3</sup>

$\bar{C}_y$  = Average VO concentration of hazardous waste stream "y" at the point of waste origination as determined in accordance with the requirements of paragraph (A) of rule 3745-256-84 of the Administrative Code, parts per million.

(8) Procedure to determine the actual organic mass removal rate (MR) for a treated hazardous waste.

(a) The MR shall be determined based on results for a minimum of three consecutive runs. The sampling time for each run shall be one hour.

(b) The waste volatile organic mass flow entering the process (E<sub>v</sub>) and the waste volatile organic mass flow exiting the process (E<sub>e</sub>) shall be determined in accordance with the requirements of paragraph (B)(5)(d) of this rule.

(c) The MR shall be calculated by using the mass flow rate determined in accordance with the requirements of paragraph (B)(8)(b) of this rule and the following equation:

$$\underline{MR = E_b - E_a}$$

Where:

MR = Actual organic mass removal rate, kg/hr.

E<sub>b</sub> = Waste volatile organic mass flow entering process as determined in accordance with the requirements of paragraph (B)(5)(d) of this rule, kg/hr.

E<sub>a</sub> = Waste volatile organic mass flow exiting process as determined in accordance with the requirements of paragraph (B)(5)(d) of this rule, kg/hr.

(9) Procedure to determine the actual organic mass biodegradation rate (MR<sub>bio</sub>) for a treated hazardous waste.

(a) The MR<sub>bio</sub> shall be determined based on results for a minimum of three consecutive runs. The sampling time for each run shall be one hour.

(b) The waste organic mass flow entering the process (E<sub>b</sub>) shall be determined in accordance with the requirements of paragraph (B)(5)(d) of this rule.

(c) The fraction of organic biodegraded (F<sub>bio</sub>) shall be determined using the procedure specified in 40 CFR Part 63 appendix C.

(d) The MR<sub>bio</sub> shall be calculated by using the mass flow rates and fraction of organic biodegraded determined in accordance with the requirements of paragraphs (B)(9)(b) and (B)(9)(c) of this rule, respectively, and the following equation:

$$\underline{MR_{bio} = E_b \times F_{bio}}$$

Where:

MR<sub>bio</sub> = Actual organic mass biodegradation rate, kg/hr.

E<sub>b</sub> = Waste organic mass flow entering process as determined in accordance with the requirements of paragraph (B)(5)(d) of this rule, kg/hr.

F<sub>bio</sub> = Fraction of organic biodegraded as determined in accordance with the requirements of paragraph (B)(9)(c) of this rule.

(C) Procedure to determine the maximum organic vapor pressure of a hazardous waste in a tank.

- (1) An owner or operator shall determine the maximum organic vapor pressure for each hazardous waste placed in a tank using "Tank Level 1" controls in accordance with the standards specified in paragraph (C) of rule 3745-256-85 of the Administrative Code.
- (2) An owner or operator shall use either direct measurement as specified in paragraph (C)(3) of this rule or knowledge of the waste as specified by paragraph (C) (4) of this rule to determine the maximum organic vapor pressure which is representative of the hazardous waste composition stored or treated in the tank.
- (3) Direct measurement to determine the maximum organic vapor pressure of a hazardous waste.
  - (a) Sampling. A sufficient number of samples shall be collected to be representative of the waste contained in the tank. All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan shall describe the procedure by which representative samples of the hazardous waste are collected such that a minimum loss of organics occurs throughout the sample collection and handling process and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the facility operating records. An example of acceptable sample collection and handling procedures may be found in method 25D in 40 CFR Part 60 appendix A.
  - (b) Analysis. Any appropriate one of the following methods may be used to analyze the samples and compute the maximum organic vapor pressure of the hazardous waste:
    - (i) Method 25E in 40 CFR Part 60 appendix A;
    - (ii) Methods described in American petroleum institute publication 2517, third edition, February 1989, "Evaporative Loss from External Floating-Roof Tanks";
    - (iii) Methods obtained from standard reference texts;
    - (iv) ASTM method D2879-10; and
    - (v) Any other method approved by the director.

- (4) Use of knowledge to determine the maximum organic vapor pressure of the hazardous waste. Documentation shall be prepared and recorded that presents the information used as the basis for the owner's or operator's knowledge that the maximum organic vapor pressure of the hazardous waste is less than the maximum vapor pressure limit listed in paragraph (B)(1)(a) of rule 3745-256-85 of the Administrative Code for the applicable tank design capacity category. An example of information that may be used is documentation that the hazardous waste is generated by a process for which at other locations it previously has been determined by direct measurement that the waste maximum organic vapor pressure is less than the maximum vapor pressure limit for the appropriate tank design capacity category.
- (D) Procedure for determining no detectable organic emissions for the purpose of complying with rules 3745-256-80 to 3745-256-90 of the Administrative Code:
- (1) The test shall be conducted in accordance with the procedures specified in method 21 of 40 CFR Part 60 appendix A. Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the cover and associated closure devices shall be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to the interface of the cover and the cover's foundation mounting; the periphery of any opening on the cover and the cover's associated closure device; and the sealing seat interface on a spring-loaded pressure relief valve.
  - (2) The test shall be performed when the unit contains a hazardous waste having an organic concentration representative of the range of concentrations for the hazardous waste expected to be managed in the unit. During the test, the cover and closure devices shall be secured in the closed position.
  - (3) The detection instrument shall meet the performance criteria of method 21 of 40 CFR Part 60 appendix A, except the instrument response factor criteria in Section 3.1.2(a) of method 21 shall be for the average composition of the organic constituents in the hazardous waste placed in the waste management unit, not for each individual organic constituent.
  - (4) The detection instrument shall be calibrated before use on each day of the instrument's use by the procedures specified in method 21 of 40 CFR Part 60 appendix A.
  - (5) Calibration gases shall be as follows:
    - (a) Zero air (less than ten parts per million by volume (ppmv) hydrocarbon in air), and

- (b) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand ppmv methane or n-hexane.
- (6) The background level shall be determined according to the procedures in method 21 of 40 CFR Part 60 appendix A.
- (7) Each potential leak interface shall be checked by traversing the instrument probe around the potential leak interface as close to the interface as possible, as described in method 21 of 40 CFR Part 60 appendix A. In the case when the configuration of the cover or closure device prevents a complete traverse of the interface, all accessible portions of the interface shall be sampled. In the case when the configuration of the closure device prevents any sampling at the interface and the device is equipped with an enclosed extension or horn (e.g., some pressure relief devices), the instrument probe inlet shall be placed at approximately the center of the exhaust area to the atmosphere.
- (8) The arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of five hundred ppmv except when monitoring a seal around a rotating shaft that passes through a cover opening, in which case the comparison shall be as specified in paragraph (D)(9) of this rule. If the difference is less than five hundred ppmv, then the potential leak interface is determined to operate with no detectable organic emissions.
- (9) For the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of ten thousand ppmw. If the difference is less than ten thousand ppmw, then the potential leak interface is determined to operate with no detectable organic emissions.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-84

1

**Appendix to rule 3745-256-84 of the Administrative Code**

## Compounds With Henry's Law Constant Less Than 0.1 Y/X

Compound name	CAS* Number
Acetaldol	107-89-1
Acetamide	60-35-5
2-Acetylaminofluorene	53-96-3
3-Acetyl-5-hydroxypiperidine	----
3-Acetylpiperidine	618-42-8
1-Acetyl-2-thiourea	591-08-2
Acrylamide	79-06-1
Acrylic acid	79-10-7
Adenine	73-24-5
Adipic acid	124-04-9
Adiponitrile	111-69-3
Alachlor	15972-60-8
Aldicarb	116-06-3
Ametryn	834-12-8
4-Aminobiphenyl	92-67-1
4-Aminopyridine	504-24-5
Aniline	62-53-3
o-Anisidine	90-04-0
Anthraquinone	84-65-1
Atrazine	1912-24-9
Benzeneearsonic acid	98-05-5
Benzenesulfonic acid	98-11-3
Benzidine	92-87-5
Benzo(a)anthracene	56-55-3
Benzo(k)fluoranthene	207-08-9
Benzoic acid	65-85-0

Compound name	CAS* Number
Benzo(g,h,i)perylene	191-24-2
Benzo(a)pyrene	50-32-8
Benzyl alcohol	100-51-6
gamma-BHC	58-89-9
Bis(2-ethylhexyl)phthalate	117-81-7
Bromochloromethyl acetate	----
Bromoxynil	1689-84-5
Butyric acid	107-92-6
Caprolactam (hexahydro-2H-azepin-2-one)	105-60-2
Catechol (o-dihydroxybenzene)	120-80-9
Cellulose	9004-34-6
Cell wall	----
Chlorhydrin (3-Chloro-1,2-propanediol)	96-24-2
Chloroacetic acid	79-11-8
2-Chloroacetophenone	93-76-5
p-Chloroaniline	106-47-8
p-Chlorobenzophenone	134-85-0
Chlorobenzilate	510-15-6
p-Chloro-m-cresol (6-chloro-m-cresol)	59-50-7
3-Chloro-2,5-diketopyrrolidine	----
Chloro-1,2-ethane diol	----
4-Chlorophenol	106-48-9
Chlorophenol polymers (2-chlorophenol & 4-chlorophenol)	95-57-8 and 106-48-9
1-(o-Chlorophenyl)thiourea	5344-82-1
Chrysene	218-01-9
Citric acid	77-92-9
Creosote	8001-58-9
m-Cresol	108-39-4



