



Ohio Administrative Code

Rule 3745-21-12 Control of volatile organic compound emissions from commercial bakery oven facilities.

Effective: April 1, 2025

[Comment: For dates and availability of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see paragraph (JJ) of rule 3745-21-01 of the Administrative Code titled "referenced materials."]

(A) Applicability.

(1) Applicability for the Cincinnati area.

(a) Except as otherwise provided in paragraph (A)(1)(b) of this rule, paragraphs (D) to (I) of this rule shall apply to each commercial bakery oven facility that meets both of the following criteria:

(i) The facility is located in any of the following counties: Butler, Clermont, Hamilton, or Warren.

(ii) The facility has a total uncontrolled potential to emit for volatile organic compound (VOC) emissions equal to or greater than one hundred tons per year on or after May 27, 2005 as determined in accordance with paragraph (C) of this rule.

(b) Once a commercial bakery oven facility meets paragraph (A)(1)(a) of this rule on or after May 27, 2005, the facility is always subject to paragraphs (D) to (I) of this rule, except as otherwise provided in paragraph (A)(1)(c) of this rule.

(c) In the event a commercial bakery oven facility meets paragraph (A)(1)(a) of this rule, but reduces the total uncontrolled potential to emit for volatile organic compounds to less than one hundred tons per year by no later than May 27, 2006, the facility is not subject to paragraphs (D) to (I) of this rule. If such commercial bakery oven facility subsequently meets paragraph (A)(1)(a) of this rule, then the facility becomes subject to paragraphs (D) to (I) of this rule.



(2) Applicability for the Cleveland-Akron-Lorain area as of August 25, 2008.

(a) Except as otherwise provided in paragraph (A)(2)(b) of this rule, paragraphs (D) to (I) of this rule shall apply to each commercial bakery oven facility that meets both of the following criteria:

(i) The facility is located in any of the following counties: Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, or Summit.

(ii) The facility has a total uncontrolled potential to emit for VOC emissions equal to or greater than one hundred tons per year on or after August 25, 2008, as determined in accordance with paragraph (C) of this rule.

(b) Once a commercial bakery oven facility meets paragraph (A)(2)(a) of this rule on or after August 25, 2008, the facility is always subject to paragraphs (D) to (I) of this rule, except as otherwise provided in paragraph (A)(2)(c) of this rule.

(c) In the event a commercial bakery oven facility meets paragraph (A)(2)(a) of this rule, but reduces the total uncontrolled potential to emit for VOCs to less than one hundred tons per year by no later than August 25, 2009, the facility is not subject to paragraphs (D) to (I) of this rule. If such commercial bakery oven facility subsequently meets paragraph (A)(2)(a) of this rule, then the facility becomes subject to paragraphs (D) to (I) of this rule.

(3) Applicability for the Cleveland area as of the effective date of this rule.

(a) Except as otherwise provided in paragraph (A)(3)(b) of this rule, paragraphs (D) to (I) of this rule shall apply to each commercial bakery oven facility that meets both of the following criteria:

(i) The facility is located in any of the following counties: Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, or Summit.

(ii) The facility has a total uncontrolled potential to emit for VOC emissions equal to or greater than fifty tons per year, but less than one hundred tons per year, on or after the effective date of this rule, as determined in accordance with paragraph (C) of this rule.



(b) Once a commercial bakery oven facility meets paragraph (A)(3)(a) of this rule on or after the effective date of this rule, the facility is always subject to paragraphs (D) to (I) of this rule, except as otherwise provided in paragraph (A)(3)(c) of this rule.

(c) In the event a commercial bakery oven facility meets paragraph (A)(3)(a) of this rule, but reduces the total uncontrolled potential to emit for VOCs to less than fifty tons per year by no later than one year after the effective date of this rule, the facility is not subject to paragraphs (D) to (I) of this rule. If such commercial bakery oven facility subsequently meets paragraph (A)(3)(a) of this rule, then the facility becomes subject to paragraphs (D) to (I) of this rule.