Compound name	CAS* Number
o-Cresol	95-48-7
p-Cresol	106-44-5
Cresol (mixed isomers)	1319-77-3
4-Cumylphenol	27576-86
Cyanide	57-12-5
4-Cyanomethyl benzoate	----
Diazinon	333-41-5
Dibenzo(a,h)anthracene	53-70-3
Dibutylphthalate	84-74-2
2,5-Dichloroaniline (N,N'-dichloroaniline)	95-82-9
2,6-Dichlorobenzonitrile <sup>11</sup>	1194-65-6
2,6-Dichloro-4-nitroaniline	99-30-9
2,5-Dichlorophenol	333-41-5
3,4-Dichlorotetrahydrofuran	3511-19
Dichlorvos (DDVP)	62-73-7
Diethanolamine	111-42-2
N,N-Diethylaniline	91-66-7
Diethylene glycol	111-46-6
Diethylene glycol dimethyl ether (dimethyl Carbitol)	111-96-6
Diethylene glycol monobutyl ether (butyl Carbitol)	112-34-5
Diethylene glycol monoethyl ether acetate (Carbitol acetate)	112-15-2
Diethylene glycol monoethyl ether (Carbitol Cellosolve)	111-90-0
Diethylene glycol monomethyl ether (methyl Carbitol)	111-77-3
N,N'-Diethylhydrazine	1615-80-1
Diethyl (4-methylumbelliferyl) thionophosphate	299-45-6
Diethyl phosphorothioate	126-75-0
N,N'-Diethylpropionamide	15299-99-7
Dimethoate	60-51-5

Compound name	CAS* Number
2,3-Dimethoxystrychnidin-10-one	357-57-3
4-Dimethylaminoazobenzene.	60-11-7
7,12-Dimethylbenz(a)anthracene	57-97-6
3,3-Dimethylbenzidine	119-93-7
Dimethylcarbamoyl chloride	79-44-7
Dimethyldisulfide	624-92-0
Dimethylformamide	68-12-2
1,1-Dimethylhydrazine	57-14-7
Dimethylphthalate	131-11-3
Dimethylsulfone	67-71-0
Dimethylsulfoxide	67-68-5
4,6-Dinitro-o-cresol	534-52-1
1,2-Diphenylhydrazine	122-66-7
Dipropylene glycol (1,1'-oxydi-2-propanol)	110-98-5
Endrin	72-20-8
Epinephrine	51-43-4
mono-Ethanolamine	141-43-5
Ethyl carbamate (urethane)	5-17-96
Ethylene glycol	107-21-1
Ethylene glycol monobutyl ether (butyl Cellosolve)	111-76-2
Ethylene glycol monoethyl ether (Cellosolve)	110-80-5
Ethylene glycol monoethyl ether acetate (Cellosolve acetate)	111-15-9
Ethylene glycol monomethyl ether (methyl Cellosolve)	109-86-4
Ethylene glycol monophenyl ether (phenyl Cellosolve)	122-99-6
Ethylene glycol monopropyl ether (propyl Cellosolve)	2807-30-9
Ethylene thiourea (2-imidazolidinethione)	96-45-7
4-Ethylmorpholine	100-74-3
3-Ethylphenol	620-17-7

Compound name	CAS* Number
Fluoroacetic acid, sodium salt	62-74-8
Formaldehyde	50-00-0
Formamide	75-12-7
Formic acid	64-18-6
Fumaric acid	110-17-8
Glutaric acid	110-94-1
Glycerin (Glycerol)	56-81-5
Glycidol	556-52-5
Glycinamide	598-41-4
Glyphosate	1071-83-6
Guthion	86-50-0
Hexamethylene-1,6-diisocyanate (1,6-diisocyanatohexane)	822-06-0
Hexamethyl phosphoramidate	680-31-9
Hexanoic acid	142-62-1
Hydrazine	302-01-2
Hydrocyanic acid	74-90-8
Hydroquinone	123-31-9
Hydroxy-2-propionitrile (hydracrylonitrile)	109-78-4
Indeno (1,2,3-cd) pyrene	193-39-5
Lead acetate	301-04-2
Lead subacetate (lead acetate, monobasic)	1335-32-6
Leucine	61-90-5
Malathion	121-75-5
Maleic acid	110-16-7
Maleic anhydride	108-31-6
Mesityl oxide	141-79-7
Methane sulfonic acid	75-75-2
Methomyl	16752-77-5
p-Methoxyphenol	150-76-5

Compound name	CAS* Number
Methyl acrylate	96-33-3
4,4'-Methylene-bis-(2-chloroaniline)	101-14-4
4,4'-Methylenediphenyl diisocyanate (diphenyl methane diisocyanate)	101-68-8
4,4'-Methylenedianiline	101-77-9
Methylene diphenylamine (MDA)	----
5-Methylfurfural	620-02-0
Methylhydrazine	60-34-4
Methyliminoacetic acid	----
Methyl methane sulfonate	66-27-3
1-Methyl-2-methoxyaziridine	----
Methylparathion	298-00-0
Methyl sulfuric acid (sulfuric acid, dimethyl ester)	77-78-1
4-Methylthiophenol	106-45-6
Monomethylformamide (N-methylformamide)	123-39-7
Nabam	142-59-6
alpha-Naphthol	90-15-3
beta-Naphthol	135-19-3
alpha-Naphthylamine	134-32-7
beta-Naphthylamine	91-59-8
Neopentyl glycol (dimethylolpropane)	126-30-7
Niacinamide	98-92-0
o-Nitroaniline	88-74-4
Nitroglycerin	55-63-0
2-Nitrophenol	88-75-5
4-Nitrophenol	100-02-7
N-Nitrosodimethylamine	62-75-9
Nitrosoguanidine	674-81-7
N-Nitroso-n-methylurea	684-93-5

Compound name	CAS* Number
N-Nitrosomorpholine (4-nitrosomorpholine)	59-89-2
Oxalic acid	144-62-7
Parathion	56-38-2
Pentaerythritol	115-77-5
Phenacetin	62-44-2
Phenol	108-95-2
Phenylacetic acid	103-82-2
m-Phenylene diamine	108-45-2
o-Phenylene diamine	95-54-5
p-Phenylene diamine	106-50-3
Phenyl mercuric acetate	62-38-4
Phorate.	298-02-2
Phthalic anhydride	85-44-9
alpha-Picoline (2-methyl pyridine)	109-06-8
1,3-Propane sulfone	1120-71-4
beta-Propiolactone.	57-57-8
Proporur (Baygon)	----
Propylene glycol	57-55-6
Pyrene	129-00-0
Pyridinium bromide	39416-48-3
Quinoline	91-22-5
Quinone (p-benzoquinone)	106-51-4
Resorcinol	108-46-3
Simazine	122-34-9
Sodium acetate	127-09-3
Sodium formate	141-53-7
Strychnine	57-24-9
Succinic acid	110-15-6
Succinimide	123-56-8

Compound name	CAS* Number
Sulfanilic acid	121-47-1
Terephthalic acid	100-21-0
Tetraethyldithiopyrophosphate	3689-24-5
Tetraethylenepentamine	112-57-2
Thiofanox	39196-18-4
Thiosemicarbazide	79-19-6
2,4-Toluediamine	95-80-7
2,6-Toluediamine	823-40-5
3,4-Toluediamine	496-72-0
2,4-Toluene diisocyanate	584-84-9
p-Toluic acid	99-94-5
m-Toluidine	108-44-1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1
Triethanolamine	102-71-6
Triethylene glycol dimethyl ether	----
Tripropylene glycol	24800-44-0
Warfarin	81-81-2
3,4-Xylenol (3,4-dimethylphenol)	95-65-8
* CAS number means chemical abstracts number.	

3745-256-85

Tanks - air emission standards for tanks, surface impoundments, and containers.

(A) Rules 3745-256-80 to 3745-256-90 of the Administrative Code apply to the control of air pollutant emissions from tanks for which paragraph (B) of rule 3745-256-83 of the Administrative Code references the use of this rule for such air emission control.

(B) The owner or operator shall control air pollutant emissions from each tank subject to this rule in accordance with the following requirements, as applicable:

(1) For a tank that manages hazardous waste that meets all of the conditions specified in paragraphs (B)(1)(a) to (B)(1)(c) of this rule, the owner or operator shall control air pollutant emissions from the tank in accordance with the "Tank Level 1" controls specified in paragraph (C) of this rule or the "Tank Level 2" controls specified in paragraph (D) of this rule.

(a) The hazardous waste in the tank has a maximum organic vapor pressure which is less than the maximum organic vapor pressure limit for the tank's design capacity category as follows:

(i) For a tank design capacity equal to or greater than one hundred fifty-one m<sup>3</sup>, the maximum organic vapor pressure limit for the tank is 5.2 kilopascals (kPa).

(ii) For a tank design capacity equal to or greater than seventy-five m<sup>3</sup> but less than one hundred fifty-one m<sup>3</sup>, the maximum organic vapor pressure limit for the tank is 27.6 kPa.

(iii) For a tank design capacity less than seventy-five m<sup>3</sup>, the maximum organic vapor pressure limit for the tank is 76.6 kPa.

(b) The hazardous waste in the tank is not heated by the owner or operator to a temperature that is greater than the temperature at which the maximum organic vapor pressure of the hazardous waste is determined for the purpose of complying with paragraph (B)(1)(a) of this rule.

(c) The hazardous waste in the tank is not treated by the owner or operator using a waste stabilization process, as defined in rule 3745-256-81 of the Administrative Code.

(2) For a tank that manages hazardous waste that does not meet all of the conditions specified in paragraphs (B)(1)(a) to (B)(1)(c) of this rule, the owner or operator shall control air pollutant emissions from the tank by using "Tank Level 2" controls in accordance with the requirements of paragraph (D) of this rule. Examples of tanks required to use "Tank Level 2" controls include a tank used for a waste stabilization process; and a tank for which the hazardous waste in the tank has a maximum organic vapor pressure that is

equal to or greater than the maximum organic vapor pressure limit for the tank's design capacity category as specified in paragraph (B)(1)(a) of this rule.

(C) Owners and operators controlling air pollutant emissions from a tank using "Tank Level 1" controls shall meet the requirements specified in paragraphs (C)(1) to (C)(4) of this rule:

(1) The owner or operator shall determine the maximum organic vapor pressure for a hazardous waste to be managed in the tank using "Tank Level 1" controls before the first time the hazardous waste is placed in the tank. The maximum organic vapor pressure shall be determined using the procedures specified in paragraph (C) of rule 3745-256-84 of the Administrative Code. Thereafter, the owner or operator shall perform a new determination whenever changes to the hazardous waste managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank design capacity category specified in paragraph (B)(1)(a) of this rule, as applicable to the tank.

(2) The tank shall be equipped with a fixed roof designed to meet the following specifications:

(a) The fixed roof and the fixed roof's closure devices shall be designed to form a continuous barrier over the entire surface area of the hazardous waste in the tank. The fixed roof may be a separate cover installed on the tank (e.g., a removable cover mounted on an open-top tank) or may be an integral part of the tank structural design (e.g., a horizontal cylindrical tank equipped with a hatch).

(b) The fixed roof shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall.

(c) Each opening in the fixed roof, and any manifold system associated with the fixed roof, shall be either:

(i) Equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device; or

(ii) Connected by a closed-vent system that is vented to a control device. The control device shall remove or destroy organics in the vent stream, and shall be operating whenever hazardous waste is managed in the tank, except as provided for in paragraphs



(C)(2)(c)(ii)(a) and paragraph (C)(2)(c)(ii)(b) of this rule.

(a) During periods it is necessary to provide access to the tank for performing the activities of paragraph (C)(2)(c)(ii)(b) of this rule, venting of the vapor headspace underneath the fixed roof to the control device is not required, opening of closure devices is allowed, and removal of the fixed roof is allowed. After completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, and resume operation of the control device.

(b) During periods of routine inspection, maintenance, or other activities needed for normal operations, and for the removal of accumulated sludge or other residues from the bottom of the tank.

(d) The fixed roof and the fixed roof's closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout the intended service life of the fixed roof and closure devices. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include organic vapor permeability, the effects of any contact with the hazardous waste or the hazardous waste's vapors managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.

(3) Whenever a hazardous waste is in the tank, the fixed roof shall be installed with each closure device secured in the closed position except as follows:

(a) Opening of closure devices or removal of the fixed roof is allowed at the following times:

(i) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. After completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.

(ii) To remove accumulated sludge or other residues from the bottom of tank.

- (b) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the tank internal pressure in accordance with the tank design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the tank internal pressure is within the internal pressure operating range determined by the owner or operator based on the tank manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the tank internal pressure exceeds the internal pressure operating range for the tank as a result of loading operations or diurnal ambient temperature fluctuations.
- (c) Opening of a safety device, as defined in rule 3745-256-81 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (4) The owner or operator shall inspect the air emission control equipment in accordance with the following requirements

  - (a) The fixed roof and the fixed roof's closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
  - (b) The owner or operator shall perform an initial inspection of the fixed roof and the fixed roof's closure devices on or before the date that the tank becomes subject to this rule. Thereafter, the owner or operator shall perform the inspections at least once every year except under the special conditions provided for in paragraph (L) of this rule.
  - (c) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (K) of this rule.
  - (d) The owner or operator shall maintain a record of the inspection in

accordance with the requirements specified in paragraph (B) of rule 3745-256-90 of the Administrative Code.

(D) Owners and operators controlling air pollutant emissions from a tank using "Tank Level 2" controls shall use one of the following tanks

(1) A fixed-roof tank equipped with an internal floating roof in accordance with the requirements specified in paragraph (E) of this rule;

(2) A tank equipped with an external floating roof in accordance with the requirements specified in paragraph (F) of this rule;

(3) A tank vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (G) of this rule;

(4) A pressure tank designed and operated in accordance with the requirements specified in paragraph (H) of this rule; or

(5) A tank located inside an enclosure that is vented through a closed-vent system to an enclosed combustion control device in accordance with the requirements specified in paragraph (I) of this rule.

(E) The owner or operator who controls air pollutant emissions from a tank using a fixed-roof with an internal floating roof shall meet the requirements specified in paragraphs (E)(1) to (E)(3) of this rule.

(1) The tank shall be equipped with a fixed roof and an internal floating roof in accordance with the following requirements:

(a) The internal floating roof shall be designed to float on the liquid surface except when the floating roof shall be supported by the leg supports.

(b) The internal floating roof shall be equipped with a continuous seal between the wall of the tank and the floating roof edge that meets either of the following requirements:

(i) A single continuous seal that is either a liquid-mounted seal or a metallic shoe seal, as defined in rule 3745-256-81 of the Administrative Code; or

(ii) Two continuous seals mounted one above the other. The lower seal may be a vapor-mounted seal.

(c) The internal floating roof shall meet the following specifications:

(i) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space

vents is to provide a projection below the liquid surface.

(ii) Each opening in the internal floating roof shall be equipped with a gasketed cover or a gasketed lid except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains.

(iii) Each penetration of the internal floating roof for the purpose of sampling shall have a slit fabric cover that covers at least ninety per cent of the opening.

(iv) Each automatic bleeder vent and rim space vent shall be gasketed.

(v) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

(vi) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

(2) The owner or operator shall operate the tank in accordance with the following requirements:

(a) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be completed as soon as practical.

(b) Automatic bleeder vents are to be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.

(c) Prior to filling the tank, each cover, access hatch, gauge float well or lid on any opening in the internal floating roof shall be bolted or fastened closed (i.e., no visible gaps). Rim space vents are to be set to open only when the internal floating roof is not floating or when the pressure beneath the rim exceeds the manufacturer's recommended setting.

(3) The owner or operator shall inspect the internal floating roof in accordance with the procedures specified as follows:

(a) The floating roof and the floating roof's closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, the internal floating roof is not floating on the surface of the liquid inside the tank; liquid has accumulated on top of the internal floating roof; any portion of the roof seals have detached from the roof rim; holes, tears, or other openings are visible in the seal fabric; the gaskets no longer

close off the hazardous waste surface from the atmosphere; or the slotted membrane has more than ten per cent open area.

(b) The owner or operator shall inspect the internal floating roof components as follows except as provided in paragraph (E)(3)(c) of this rule:

(i) Visually inspect the internal floating roof components through openings on the fixed-roof (e.g., manholes and roof hatches) at least once every twelve months after initial fill, and

(ii) Visually inspect the internal floating roof, primary seal, secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every ten years.

(c) As an alternative to performing the inspections specified in paragraph (E)(3)(b) of this rule for an internal floating roof equipped with two continuous seals mounted one above the other, the owner or operator may visually inspect the internal floating roof, primary and secondary seals, gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every five years.

(d) Prior to each inspection required by paragraph (E)(3)(b) or (E)(3)(c) of this rule, the owner or operator shall notify the director in advance of each inspection to provide the director with the opportunity to have an observer present during the inspection. The owner or operator shall notify the director of the date and location of the inspection as follows:

(i) Prior to each visual inspection of an internal floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the owner or operator so that the notification is received by the director at least thirty calendar days before refilling the tank except when an inspection is not planned as provided for in paragraph (E)(3)(d)(ii) of this rule.

(ii) When a visual inspection is not planned and the owner or operator could not have known about the inspection thirty calendar days before refilling the tank, the owner or operator shall notify the director as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that the notification is received by the director at least seven calendar days before refilling the tank.

(e) In the event that a defect is detected, the owner or operator shall repair the

defect in accordance with the requirements of paragraph (K) of this rule.

(f) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-256-90 of the Administrative Code.

(4) "Safety devices," as defined in rule 3745-256-81 of the Administrative Code, may be installed and operated as necessary on any tank complying with the requirements of paragraph (E) of this rule.

(F) The owner or operator who controls air pollutant emissions from a tank using an external floating roof shall meet the requirements specified in paragraphs (F)(1) to (F)(3) of this rule.

(1) The owner or operator shall design the external floating roof in accordance with the following requirements:

(a) The external floating roof shall be designed to float on the liquid surface except when the floating roof shall be supported by the leg supports.

(b) The floating roof shall be equipped with two continuous seals, one above the other, between the wall of the tank and the roof edge. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.

(i) The primary seal shall be a liquid-mounted seal or a metallic shoe seal, as defined in rule 3745-256-81 of the Administrative Code. The total area of the gaps between the tank wall and the primary seal shall not exceed two hundred twelve square centimeters (cm<sup>2</sup>) per meter of tank diameter, and the width of any portion of these gaps shall not exceed 3.8 centimeters (cm). If a metallic shoe seal is used for the primary seal, the metallic shoe seal shall be designed so that one end extends into the liquid in the tank and the other end extends a vertical distance of at least sixty-one cm above the liquid surface.

(ii) The secondary seal shall be mounted above the primary seal and cover the annular space between the floating roof and the wall of the tank. The total area of the gaps between the tank wall and the secondary seal shall not exceed 21.2 cm<sup>2</sup> per meter of tank diameter, and the width of any portion of these gaps shall not exceed 1.3 cm.

(c) The external floating roof shall meet the following specifications:

(i) Except for automatic bleeder vents (vacuum breaker vents) and rim

space vents, each opening in a non-contact external floating roof shall provide a projection below the liquid surface.

(ii) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be equipped with a gasketed cover, seal, or lid.

(iii) Each access hatch and each gauge float well shall be equipped with a cover designed to be bolted or fastened when the cover is secured in the closed position.

(iv) Each automatic bleeder vent and each rim space vent shall be equipped with a gasket.

(v) Each roof drain that empties into the liquid managed in the tank shall be equipped with a slotted membrane fabric cover that covers at least ninety per cent of the area of the opening.

(vi) Each unslotted and slotted guide pole well shall be equipped with a gasketed sliding cover or a flexible fabric sleeve seal.

(vii) Each unslotted guide pole shall be equipped with a gasketed cap on the end of the pole.

(viii) Each slotted guide pole shall be equipped with a gasketed float or other device which closes off the liquid surface from the atmosphere.

(ix) Each gauge hatch and each sample well shall be equipped with a gasketed cover.

(2) The owner or operator shall operate the tank in accordance with the following requirements:

(a) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be completed as soon as practical.

(b) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be secured and maintained in a closed position at all times except when the closure device shall be open for access.

(c) Covers on each access hatch and each gauge float well shall be bolted or fastened when secured in the closed position.

(d) Automatic bleeder vents shall be set closed at all times when the roof is

floating, except when the roof is being floated off or is being landed on the leg supports.

(e) Rim space vents shall be set to open only at those times that the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.

(f) The cap on the end of each unslotted guide pole shall be secured in the closed position at all times except when measuring the level or collecting samples of the liquid in the tank.

(g) The cover on each gauge hatch or sample well shall be secured in the closed position at all times except when the hatch or well shall be opened for access.

(h) Both the primary seal and the secondary seal shall completely cover the annular space between the external floating roof and the wall of the tank in a continuous fashion except during inspections.