(B) Definitions.

The definitions applicable to this rule are contained in paragraphs (B) and (U) of rule 3745-21-01 of the Administrative Code.

(C) Determination of total uncontrolled potential to emit.

(1) The owner or operator of each commercial bakery oven facility shall calculate the facility's total uncontrolled potential to emit, UPTE(facility), for VOC emissions in tons per year, using either the equations in paragraphs (C)(1)(a) to (C)(1)(c) of this rule and the provisions in paragraphs (C)(2) to (C)(4) of this rule, or a USEPA administrator-approved alternative method if the use of that alternative method is approved in writing by the USEPA administrator for this purpose:

(a) UPTE(facility) equals the sum of the UPTE(oven) for all bakery ovens at the facility (in tons VOC per year)

(b) UPTE(oven) is calculated for each bakery oven as follows:

$$\text{UPTE(oven)} = P_A * \text{EF}_{\text{VOC}} * (1 \text{ ton}/2000 \text{ pounds})$$

where:



P_A = the bakery oven's maximum annual production rate for yeast-leavened finished bakery product (in tons of baked product per year).

EF_{VOC} = VOC emission factor for the bakery oven's yeast-leavened finished bakery product having the highest emission potential (in pounds of VOC per ton of baked product) for the bakery oven.

(c) The value of EF_{VOC} , expressed in pounds of VOC per ton of baked product (rounded off to two decimal places), is determined as follows:

$$EF_{VOC} = 0.95Y_i + 0.195t_i - 0.51S - 0.86t_s + 1.90$$

where:

Y_i = initial baker's per cent of yeast to the nearest tenth of a per cent.

t_i = total yeast action time in hours to the nearest tenth of an hour.

S = final (spike) baker's per cent of yeast to the nearest tenth of a per cent.

t_s = spiking time in hours to the nearest tenth of an hour.

(2) The owner or operator shall presume for purposes of calculating the uncontrolled potential to emit that both of the following conditions apply:

(a) Each facility production line and associated bakery oven are operating eight thousand seven hundred sixty hours per year at maximum capacity.

(b) Each facility production line is producing the product with the highest level of VOC emissions of those products that it may produce.

(3) A VOC emission factor based on emission testing can be used to calculate the facility's total uncontrolled potential to emit for VOC in tons per year. In the event emission testing is conducted, the emission testing results would be used instead of the VOC emission factor equation in paragraph



(C)(1)(c) of this rule. Such emission testing shall be based on the test methods and procedures specified under paragraph (F) of this rule.

(4) The presumptions of paragraph (C)(2) of this rule would not apply where restrictions on operating hours or annual production rate are specified for the commercial bakery oven facility within a federally enforceable permit-to-install and operate or a Title V permit that is issued pursuant to Chapter 3745-31 or Chapter 3745-77, respectively, of the Administrative Code as follows:

(a) For bakery ovens subject to this rule pursuant to paragraph (A)(1) of this rule and for which installation commenced before May 27, 2005, such restrictions shall be in effect no later than May 27, 2006.

(b) For bakery ovens subject to this rule pursuant to paragraph (A)(1) of this rule and for which installation commenced on or after May 27, 2005, such restrictions shall be in effect upon initial startup of the bakery oven.

(c) For bakery ovens subject to this rule pursuant to paragraph (A)(2) of this rule and for which installation commenced before August 25, 2008, such restrictions shall be in effect no later than August 25, 2009.

(d) For bakery ovens subject to this rule pursuant to paragraph (A)(2) of this rule and for which installation commenced on or after August 25, 2008, such restrictions shall be in effect upon initial startup of the bakery oven.

(e) For bakery ovens subject to this rule pursuant to paragraph (A)(3) of this rule and for which installation commenced before the effective date of this rule, such restrictions shall be in effect no later than one year from the effective date of this rule.

(f) For bakery ovens subject to this rule pursuant to paragraph (A)(3) of this rule and for which installation commenced on or after the effective date of this rule, such restrictions shall be in effect upon initial startup of the bakery oven.