(3) The owner or operator shall inspect the external floating roof in accordance with the procedures specified as follows:

(a) The owner or operator shall measure the external floating roof seal gaps in accordance with the following requirements:

(i) The owner or operator shall perform measurements of gaps between the tank wall and the primary seal within sixty calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every five years.

(ii) The owner or operator shall perform measurements of gaps between the tank wall and the secondary seal within sixty calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every year.

(iii) If a tank ceases to hold hazardous waste for a period of one year or more, subsequent introduction of hazardous waste into the tank shall be considered an initial operation for the purposes of paragraphs (F)(3)(a)(i) and (F)(3)(a)(ii) of this rule.

(iv) The owner or operator shall determine the total surface area of gaps in the primary seal and in the secondary seal individually using the following procedure:

(a) The seal gap measurements shall be performed at one or more floating roof levels when the roof is floating off the roof supports.



- (b) Seal gaps, if any, shall be measured around the entire perimeter of the floating roof in each place where a 0.32-cm diameter uniform probe passes freely (without forcing or binding against the seal) between the seal and the wall of the tank and measure the circumferential distance of each such location.
- (c) For a seal gap measured under paragraph (F)(3) of this rule, the gap surface area shall be determined by using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.
- (d) The total gap area shall be calculated by adding the gap surface areas determined for each identified gap location for the primary seal and the secondary seal individually, and then dividing the sum for each seal type by the nominal diameter of the tank. These total gap areas for the primary seal and secondary seal are then compared to the respective standards for the seal type as specified in paragraph (F)(1)(b) of this rule.
- (v) In the event that the seal gap measurements do not conform to the specifications in paragraph (F)(1)(b) of this rule, the owner or operator shall repair the defect in accordance with the requirements of paragraph (K) of this rule.
- (vi) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-256-90 of the Administrative Code.
- (b) The owner or operator shall visually inspect the external floating roof in accordance with the following requirements:

  - (i) The floating roof and the floating roof's closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, holes, tears, or other openings in the rim seal or seal fabric of the floating roof; a rim seal detached from the floating roof; all or a portion of the floating roof deck being submerged below the surface of the liquid in the tank; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
  - (ii) The owner or operator shall perform an initial inspection of the

external floating roof and the external floating roof's closure devices on or before the date that the tank becomes subject to this rule. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (L) of this rule.

(iii) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (K) of this rule.

(iv) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-256-90 of the Administrative Code.

(c) Prior to each inspection required by paragraph (F)(3)(a) or (F)(3)(b) of this rule, the owner or operator shall notify the director in advance of each inspection to provide the director with the opportunity to have an observer present during the inspection. The owner or operator shall notify the director of the date and location of the inspection as follows:

(i) Prior to each inspection to measure external floating roof seal gaps as required under paragraph (F)(3)(a) of this rule, written notification shall be prepared and sent by the owner or operator so that is received by the director at least thirty calendar days before the date the measurements are scheduled to be performed.

(ii) Prior to each visual inspection of an external floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the owner or operator so that the notification is received by the director at least thirty calendar days before refilling the tank except when an inspection is not planned as provided for in paragraph (F)(3)(c)(iii) of this rule.

(iii) When a visual inspection is not planned and the owner or operator could not have known about the inspection thirty calendar days before refilling the tank, the owner or operator shall notify the director as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that the notification is received by the director at least seven calendar days before refilling the tank.

(4) Safety devices may be installed and operated as necessary on any tank complying with the requirements of paragraph (F) of this rule.

(G) The owner or operator who controls air pollutant emissions from a tank by venting the tank to a control device shall meet the requirements specified in paragraphs (G)(1) to (G)(3) of this rule.

(1) The tank shall be covered by a fixed roof and vented directly through a closed-vent system to a control device in accordance with the following requirements:

(a) The fixed roof and the fixed roof's closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the tank.

(b) Each opening in the fixed roof not vented to the control device shall be equipped with a closure device. If the pressure in the vapor headspace underneath the fixed roof is less than atmospheric pressure when the control device is operating, the closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the fixed roof is equal to or greater than atmospheric pressure when the control device is operating, the closure device shall be designed to operate with no detectable organic emissions.

(c) The fixed roof and the fixed roof's closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout the intended service life of the fixed roof and closure devices. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include organic vapor permeability, the effects of any contact with the liquid and the liquid's vapor managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.

(d) The closed-vent system and control device shall be designed and operated in accordance with the requirements of rule 3745-256-88 of the Administrative Code.

(2) Whenever a hazardous waste is in the tank, the fixed roof shall be installed with each closure device secured in the closed position and the vapor headspace underneath the fixed roof vented to the control device except as follows:

(a) Venting to the control device is not required, and opening of closure devices or removal of the fixed roof is allowed at the following times:

- (i) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. After completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or re-install the cover, as applicable, to the tank.
  - (ii) To remove accumulated sludge or other residues from the bottom of a tank.
- (b) Opening of a "safety device," as defined in rule 3745-256-81 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (3) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:
  - (a) The fixed roof and the fixed roof's closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
  - (b) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in rule 3745-256-88 of the Administrative Code.
  - (c) The owner or operator shall perform an initial inspection of the air emission control equipment on or before the date that the tank becomes subject to this rule. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (L) of this rule.
  - (d) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (K) of this rule.
  - (e) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (B) of rule 3745-256-90 of the Administrative Code.
- (H) The owner or operator who controls air pollutant emissions by using a pressure tank

shall meet the following requirements:

- (1) The tank shall be designed not to vent to the atmosphere as a result of compression of the vapor headspace in the tank during filling of the tank to the tank's design capacity.
- (2) All tank openings shall be equipped with closure devices designed to operate with no detectable organic emissions as determined using the procedure specified in paragraph (D) of rule 3745-256-84 of the Administrative Code.
- (3) Whenever a hazardous waste is in the tank, the tank shall be operated as a closed system that does not vent to the atmosphere except under either of the following conditions as specified in paragraph (H)(3)(a) or (H)(3)(b) of this rule.
  - (a) At those times when opening of a safety device is required to avoid an unsafe condition.
  - (b) At those times when purging of inerts from the tank is required and the purge stream is routed to a closed-vent system and control device designed and operated in accordance with the requirements of rule 3745-256-88 of the Administrative Code.
- (I) The owner or operator who controls air pollutant emissions by using an enclosure vented through a closed-vent system to an enclosed combustion control device shall meet the requirements specified in paragraphs (I)(1) to (I)(4) of this rule.
  - (1) The tank shall be located inside an enclosure. The enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in Section 5.0 to "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" initially when the enclosure is first installed and, thereafter, annually.
  - (2) The enclosure shall be vented through a closed-vent system to an enclosed combustion control device that is designed and operated in accordance with the standards for either a vapor incinerator, boiler, or process heater specified in rule 3745-256-88 of the Administrative Code.
  - (3) Safety devices may be installed and operated as necessary on any enclosure, closed-vent system, or control device used to comply with the requirements

of paragraphs (I)(1) and (I)(2) of this rule.

(4) The owner or operator shall inspect and monitor the closed-vent system and control device as specified in rule 3745-256-88 of the Administrative Code.

(J) The owner or operator shall transfer hazardous waste to a tank subject to this rule in accordance with the following requirements:

(1) Transfer of hazardous waste, except as provided in paragraph (J)(2) of this rule, to the tank from another tank subject to this rule or from a surface impoundment subject to rule 3745-256-86 of the Administrative Code shall be conducted using continuous hard-piping or another closed system that does not allow exposure of the hazardous waste to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when the drain system meets the requirements of 40 CFR Part 63 subpart RR- "National Emission Standards for Individual Drain Systems."

(2) The requirements of paragraph (J)(1) of this rule do not apply when transferring a hazardous waste to the tank under any of the following conditions:

(a) The hazardous waste meets the average VO concentration conditions specified in paragraph (C)(1) of rule 3745-256-83 of the Administrative Code at the point of waste origination

(b) The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in paragraph (C)(2) of rule 3745-256-83 of the Administrative Code.

(c) The hazardous waste meets the requirements of paragraph (C)(4) of rule 3745-256-83 of the Administrative Code.

(K) The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of paragraph (C)(4), (E)(3), (F)(3), or (G)(3) of this rule as follows:

(1) The owner or operator shall make first efforts at repair of the defect no later than five calendar days after detection, and repair shall be completed as soon as possible but no later than forty-five calendar days after detection except as provided in paragraph (K)(2) of this rule.

(2) Repair of a defect may be delayed beyond forty-five calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank

stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

(L) After the initial inspection and monitoring of the cover as required by the applicable provisions of rules 3745-256-80 to 3745-256-90 of the Administrative Code, subsequent inspection and monitoring may be performed at intervals longer than one year under the following special conditions:

(1) In the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions, then the owner or operator may designate a cover as an "unsafe to inspect and monitor cover" and comply with all of the following requirements:

(a) Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

(b) Develop and implement a written plan and schedule to inspect and monitor the cover, using the procedures specified in the applicable provisions of rules 3745-256-80 to 3745-256-90 of the Administrative Code, as frequently as practicable during those times when a worker can safely access the cover.

(2) In the case when a tank is buried partially or entirely underground, an owner or operator is required to inspect and monitor, as required by the applicable provisions of this rule, only those portions of the tank cover and those connections to the tank (e.g., fill ports, access hatches, gauge wells, etc.) that are located on or above the ground surface.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

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3745-256-86

**Surface impoundments - air emission standards for tanks, surface impoundments, and containers.**

(A) This rule applies to the control of air pollutant emissions from surface impoundments for which paragraph (B) of rule 3745-256-83 of the Administrative Code references the use of this rule for such air emission control.

(B) The owner or operator shall control air pollutant emissions from the surface impoundment by installing and operating either of the following:

(1) A floating membrane cover in accordance with the provisions specified in paragraph (C) of this rule; or

(2) A cover that is vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (D) of this rule.

(C) The owner or operator who controls air pollutant emissions from a surface impoundment using a floating membrane cover shall meet the requirements specified in paragraphs (C)(1) to (C)(3) of this rule.

(1) The surface impoundment shall be equipped with a floating membrane cover designed to meet the following specifications:

(a) The floating membrane cover shall be designed to float on the liquid surface during normal operations and form a continuous barrier over the entire surface area of the liquid.

(b) The cover shall be fabricated from a synthetic membrane material that is either:

(i) High density polyethylene with a thickness no less than 2.5 millimeters; or

(ii) A material or a composite of different materials determined to have both organic permeability properties that are equivalent to those of the material listed in paragraph (C)(1)(b)(i) of this rule and chemical and physical properties that maintain the material integrity for the intended service life of the material.

(c) The cover shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between cover section seams or between the interface of the cover edge and its foundation mountings.

(d) Except as provided in paragraph (C)(1)(e) of this rule, each opening in the floating membrane cover shall be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open

spaces in the closure device or between the perimeter of the cover opening and the closure device.

(e) The floating membrane cover may be equipped with one or more emergency cover drains for removal of stormwater. Each emergency cover drain shall be equipped with a slotted membrane fabric cover that covers at least ninety per cent of the area of the opening or a flexible fabric sleeve seal.

(f) The closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the closure devices throughout the closure devices' intended service life. Factors to be considered when selecting the materials of construction and designing the cover and closure devices shall include organic vapor permeability; the effects of any contact with the liquid and the liquid's vapor managed in the surface impoundment; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the surface impoundment on which the floating membrane cover is installed.

(2) Whenever a hazardous waste is in the surface impoundment, the floating membrane cover shall float on the liquid and each closure device shall be secured in the closed position except as follows:

(a) Opening of closure devices or removal of the cover is allowed at the following times:

(i) To provide access to the surface impoundment for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the surface impoundment, or when a worker needs to open a hatch to maintain or repair equipment. After completion of the activity, the owner or operator shall promptly replace the cover and secure the closure device in the closed position, as applicable.

(ii) To remove accumulated sludge or other residues from the bottom of surface impoundment.

(b) Opening of a "safety device," as defined in rule 3745-256-81 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.

(3) The owner or operator shall inspect the floating membrane cover in accordance with the following procedures:

(a) The floating membrane cover and the cover's closure devices shall be

visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the cover section seams or between the interface of the cover edge and its foundation mountings; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(b) The owner or operator shall perform an initial inspection of the floating membrane cover and the cover's closure devices on or before the date that the surface impoundment becomes subject to this rule. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (G) of this rule.

(c) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (F) of this rule.

(d) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (C) of rule 3745-256-90 of the Administrative Code.

(D) The owner or operator who controls air pollutant emissions from a surface impoundment using a cover vented to a control device shall meet the requirements specified in paragraphs (D)(1) to (D)(3) of this rule.

(1) The surface impoundment shall be covered by a cover and vented directly through a closed-vent system to a control device in accordance with the following requirements:

(a) The cover and the cover's closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the surface impoundment.

(b) Each opening in the cover not vented to the control device shall be equipped with a closure device. If the pressure in the vapor headspace underneath the cover is less than atmospheric pressure when the control device is operating, the closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the cover is equal to or greater than atmospheric pressure when the control device is operating, the closure device shall be designed to operate with no detectable organic emissions using the procedure specified in paragraph (D) of rule 3745-256-84 of the Administrative Code.

- (c) The cover and the cover's closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the cover and closure devices throughout the intended service life of the cover and closure devices. Factors to be considered when selecting the materials of construction and designing the cover and closure devices shall include organic vapor permeability; the effects of any contact with the liquid or the liquid's vapors managed in the surface impoundment; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the surface impoundment on which the cover is installed.
- (d) The closed-vent system and control device shall be designed and operated in accordance with the requirements of rule 3745-256-88 of the Administrative Code.
- (2) Whenever a hazardous waste is in the surface impoundment, the cover shall be installed with each closure device secured in the closed position and the vapor headspace underneath the cover vented to the control device except as follows:

  - (a) Venting to the control device is not required, and opening of closure devices or removal of the cover is allowed at the following times:

    - (i) To provide access to the surface impoundment for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the surface impoundment, or when a worker needs to open a hatch to maintain or repair equipment. After completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the surface impoundment.
    - (ii) To remove accumulated sludge or other residues from the bottom of the surface impoundment.
  - (b) Opening of a "safety device," as defined in rule 3745-256-81 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (3) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:

  - (a) The surface impoundment cover and the cover's closure devices shall be visually inspected by the owner or operator to check for defects that

could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the cover section seams or between the interface of the cover edge and its foundation mountings; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(b) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in rule 3745-256-88 of the Administrative Code.

(c) The owner or operator shall perform an initial inspection of the air emission control equipment on or before the date that the surface impoundment becomes subject to this rule. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (G) of this rule.

(d) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (F) of this rule.

(e) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (C) of rule 3745-256-90 of the Administrative Code.

(E) The owner or operator shall transfer hazardous waste to a surface impoundment subject to this rule in accordance with the following requirements:

(1) Transfer of hazardous waste, except as provided in paragraph (E)(2) of this rule, to the surface impoundment from another surface impoundment subject to this rule or from a tank subject to rule 3745-256-85 of the Administrative Code shall be conducted using continuous hard-piping or another closed system that does not allow exposure of the waste to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when the drain system meets the requirements of 40 CFR Part 63 subpart RR- "National Emission Standards for Individual Drain Systems."

(2) The requirements of paragraph (E)(1) of this rule do not apply when transferring a hazardous waste to the surface impoundment under either of the following conditions:

(a) The hazardous waste meets the average VO concentration conditions specified in paragraph (C)(1) of rule 3745-256-83 of the Administrative Code at the point of waste origination.

(b) The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in paragraph (C)(2) of rule

3745-256-83 of the Administrative Code.

(c) The hazardous waste meets the requirements of paragraph (C)(4) of rule 3745-256-83 of the Administrative Code.

(F) The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of paragraph (C)(3) or (D)(3) of this rule as follows:

(1) The owner or operator shall make first efforts at repair of the defect no later than five calendar days after detection, and repair shall be completed as soon as possible but no later than forty-five calendar days after detection except as provided in paragraph (F)(2) of this rule.

(2) Repair of a defect may be delayed beyond forty-five calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the surface impoundment and no alternative capacity is available at the site to accept the hazardous waste normally managed in the surface impoundment. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

(G) After the initial inspection and monitoring of the cover as required by the applicable provisions of rules 3745-256-80 to 3745-256-90 of the Administrative Code than one year in the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions. In this case, the owner or operator may designate the cover as an "unsafe to inspect and monitor cover" and comply with all of the following requirements:

(1) Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

(2) Develop and implement a written plan and schedule to inspect and monitor the cover using the procedures specified in the applicable provisions in rules 3745-256-80 to 3745-256-90 of the Administrative Code as frequently as practicable during those times when a worker can safely access the cover.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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3745-256-87

**Containers - tanks, surface impoundments, and containers.**

(A) This rule applies to the control of air pollutant emissions from containers for which paragraph (B) of rule 3745-256-83 of the Administrative Code references the use of this rule for such air emission control.

(B) General requirements.

(1) The owner or operator shall control air pollutant emissions from each container subject to this rule in accordance with the following requirements, as applicable to the container, except when the special provisions for waste stabilization processes specified in paragraph (B)(2) of this rule apply to the container.

(a) For a container having a design capacity greater than 0.1 cubic meters (m<sup>3</sup>) and less than or equal to 0.46 m<sup>3</sup>, the owner or operator shall control air pollutant emissions from the container in accordance with the "Container Level 1" standards specified in paragraph (C) of this rule.

(b) For a container having a design capacity greater than 0.46 m<sup>3</sup> that is not in light material service, the owner or operator shall control air pollutant emissions from the container in accordance with the "Container Level 1" standards specified in paragraph (C) of this rule.

(c) For a container having a design capacity greater than 0.46 m<sup>3</sup> that is in light material service, the owner or operator shall control air pollutant emissions from the container in accordance with the "Container Level 2" standards specified in paragraph (D) of this rule.

(2) When a container having a design capacity greater than 0.1 m<sup>3</sup> is used for treatment of a hazardous waste by a waste stabilization process, the owner or operator shall control air pollutant emissions from the container in accordance with the "Container Level 3" standards specified in paragraph (E) of this rule at those times during the waste stabilization process when the hazardous waste in the container is exposed to the atmosphere.

(C) "Container Level 1" standards.

(1) A container using "Container Level 1" controls is one of the following:

(a) A container that meets the applicable U.S. department of transportation (DOT) regulations on packaging hazardous materials for transportation as specified in paragraph (F) of this rule.



- (b) A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container (e.g., a lid on a drum or a suitably secured tarp on a roll-off box) or may be an integral part of the container structural design (e.g., a "portable tank" or bulk cargo container equipped with a screw-type cap).
- (c) An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere. One example of such a barrier is application of a suitable organic-vapor suppressing foam.
- (2) A container used to meet the requirements of paragraph (C)(1)(b) or (C)(1)(c) of this rule shall be equipped with covers and closure devices, as applicable to the container, that are composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere and to maintain the equipment integrity for as long as the equipment is in service. Factors to be considered in selecting the materials of construction and designing the cover and closure devices shall include organic vapor permeability, the effects of contact with the hazardous waste or the hazardous waste's vapor managed in the container; the effects of outdoor exposure of the closure device or cover material to wind, moisture, and sunlight; and the operating practices for which the container is intended to be used.
- (3) Whenever a hazardous waste is in a container using "Container Level 1" controls, the owner or operator shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position except as follows:
- (a) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:
- (i) In the case when the container is filled to the intended final level in one continuous operation, the owner or operator shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.
- (ii) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container.

upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within fifteen minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

(b) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

(i) For the purpose of meeting the requirements of this rule, an "empty container," as defined in paragraph (B) of rule 3745-51-07 of the Administrative Code, may be open to the atmosphere at any time (i.e., covers and closure devices are not required to be secured in the closed position on an empty container).

(ii) In the case when discrete quantities or batches of material are removed from the container but the container does not meet the conditions to be an "empty container," as defined in paragraph (B) of rule 3745-51-07 of the Administrative Code, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within fifteen minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

(c) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. After completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

(d) Opening of a spring-loaded, pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the container internal pressure in accordance with the design specifications of the container. The device shall be designed to operate with no detectable organic emissions when the device is

secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the owner or operator based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.