(D) VOC emission control requirements.



(1) Except where exempted under paragraph (D)(2) of this rule, any owner or operator of a commercial bakery oven facility that is subject to this rule shall install and operate a VOC emission control system that reduces the VOC emissions from each bakery oven by at least ninety-five per cent by weight (i.e., an overall control efficiency of at least ninety-five per cent by weight).

(2) Exempted from paragraph (D)(1) of this rule is any uncontrolled bakery oven located in Ashtabula, Butler, Clermont, Hamilton, or Warren counties with annual VOC emissions of less than 25.0 tons and average daily VOC emissions of less than one hundred ninety-two pounds; or any uncontrolled bakery oven located in Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, or Summit counties with annual VOC emissions of less than 10.0 tons and average daily VOC emissions of less than seventy-seven pounds. Average daily VOC emissions means the VOC emissions from a bakery oven in a calendar year (annual VOC emissions) divided by the number of days the bakery oven was employed for production during the calendar year.

(3) Paragraph (D)(1) of this rule is not applicable to any bakery oven where the director has established and USEPA has approved source-specific RACT.

(E) Compliance dates.

(1) Except where otherwise specified within this rule, any owner or operator of a commercial bakery oven facility that is subject to this rule shall comply with this rule by no later than the following dates:

(a) For any bakery oven subject to this rule pursuant to paragraph (A)(1) of this rule and for which installation commenced before May 27, 2005, the compliance date of the bakery oven is the initial startup of the bakery oven or May 27, 2006, whichever is later.

(b) For any bakery oven subject to this rule pursuant to paragraph (A)(1) of this rule and for which installation commenced on or after May 27, 2005, the compliance date of the bakery oven is the date of initial startup of the bakery oven.

(c) For any bakery oven subject to this rule pursuant to paragraph (A)(2) of this rule and for which



installation commenced before August 25, 2008, the compliance date of the bakery oven is the initial startup of the bakery oven or August 25, 2009, whichever is later.

(d) For any bakery oven subject to this rule pursuant to paragraph (A)(2) of this rule and for which installation commenced on or after August 25, 2008, the compliance date of the bakery oven is the date of initial startup of the bakery oven.

(e) For any bakery oven subject to this rule pursuant to paragraph (A)(3) of this rule and for which installation commenced before the effective date of this rule, the compliance date of the bakery oven is the initial startup of the bakery oven or one year from the effective date of this rule, whichever is later.

(f) For any bakery oven subject to this rule pursuant to paragraph (A)(3) of this rule and for which installation commenced on or after the effective date of this rule, the compliance date of the bakery oven is the date of initial startup of the bakery oven.

(2) In the event a commercial bakery oven facility reduces its total uncontrolled potential to emit pursuant to paragraph (A)(1)(c), (A)(2)(c), or (A)(3)(c) of this rule, the date on which the facility subsequently meets the applicability criteria of paragraph (A)(1)(a), (A)(2)(a), or (A)(3)(c) of this rule is the date the facility becomes subject to this rule.

(3) In the event an uncontrolled bakery oven is exempted under paragraph (D)(2) of this rule and is later equipped with a VOC emission control system, the compliance date of the bakery oven pertaining to paragraph (D)(1) of this rule is the date of first startup of the installed VOC emission control system for the bakery oven. Until the date of first startup of the installed VOC emission control system for the bakery oven, the bakery oven shall continue to comply with paragraph (D)(2) of this rule.

(4) The owner or operator of any commercial bakery oven facility subject to this rule shall demonstrate compliance with paragraph (D)(1) of this rule by testing the bakery oven and its VOC emission control system in accordance with paragraph (F) of this rule within ninety days after the bakery oven's compliance date.



(5) Additional testing of a bakery oven and its VOC emission control system in accordance with paragraph (F) of this rule may be required by the director to ensure continued compliance.

(F) Compliance testing requirements.