(e) Opening of a safety device is allowed at any time conditions require doing so to avoid an unsafe condition.

(4) The owner or operator of containers using "Container Level 1" controls shall inspect the containers and the containers' covers and closure devices as follows:

(a) In the case when a hazardous waste already is in the container at the time the owner or operator first accepts possession of the container at the facility and the container is not emptied within twenty-four hours after the container is accepted at the facility (i.e., does not meet the conditions for an empty container), the owner or operator shall visually inspect the container and the container's cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. The container visual inspection shall be conducted on or before the date that the container is accepted at the facility (i.e., the date the container becomes subject to the standards in rules 3745-256-80 to 3745-256-90 of the Administrative Code). For purposes of this requirement, the date of acceptance is the date of signature that the facility owner or operator enters on item 20 of the "Uniform Hazardous Waste Manifest (U.S. EPA forms 8700-22 and 8700-22A)," as required under rule 3745-65-71 of the Administrative Code. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (C)(4)(c) of this rule.

(b) In the case when a container used for managing hazardous waste remains at the facility for a period of one year or more, the owner or operator shall visually inspect the container and the container's cover and closure devices initially and thereafter, at least once every twelve months, to check for visible cracks, holes, gaps, or other open spaces into the interior

of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (C)(4)(c) of this rule.

(c) When a defect is detected for the container, cover, or closure devices, the owner or operator shall make first efforts at repair of the defect no later than twenty-four hours after detection, and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

(5) The owner or operator shall maintain at the facility a copy of the procedure used to determine that containers with capacity of 0.46 m<sup>3</sup> or greater, which do not meet applicable DOT regulations as specified in paragraph (F) of this rule, are not managing hazardous waste in light material service.

(D) "Container Level 2" standards.

(1) A container using "Container Level 2" controls is one of the following:

(a) A container that meets the applicable DOT regulations on packaging hazardous materials for transportation as specified in paragraph (F) of this rule.

(b) A container that operates with, "no detectable organic emissions," as defined in rule 3745-256-81 of the Administrative Code and determined in accordance with the procedure specified in paragraph (G) of this rule.

(c) A container that has been demonstrated within the preceding twelve months to be vapor-tight by using method 27 of 40 CFR Part 60 appendix A in accordance with the procedure specified in paragraph (H) of this rule.

(2) Transfer of hazardous waste in or out of a container using "Container Level 2" controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive or other hazardous materials. Examples of container loading procedures that Ohio EPA considers to meet the requirements of this paragraph include a submerged-fill pipe or other submerged-fill method to load liquids into the container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors

displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing the transfer line from the container opening.

(3) Whenever a hazardous waste is in a container using "Container Level 2" controls, the owner or operator shall install all covers and closure devices for the container, and secure and maintain each closure device in the closed position except as follows:

(a) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:

(i) In the case when the container is filled to the intended final level in one continuous operation, the owner or operator shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

(ii) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within fifteen minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

(b) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

(i) For the purpose of meeting the requirements of this rule, an "empty container," as defined in paragraph (B) of rule 3745-51-07 of the Administrative Code may be open to the atmosphere at any time (i.e., covers and closure devices are not required to be secured in the closed position on an empty container).

(ii) In the case when discrete quantities or batches of material are removed from the container but the container does not meet the conditions to be an "empty container," as defined in paragraph (B) of rule 3745-51-07 of the Administrative Code, the owner or operator shall

promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within fifteen minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

- (c) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. After completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.
  - (d) Opening of a spring-loaded, pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the container design specifications. The device shall be designed to operate with no detectable organic emission when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the owner or operator based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.
  - (e) Opening of a "safety device," as defined in rule 3745-256-81 of the Administrative Code, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (4) The owner or operator of containers using "Container Level 2" controls shall inspect the containers and the containers' covers and closure devices as follows:

(a) In the case when a hazardous waste already is in the container at the time the owner or operator first accepts possession of the container at the facility and the container is not emptied within twenty-four hours after the container is accepted at the facility (i.e., does not meet the conditions for a "empty container," as defined in paragraph (B) of rule 3745-51-07 of the Administrative Code), the owner or operator shall visually inspect the container and the container's cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. The container visual inspection shall be conducted on or before the date that the container is accepted at the facility (i.e., the date the container becomes subject to the container standards in rules 3745-256-80 to 3745-256-90 of the Administrative Code). For purposes of this requirement, the date of acceptance is the date of signature that the facility owner or operator enters on item 20 of the "Uniform Hazardous Waste Manifest (U.S. EPA forms 8700-22 and 8700-22A)," as required under rule 3745-65-71 of the Administrative Code. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (D)(4)(c) of this rule.

(b) In the case when a container used for managing hazardous waste remains at the facility for a period of one year or more, the owner or operator shall visually inspect the container and the container's cover and closure devices initially and thereafter, at least once every twelve months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (D)(4)(c) of this rule.

(c) When a defect is detected for the container, cover, or closure devices, the owner or operator shall make first efforts at repair of the defect no later than twenty-four hours after detection, and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

(E) "Container Level 3" standards.

(1) A container using "Container Level 3" controls is one of the following:

- (a) A container that is vented directly through a closed-vent system to a control device in accordance with the requirements of paragraph (E)(2)(b) of this rule.
  - (b) A container that is vented inside an enclosure which is exhausted through a closed-vent system to a control device in accordance with the requirements of paragraphs (E)(2)(a) and (E)(2)(b) of this rule.
- (2) The owner or operator shall meet the following requirements, as applicable to the type of air emission control equipment selected by the owner or operator:
  - (a) The container enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of containers through the enclosure by conveyor or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in Section 5.0 to "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" initially when the enclosure is first installed and, thereafter, annually.
  - (b) The closed-vent system and control device shall be designed and operated in accordance with the requirements of rule 3745-256-88 of the Administrative Code.
- (3) "Safety devices," as defined in rule 3745-256-81 of the Administrative Code, may be installed and operated as necessary on any container, enclosure, closed-vent system, or control device used to comply with the requirements of paragraph (E)(1) of this rule.
- (4) Owners and operators using "Container Level 3" controls in accordance with rules 3745-256-80 to 3745-256-90 of the Administrative Code shall inspect and monitor the closed-vent systems and control devices as specified in rule 3745-256-88 of the Administrative Code.
- (5) Owners and operators that use "Container Level 3" controls in accordance with rules 3745-256-80 to 3745-256-90 of the Administrative Code shall prepare and maintain the records specified in paragraph (D) of rule 3745-256-90 of the Administrative Code.



- (6) Transfer of hazardous waste in or out of a container using "Container Level 3" controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive, or other hazardous materials. Examples of container loading procedures that Ohio EPA considers to meet the requirements of this paragraph include a submerged-fill pipe or other submerged-fill method to load liquids into the container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing the transfer line from the container opening.
- (F) For the purpose of compliance with paragraph (C)(1)(a) or (D)(1)(a) of this rule, containers shall be used that meet the applicable DOT regulations on packaging hazardous materials for transportation as follows:
- (1) The container meets the applicable requirements specified in 49 CFR Part 178- "Specifications for Packaging" or 49 CFR Part 179- "Specifications for Tank Cars."
  - (2) Hazardous waste is managed in the container in accordance with the applicable requirements specified in 49 CFR Part 107 subpart B- "Exemptions;" 49 CFR Part 172- "Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements;" 49 CFR Part 173- "Shippers- General Requirements for Shipments and Packages;" and 49 CFR Part 180- "Continuing Qualification and Maintenance of Packagings."
  - (3) For the purpose of complying with rules 3745-256-80 to 3745-256-90 of the Administrative Code, no exceptions to the 49 CFR Part 178 or 49 CFR Part 179 regulations are allowed except as provided for in paragraph (F)(4) of this rule.
  - (4) For a lab pack that is managed in accordance with the requirements of 49 CFR Part 178 for the purpose of complying with rules 3745-256-80 to 3745-256-90 of the Administrative Code, an owner or operator may comply with the exceptions for combination packagings specified in 49 CFR 173.12(b).
- (G) To determine compliance with the no detectable organic emissions requirements of paragraph (D)(1)(b) of this rule, the procedure specified in paragraph (D) of rule 3745-256-84 of the Administrative Code shall be used.

- (1) Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the container, the container's cover, and associated closure devices, as applicable to the container, shall be checked. Potential leak interfaces that are associated with containers include, but are not limited to, the interface of the cover rim and the container wall; the periphery of any opening on the container or container cover and associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.
  - (2) The test shall be performed when the container is filled with a material having a volatile organic concentration representative of the range of volatile organic concentrations for the hazardous wastes expected to be managed in this type of container. During the test, the container cover and closure devices shall be secured in the closed position.
- (H) Procedure for determining a container to be vapor-tight using method 27 of 40 CFR Part 60 appendix A for the purpose of complying with paragraph (D)(1)(c) of this rule.
- (1) The test shall be performed in accordance with method 27 of 40 CFR Part 60 appendix.
  - (2) A pressure measurement device shall be used that has a precision of plus or minus 2.5 millimeters water and that is capable of measuring above the pressure at which the container is to be tested for vapor tightness.
  - (3) If the test results determined by method 27 indicate that the container sustains a pressure change less than or equal to seven hundred fifty Pascals within five minutes after the container is pressurized to a minimum of four thousand five hundred Pascals, then the container is determined to be vapor-tight.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-88**Closed-vent systems and control devices - tanks, surface impoundments, and containers.**

(A) This rule applies to each closed-vent system and control device installed and operated by the owner or operator to control air emissions in accordance with standards of rules 3745-256-80 to 3745-256-90 of the Administrative Code.

(B) The closed-vent system shall meet the following requirements:

(1) The closed-vent system shall route the gases, vapors, and fumes emitted from the hazardous waste in the waste management unit to a control device that meets the requirements specified in paragraph (C) of this rule.

(2) The closed-vent system shall be designed and operated in accordance with the requirements specified in paragraph (J) of rule 3745-256-33 of the Administrative Code.

(3) In the case when the closed-vent system includes bypass devices that could be used to divert the gas or vapor stream to the atmosphere before entering the control device, each bypass device shall be equipped with either a flow indicator as specified in paragraph (B)(3)(a) of this rule or a seal or locking device as specified in paragraph (B)(3)(b) of this rule. For the purpose of complying with this paragraph, low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, spring-loaded pressure relief valves, and other fittings used for safety purposes are not considered to be bypass devices.

(a) If a flow indicator is used to comply with paragraph (B)(3) of this rule, the indicator shall be installed at the inlet to the bypass line used to divert gases and vapors from the closed-vent system to the atmosphere at a point upstream of the control device inlet. For this paragraph, a "flow indicator," means a device which indicates the presence of either gas or vapor flow in the bypass line.

(b) If a seal or locking device is used to comply with paragraph (B)(3) of this rule, the device shall be placed on the mechanism by which the bypass device position is controlled (e.g., valve handle, damper lever) when the bypass device is in the closed position such that the bypass device cannot be opened without breaking the seal or removing the lock. Examples of such devices include, but are not limited to, a car-seal or a lock-and-key configuration valve. The owner or operator shall visually inspect the seal or closure mechanism at least once every month to verify that the bypass mechanism is maintained in the closed position.

(4) The closed-vent system shall be inspected and monitored by the owner or operator in accordance with the procedure specified in paragraph (K) of rule 3745-256-33 of the Administrative Code.

(C) The control device shall meet the following requirements:

(1) The control device shall be one of the following devices:

(a) A control device designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least ninety-five per cent by weight;

(b) An enclosed combustion device designed and operated in accordance with the requirements of paragraph (C) of rule 3745-256-33 of the Administrative Code; or

(c) A flare designed and operated in accordance with the requirements of paragraph (D) of rule 3745-256-33 of the Administrative Code.

(2) The owner or operator who elects to use a closed-vent system and control device to comply with the requirements of this rule shall comply with the requirements specified in paragraphs (C)(2)(a) to (C)(2)(f) of this rule.

(a) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of this rule, as applicable, shall not exceed two hundred forty hours per year.

(b) The specifications and requirements in paragraphs (C)(1)(a), (C)(1)(b), and (C)(1)(c) of this rule for control devices do not apply during periods of planned routine maintenance.

(c) The specifications and requirements in paragraphs (C)(1)(a), (C)(1)(b), and (C)(1)(c) of this rule for control devices do not apply during a control device system malfunction.

(d) The owner or operator shall demonstrate compliance with the requirements of paragraph (C)(2)(a) of this rule (i.e., planned routine maintenance of a control device, during which the control device does not meet the specifications of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of this rule, as applicable, shall not exceed two hundred forty hours per year) by recording the information specified in paragraph (E)(1)(e) of rule 3745-256-90 of the Administrative Code.

- (e) The owner or operator shall correct control device system malfunctions as soon as practicable after the malfunction occurrence in order to minimize excess emissions of air pollutants.
- (f) The owner or operator shall operate the closed-vent system such that gases, vapors, or fumes are not actively vented to the control device during periods of planned maintenance or control device system malfunction (i.e., periods when the control device is not operating or not operating normally) except in cases when it is necessary to vent the gases, vapors, or fumes to avoid an unsafe condition or to implement malfunction corrective actions or planned maintenance actions.
- (3) The owner or operator using a carbon adsorption system to comply with paragraph (C)(1) of this rule shall operate and maintain the control device in accordance with the following requirements:

  - (a) After the initial startup of the control device, all activated carbon in the control device shall be replaced with fresh carbon on a regular basis in accordance with the requirements of paragraph (G) or (H) of rule 3745-256-33 of the Administrative Code.
  - (b) All carbon that is a hazardous waste and that is removed from the control device shall be managed in accordance with the requirements of paragraph (M) of rule 3745-256-33 of the Administrative Code, regardless of the average volatile organic concentration of the carbon.
- (4) An owner or operator using a control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system to comply with paragraph (C)(1) of this rule shall operate and maintain the control device in accordance with the requirements of paragraph (I) of rule 3745-256-33 of the Administrative Code.
- (5) The owner or operator shall demonstrate that a control device achieves the performance requirements of paragraph (C)(1) of this rule as follows:

  - (a) An owner or operator shall demonstrate using either a performance test as specified in paragraph (C)(5)(c) of this rule or a design analysis as specified in paragraph (C)(5)(d) of this rule the performance of each control device except for the following:

    - (i) A flare;
    - (ii) A boiler or process heater with a design heat input capacity of forty-four megawatts or greater;

- (iii) A boiler or process heater into which the vent stream is introduced with the primary fuel;
- (iv) A boiler or industrial furnace burning hazardous waste for which the owner or operator has been issued a final permit under rules 3745-50-40 to 3745-50-235 of the Administrative Code and has designed and operates the unit in accordance with the requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code; or
- (v) A boiler or industrial furnace burning hazardous waste for which the owner or operator has designed and operates in accordance with the interim standards requirements of rules 3745-266-100 to 3745-266-112 of the Administrative Code.
- (b) An owner or operator shall demonstrate the performance of each flare in accordance with the requirements specified in paragraph (E) of rule 3745-256-33 of the Administrative Code.
- (c) For a performance test conducted to meet the requirements of paragraph (C)(5)(a) of this rule, the owner or operator shall use the test methods and procedures specified in paragraphs (C)(1) to (C)(4) of rule 3745-256-34 of the Administrative Code.
- (d) For a design analysis conducted to meet the requirements of paragraph (C)(5)(a) of this rule, the design analysis shall meet the requirements specified in paragraph (B)(4)(c) of rule 3745-256-35 of the Administrative Code.
- (e) The owner or operator shall demonstrate that a carbon adsorption system achieves the performance requirements of paragraph (C)(1) of this rule based on the total quantity of organics vented to the atmosphere from all carbon adsorption system equipment that is used for organic adsorption, organic desorption or carbon regeneration, organic recovery, and carbon disposal.
- (6) If the owner or operator and the director do not agree on a demonstration of control device performance using a design analysis then the disagreement shall be resolved using the results of a performance test performed by the owner or operator in accordance with the requirements of paragraph (C)(5)(c) of this rule. The director may choose to have an authorized representative observe the performance test.

(7) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in paragraphs (F)(2) and (K) of rule 3745-256-33 of the Administrative Code. The readings from each monitoring device required by paragraph (F)(2) of rule 3745-256-33 of the Administrative Code shall be inspected at least once each operating day to check control device operation. Any necessary corrective measures shall be immediately implemented to ensure the control device is operated in compliance with the requirements of this rule.



Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-89**Inspection and monitoring - tanks, surface impoundments, and containers.**

- (A) The owner or operator shall inspect and monitor air emission control equipment used to comply with rules 3745-256-80 to 3745-256-90 of the Administrative Code in accordance with the applicable requirements specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code.
- (B) The owner or operator shall develop and implement a written plan and schedule to perform the inspections and monitoring required by paragraph (A) of this rule. The owner or operator shall incorporate this plan and schedule into the facility inspection plan required under rule 3745-65-15 of the Administrative Code.

Effective:

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Certification

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Date

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Rule Amplifies: 3734.12

3745-256-90**Recordkeeping - tanks, surface impoundments, and containers.**

- (A) Each owner or operator of a facility subject to requirements in rules 3745-256-80 to 3745-256-90 of the Administrative Code shall record and maintain the information specified in paragraphs (B) to (J) of this rule, as applicable to the facility. Except for air emission control equipment design documentation and information required by paragraphs (I) and (J) of this rule, records required by this rule shall be maintained in the operating record for a minimum of three years. Air emission control equipment design documentation shall be maintained in the operating record until the air emission control equipment is replaced or otherwise no longer in service. Information required by paragraphs (I) and (J) of this rule shall be maintained in the operating record for as long as the waste management unit is not using air emission controls specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code in accordance with the conditions specified in paragraph (D) or (B)(7) of rule 3745-256-80 of the Administrative Code, respectively.
- (B) The owner or operator of a tank using air emission controls in accordance with the requirements of rule 3745-256-85 of the Administrative Code shall prepare and maintain records for the tank that include the following information:
- (1) For each tank using air emission controls in accordance with the requirements of rule 3745-256-85 of the Administrative Code, the owner or operator shall record:
- (a) A tank identification number (or other unique identification description as selected by the owner or operator).
- (b) A record for each inspection required by rule 3745-256-85 of the Administrative Code that includes the following information:
- (i) Date inspection was conducted.
- (ii) For each defect detected during the inspection: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with rule 3745-256-85 of the Administrative Code, the owner or operator also shall record the reason for the delay and the date that completion of repair of the defect is expected.
- (2) In addition to the information required by paragraph (B)(1) of this rule, the owner or operator shall record the following information, as applicable to the tank:

- (a) The owner or operator using a fixed roof to comply with the "Tank Level 1" control requirements specified in paragraph (C) of rule 3745-256-85 of the Administrative Code shall prepare and maintain records for each determination for the maximum organic vapor pressure of the hazardous waste in the tank performed in accordance with the requirements of paragraph (C) of rule 3745-256-85 of the Administrative Code. The records shall include the date and time the samples were collected, the analysis method used, and the analysis results.
- (b) The owner or operator using an internal floating roof to comply with the "Tank Level 2" control requirements specified in paragraph (E) of rule 3745-256-85 of the Administrative Code shall prepare and maintain documentation describing the floating roof design.
- (c) Owners and operators using an external floating roof to comply with the "Tank Level 2" control requirements specified in paragraph (F) of rule 3745-256-85 of the Administrative Code shall prepare and maintain the following records:
- (i) Documentation describing the floating roof design and the dimensions of the tank.
  - (ii) Records for each seal gap inspection required by paragraph (F)(3) of rule 3745-256-85 of the Administrative Code describing the results of the seal gap measurements. The records shall include the date that the measurements were performed, the raw data obtained for the measurements, and the calculations of the total gap surface area. In the event that the seal gap measurements do not conform to the specifications in paragraph (F)(1) of rule 3745-256-85 of the Administrative Code, the records shall include a description of the repairs that were made, the date the repairs were made, and the date the tank was emptied, if necessary.
- (d) Each owner or operator using an enclosure to comply with the "Tank Level 2" control requirements specified in paragraph (I) of rule 3745-256-85 of the Administrative Code shall prepare and maintain the following records:
- (i) Records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B.