For any bakery oven subject to paragraph (D)(1) of this rule, the owner or operator shall demonstrate compliance by conducting compliance testing in accordance with the following:

(1) The general provisions specified under paragraphs (A)(2) to (A)(5) of rule 3745-21-10 of the Administrative Code shall apply to the compliance testing.

(2) The test methods and procedures of paragraph (C) of rule 3745-21-10 of the Administrative Code shall be followed, except as follows:

(a) The concentration of VOC in a gas stream or exhaust vent shall be determined by utilizing any of the methods specified under paragraph (C)(2) of rule 3745-21-10 of the Administrative Code.

(b) USEPA alternative test method ALT-020 titled "Negative Pressure Enclosure Qualitative Test Method for Bakery Ovens" may be used to demonstrate capture efficiency of a bakery oven. A bakery oven that passes this alternative test method and vents all of its oven exhaust gas streams, other than the purge stack, to a VOC control device has a VOC capture efficiency of one hundred per cent by weight.

(c) USEPA conditional test method CTM-042 titled "Use of Flame Ionization Detector-Methane Cutter Analysis Systems for VOC Compliance Testing of Bakeries" may be used to demonstrate the control efficiency of a VOC control device (thermal oxidizer or catalytic oxidizer) for a bakery oven.

(G) Monitoring and inspection requirements for controlled bakery ovens.

(1) For any bakery oven subject to paragraph (D)(1) of this rule, the owner or operator shall install and operate continuous monitoring and recording devices for the following operational parameters:

(a) The combustion temperature of any thermal incinerator.



(b) For catalytic incinerators, one of the following:

(i) The inlet temperature and the temperature rise across the catalyst bed.

(ii) The inlet temperature only for an owner or operator that elects to implement an inspection and maintenance plan for the catalytic incinerator that meets paragraph (G)(5) of this rule.

(c) Any other parameter that the director may require the owner or operator to monitor.

(2) While operating the bakery oven, the owner or operator of the facility shall maintain the parameters listed in paragraphs (C)(1)(a) to (C)(1)(c) of this rule within the baseline operational data established during the most recent compliance test that demonstrated compliance.

(3) The owner or operator shall inspect the VOC emission control system and monitoring equipment to assure that the control system is operating properly, and that no leaks or malfunctions have occurred or are occurring. The inspections shall be made at the frequency defined by the equipment manufacturer, or as otherwise appropriate for each unit, component, or operation, but not less than monthly.

(4) The owner or operator shall record the results of each inspection in a permanent log to be retained on-site for a period of not less than five years and shall make the log available to the director or any authorized representative of the director for review during normal business hours.

(5) For an owner or operator that elects, in accordance with paragraph (G)(1)(b)(ii) of this rule, to monitor the inlet temperature only of the catalytic incinerator, an inspection and maintenance plan shall be developed, maintained on-site, and made readily available upon the request of the appropriate Ohio EPA district office or local air agency. At a minimum, the plan shall include the following:

(a) Annual sampling and analysis of the catalyst activity (i.e., conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures.



(b) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems.

(c) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, corrective action consistent with the manufacturer's recommendations shall be implemented and a new performance test to determine destruction efficiency in accordance with paragraph (C) of rule 3745-21-10 of the Administrative Code shall be conducted.

(H) Recordkeeping and associated reporting.

(1) The owner or operator of each commercial bakery oven facility subject to this rule shall keep the records required under paragraphs (H)(2) to (H)(5) of this rule on site for at least five years following the date of the record and shall make such records available to the director or any authorized representative of the director for review during normal business hours.

(2) The owner or operator shall keep monthly production period records of the following operational data for each yeast-leavened product for each bakery oven:

(a) The amount of raw product processed.

(b) The baker's per cent of yeast used (initial yeast and any spike yeast).

(c) The fermentation time (total time and any spiking time).

(d) The type of product baked.

(e) The amount of product baked.

(f) Any other information that the director may determine to be necessary for determining that the facility is operated in continuous compliance with this rule.