(ii) Records required for the closed-vent system and control device in accordance with the requirements of paragraph (E) of this rule.

(C) The owner or operator of a surface impoundment using air emission controls in accordance with the requirements of rule 3745-256-86 of the Administrative Code shall prepare and maintain records for the surface impoundment that include the following information:

(1) A surface impoundment identification number (or other unique identification description as selected by the owner or operator).

(2) Documentation describing the floating membrane cover or cover design, as applicable to the surface impoundment, that includes information prepared by the owner or operator or provided by the cover manufacturer or vendor describing the cover design, and certification by the owner or operator that the cover meets the specifications listed in paragraph (C) of rule 3745-256-86 of the Administrative Code.

(3) A record for each inspection required by rule 3745-256-86 of the Administrative Code that includes the following information:

(a) Date inspection was conducted.

(b) For each defect detected during the inspection the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with paragraph (F) of rule 3745-256-86 of the Administrative Code, the owner or operator also shall record the reason for the delay and the date that completion of repair of the defect is expected.

(4) For a surface impoundment equipped with a cover and vented through a closed-vent system to a control device, the owner or operator shall prepare and maintain the records specified in paragraph (E) of this rule.

(D) The owner or operator of containers using "Container Level 3" air emission controls in accordance with the requirements of rule 3745-256-87 of the Administrative Code shall prepare and maintain records that include the following information:

(1) Records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T- Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741 appendix B.

(2) Records required for the closed-vent system and control device in accordance with the requirements of paragraph (E) of this rule.

(E) The owner or operator using a closed-vent system and control device in accordance with the requirements of rule 3745-256-88 of the Administrative Code shall prepare and maintain records that include the following information:

(1) Documentation for the closed-vent system and control device that includes:

(a) Certification that is signed and dated by the owner or operator stating that the control device is designed to operate at the performance level documented by a design analysis as specified in paragraph (E)(1)(b) of this rule or by performance tests as specified in paragraph (E)(1)(c) of this rule when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

(b) If a design analysis is used, then design documentation as specified in paragraph (B)(4) of rule 3745-256-35 of the Administrative Code. The documentation shall include information prepared by the owner or operator or provided by the control device manufacturer or vendor that describes the control device design in accordance with paragraph (B)(4)(c) of rule 3745-256-35 of the Administrative Code and certification by the owner or operator that the control equipment meets the applicable specifications.

(c) If performance tests are used, then a performance test plan as specified in paragraph (B)(3) of rule 3745-256-35 of the Administrative Code and all test results.

(d) Information as required by paragraphs (C)(1) and (C)(2) of rule 3745-256-35 of the Administrative Code, as applicable.

(e) An owner or operator shall record, on a semiannual basis, the information specified in paragraphs (E)(1)(e)(i) and (E)(1)(e)(ii) of this rule for those planned routine maintenance operations that would require the control device not to meet the requirements of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of rule 3745-256-88 of the Administrative Code, as applicable.

(i) A description of the planned routine maintenance that is anticipated to be performed for the control device during the next six-month period. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.

- (ii) A description of the planned routine maintenance that was performed for the control device during the previous six-month period. This description shall include the type of maintenance performed and the total number of hours during those six months that the control device did not meet the requirements of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of rule 3745-256-88 of the Administrative Code, as applicable, due to planned routine maintenance.
- (f) An owner or operator shall record the information specified in paragraphs (E)(1)(f)(i) to (E)(1)(f)(iii) of this rule for those unexpected control device system malfunctions that would require the control device not to meet the requirements of paragraph (C)(1)(a), (C)(1)(b), or (C)(1)(c) of rule 3745-256-88 of the Administrative Code, as applicable.
- (i) The occurrence and duration of each malfunction of the control device system.
- (ii) The duration of each period during a malfunction when gases, vapors, or fumes are vented from the waste management unit through the closed-vent system to the control device while the control device is not properly functioning.
- (iii) Actions taken during periods of malfunction to restore a malfunctioning control device to normal or usual manner of operation of the control device.
- (g) Records of the management of carbon removed from a carbon adsorption system conducted in accordance with paragraph (C)(3)(b) of rule 3745-256-88 of the Administrative Code.
- (F) The owner or operator of a tank, surface impoundment, or container exempted from standards in accordance with paragraph (C) of rule 3745-256-83 of the Administrative Code shall prepare and maintain the following records, as applicable:
- (1) For tanks, surface impoundments, or containers exempted under the hazardous waste organic concentration conditions specified in paragraph (C)(1) or paragraphs (C)(2)(a) to (C)(2)(f) of rule 3745-256-83 of the Administrative Code, the owner or operator shall record the information used for each waste determination (e.g., test results, measurements, calculations, and other documentation) in the facility operating log. If analysis results for waste samples are used for the waste determination, then the owner or operator shall record the date, time, and location that each waste sample is collected



in accordance with applicable requirements of rule 3745-256-84 of the Administrative Code.

- (2) For tanks, surface impoundments, or containers exempted under paragraph (C)(2)(g) or (C)(2)(h) of rule 3745-256-83 of the Administrative Code, the owner or operator shall record the identification number for the incinerator, boiler, or industrial furnace in which the hazardous waste is treated.
- (G) An owner or operator designating a cover as "unsafe to inspect and monitor" pursuant to paragraph (L) of rule 3745-256-85 of the Administrative Code and paragraph (G) of rule 3745-256-86 of the Administrative Code shall record in a log that is kept in the facility operating record the identification numbers for waste management units with covers that are designated as "unsafe to inspect and monitor," the explanation for each cover stating why the cover is unsafe to inspect and monitor, and the plan and schedule for inspecting and monitoring each cover.
- (H) The owner or operator of a facility that is subject to rules 3745-256-80 to 3745-256-90 of the Administrative Code and to the control device standards in 40 CFR Part 60 subpart VV or 40 CFR Part 61 subpart V, may elect to demonstrate compliance with the applicable provisions in rules 3745-256-80 to 3745-256-90 of the Administrative Code by documentation either pursuant to rules 3745-256-80 to 3745-256-90 of the Administrative Code, or pursuant to 40 CFR Part 60 subpart VV or 40 CFR Part 61 subpart V, to the extent that the documentation required by 40 CFR Part 60 or 40 CFR Part 61 duplicates the documentation required by this rule.
- (I) For each tank or container not using air emission controls specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code in accordance with the conditions specified in paragraph (D) of rule 3745-256-80 of the Administrative Code, the owner or operator shall record and maintain the following information:
- (1) A list of the individual organic peroxide compounds manufactured at the facility that meet the conditions specified in paragraph (D)(1) of rule 3745-256-80 of the Administrative Code.
- (2) A description of how the hazardous waste containing the organic peroxide compounds identified in paragraph (I)(1) of this rule are managed at the facility in tanks and containers. This description shall include the following information:
- (a) For the tanks used at the facility to manage this hazardous waste, sufficient information shall be provided to describe for each tank a facility identification number for the tank; the purpose and placement of this tank

in the management train of this hazardous waste; and the procedures used to ultimately dispose of the hazardous waste managed in the tanks.

- (b) For containers used at the facility to manage these hazardous wastes, sufficient information shall be provided to describe a facility identification number for the container or group of containers; the purpose and placement of this container, or group of containers, in the management train of this hazardous waste; and the procedures used to ultimately dispose of the hazardous waste handled in the containers.
- (3) An explanation of why managing the hazardous waste containing the organic peroxide compounds identified in paragraph (I)(1) of this rule in the tanks and containers as described in paragraph (I)(2) of this rule would create an undue safety hazard if the air emission controls, as required under rules 3745-256-85 to 3745-256-88 of the Administrative Code, are installed and operated on these waste management units. This explanation shall include the following information:
- (a) For tanks used at the facility to manage these hazardous wastes, sufficient information shall be provided to explain how use of the required air emission controls on the tanks would affect the tank design features and facility operating procedures currently used to prevent an undue safety hazard during the management of this hazardous waste in the tanks; and why installation of safety devices on the required air emission controls, as allowed under rules 3745-256-80 to 3745-256-90 of the Administrative Code, will not address those situations in which evacuation of tanks equipped with these air emission controls is necessary and consistent with good engineering and safety practices for handling organic peroxides.
- (b) For containers used at the facility to manage these hazardous wastes, sufficient information shall be provided to explain how use of the required air emission controls on the containers would affect the container design features and handling procedures currently used to prevent an undue safety hazard during the management of this hazardous waste in the containers; and why installation of safety devices on the required air emission controls, as allowed under rules 3745-256-80 to 3745-256-90 of the Administrative Code, will not address those situations in which evacuation of containers equipped with these air emission controls is necessary and consistent with good engineering and safety practices for handling organic peroxides.
- (J) For each hazardous waste management unit not using air emission controls specified in rules 3745-256-85 to 3745-256-88 of the Administrative Code in accordance with

paragraph (B)(7) of rule 3745-256-80 of the Administrative Code, the owner and operator shall record and maintain the following information:

- (1) Certification that the waste management unit is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63.
- (2) Identification of the specific requirements codified under 40 CFR Part 60, Part 61, or Part 63 with which the waste management unit is in compliance.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-50-11 of the Administrative Code titled "Incorporated by reference."]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
Statutory Authority: 3734.12  
Rule Amplifies: 3734.12

3745-256-200

**Applicability\_- military munitions.**

Rules 3745-256-200 to 3745-256-202 of the Administrative Code apply to owners or operators who store hazardous waste munitions and hazardous waste explosives, except as rule 3745-65-01 of the Administrative Code provides otherwise.

[Comment: Depending on explosive hazards, hazardous waste munitions and hazardous waste explosives may also be managed in other types of storage units, including containment buildings (rules 3745-256-100 to 3745-256-102 of the Administrative Code), tanks (rules 3745-66-90 to ~~3745-66-100~~3745-66-102 of the Administrative Code), or containers (rules 3745-66-70 to ~~3745-66-77~~3745-66-78 of the Administrative Code). See rule 3745-266-205 of the Administrative Code for storage of waste military munitions.]

Effective:

Five Year Review (FYR) Dates: Exempt

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Certification

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Date

Promulgated Under: 119.03  
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