(3) The owner or operator shall calculate monthly VOC emissions for each bakery oven and shall



record the emission factor used for each product, including a citation of the source of the emission factor, and the results of the VOC emission calculations.

(4) For any uncontrolled bakery oven exempted under paragraph (D)(2) of this rule, the owner or operator shall record the VOC emissions from that bakery oven for the recent month and rolling twelve-month period within fifteen days after the end of each month. The owner or operator shall notify the appropriate Ohio EPA district office or local air agency of any record showing the bakery oven exceeded the applicable VOC emissions limit. A copy of such record shall be sent to the appropriate Ohio EPA district office or local air agency within forty-five days after the exceedance occurs.

(5) For any bakery oven equipped with a VOC emission control system and subject to the paragraph (D)(1) of this rule, the owner or operator shall collect and record the following information each day of operation of the bakery oven:

(a) A log of operating time for the capture (collection) system, control device, monitoring equipment, and the associated bakery oven.

(b) For any thermal incinerator, all three-hour periods of operation during which the average combustion temperature was more than fifty degrees Fahrenheit below the average combustion temperature during the most recent performance test that demonstrated that the bakery oven was in compliance.

(c) For any catalytic incinerator, all three-hour periods of operation during which the average temperature of the process vent stream immediately before the catalyst bed is more than fifty degrees Fahrenheit below the average temperature of the process vent stream during the most recent performance test that demonstrated that the source was in compliance, and one of the following:

(i) All three-hour periods of operation during which the average temperature difference across the catalyst bed is less than eighty per cent of the average temperature differences during the most recent performance test that demonstrated that the source was in compliance.

(ii) Records, and a description of the results of each inspection and catalyst activity analysis



resulting from the inspection and maintenance plan for the catalytic incinerator as specified in paragraph (G)(5) of this rule.

(d) For any VOC emission control equipment, any other information that the director may determine to be necessary for determining that the bakery oven is operating in continuous compliance with this rule.

(6) The owner or operator shall submit to the appropriate Ohio EPA district office or local air agency quarterly summaries of the records required by paragraph (H)(5) of this rule. These quarterly reports shall be submitted by April thirtieth, July thirty-first, October thirty-first, and January thirty-first, and shall cover the records for the previous calendar quarters.

(I) Applicability notification, compliance certification, and permit application.

(1) The owner or operator of a commercial bakery oven facility that is subject to this rule pursuant to paragraph (A)(1) of this rule and that has a bakery oven with an initial startup date before May 27, 2005 shall notify the appropriate Ohio EPA district office or local air agency in writing that the bakery oven is subject to this rule. The notification, which shall be submitted not later than sixty days after May 27, 2005, or within sixty days after the bakery oven becomes subject to this rule, shall provide the following information:

(a) Name and address of the owner or operator.

(b) Address (i.e., physical location) of the commercial bakery oven facility.

(c) Equipment description and Ohio EPA application number (if assigned) of the bakery oven.

(d) Identification of the VOC emissions requirement, the means of compliance, and the compliance date for the bakery oven.

(e) An application for an operating permit or an application for a modification to an operating permit in accordance with Chapter 3745-77 of the Administrative Code (for sources subject to the Title V permit program) or an application for a permit-to-install and operate or an application for a



modification to a permit-to-install and operate in accordance with Chapter 3745-31 of the Administrative Code (for sources not subject to the Title V permit program) for each subject process that meets one of the following:

- (i) The process does not possess an effective operating permit or permit-to-install and operate.
- (ii) The process possesses an effective operating permit or permit-to-install and operate and the owner or operator cannot certify in writing to the director that such subject process is in compliance with this rule. An application for an operating permit or permit-to-install and operate is not required provided the subject process is operating under an effective permit and certifies compliance. Such certification shall include all compliance certification requirements under paragraph (I)(5) of this rule.

[Comment: Applications for sources not subject to Chapter 3745-77, requiring submittal prior to June 30, 2008, were submitted in accordance with Chapter 3745-35 of the Administrative Code.]

(2) The owner or operator of a commercial bakery oven facility that is subject to this rule pursuant to paragraph (A)(1) of this rule and that has a bakery oven with an initial startup date on or after May 27, 2005 shall notify the appropriate Ohio EPA district office or local air agency in writing that the bakery oven is subject to this rule not later than either the date of initial startup of the bakery oven or July 26, 2005, whichever is later, providing the information listed under paragraph (I)(1) of this rule. The application for a permit-to-install under rule 3745-31-02 of the Administrative Code may be used to fulfill the notification requirements of this paragraph.

(3) The owner or operator of a commercial bakery oven facility that is subject to this rule pursuant to paragraph (A)(2) of this rule and that has a bakery oven with an initial startup date before August 25, 2008 shall notify the appropriate Ohio EPA district office or local air agency in writing that the bakery oven is subject to this rule not later than October 24, 2008, or within sixty days after the bakery oven becomes subject to this rule, providing the information listed under paragraph (I)(1) of this rule.

(4) The owner or operator of a commercial bakery oven facility that is subject to this rule pursuant to paragraph (A)(2) of this rule and that has a bakery oven with an initial startup date on or after August



25, 2008 shall notify the appropriate Ohio EPA district office or local air agency in writing that the bakery oven is subject to this rule not later than either the date of initial startup of the bakery oven or October 24, 2008, whichever is later, providing the information listed under paragraph (I)(1) of this rule. The application for a permit-to-install under rule 3745-31-02 of the Administrative Code may be used to fulfill the notification requirements of this paragraph.

(5) The owner or operator of a commercial bakery oven facility that is subject to this rule pursuant to paragraph (A)(3) of this rule and that has a bakery oven with an initial startup date before the effective date of this rule shall notify the appropriate Ohio EPA district office or local air agency in writing that the bakery oven is subject to this rule not later than sixty days after the effective date of this rule, or within sixty days after the bakery oven becomes subject to this rule, providing the information listed under paragraph (I)(1) of this rule.

(6) The owner or operator of a commercial bakery oven facility that is subject to this rule pursuant to paragraph (A)(3) of this rule and that has a bakery oven with an initial startup date on or after the effective date of this rule shall notify the appropriate Ohio EPA district office or local air agency in writing that the bakery oven is subject to this rule not later than either the date of initial startup of the bakery oven or sixty days after the effective date of this rule, whichever is later, providing the information listed under paragraph (I)(1) of this rule. The application for a permit-to-install under rule 3745-31-02 of the Administrative Code may be used to fulfill the notification requirements of this paragraph.

(7) Compliance certification.

(a) The owner or operator of a commercial bakery oven facility that is subject to this rule shall notify the appropriate Ohio EPA district office or local air agency in writing within thirty days following the completion of any of the following:

(i) For an uncontrolled bakery oven subject to the VOC emission requirement in paragraph (D)(2) of this rule, the first documented achievement of compliance with the requirements.

(ii) For a bakery oven subject to the VOC emission control requirement in paragraph (D)(1) of this rule:



- (a) The completion of installation and initial use of a VOC emission control system for the bakery oven.
- (b) The completion of installation and initial use of any monitoring devices required under paragraph (G) of this rule for the bakery oven.
- (c) The completion of any compliance testing conducted in accordance with paragraph (F) of this rule to demonstrate compliance with the applicable control requirement.
- (b) The compliance certification under paragraph (I)(3)(a) of this rule shall provide the following, where applicable:
 - (i) A description of the requirements.
 - (ii) A description of the VOC emission control system.
 - (iii) A description of the monitoring devices.
 - (iv) A description of the records that document continuing compliance.
 - (v) The results of any compliance tests, including documentation of test data.
 - (vi) The results of any records that document continuing compliance, including calculations.
 - (vii) A statement by the owner or operator of the commercial bakery oven facility as to whether the bakery oven has complied with the requirements.