



Air Pollution Control Board
Brian P. Bilbray District 1
George F. Bailey District 2
Susan Golding District 3
Leon L. Williams District 4
John MacDonald District 5

Air Pollution Control Officer
R. J. Sommerville

NOTICE OF WORKSHOP TO DISCUSS THE PROPOSED ADOPTION OF NEW RULE 67.24 - BAKERY OVENS

The San Diego County Air Pollution Control District will hold a public meeting to consider the proposed adoption of new Rule 67.24 - Bakery Ovens. Comments concerning this proposal may be submitted in writing before, or made at, the workshop which is scheduled as follows:

DATE: Thursday, November 5, 1992
TIME: 9:00 a.m.
PLACE: County Operations Center
Farm Advisor's Conference Room
Building #4
5555 Overland Avenue
San Diego, CA

Volatile organic compounds (VOC's) react in the atmosphere to form ozone. San Diego County does not meet the state or federal ambient air quality standards for ozone that have been established to protect the public health. Bakery ovens which produce yeast-leavened products such as breads, buns, and rolls, also emit ethanol which is a VOC. Rule 67.24 is a new rule designed to reduce VOC emissions from large bakeries that emit 25 tons or more per year of VOC. Rule 67.24 is required by the 1990 Federal Clean Air Act Amendments. Specifically, proposed Rule 67.24 will:

- Require bakeries that emit 25 tons per year or greater of VOC to install air pollution control equipment to reduce VOC emissions from ovens by at least 90 percent. Current information indicates that only the two largest bakeries in San Diego County will be subject to these requirements.
- Require an Operation and Maintenance Plan for the air pollution control equipment.
- Require all bakeries with ovens that have a combined rated heat input capacity of 2 million British Thermal Units (BTU) per hour or greater to keep monthly production records for each type of product baked, and current records of the yeast percentage and fermentation time for each product baked. Operation of a 2 million BTU/hr oven(s) might be expected to use about 34 cubic feet per minute of natural gas. Current information indicates that a half dozen or so of the largest bakeries in San Diego County will be subject to these requirements.
- Specify test methods for determining compliance with the rule.
- Specify a three-year compliance schedule for existing bakeries to implement the air pollution control equipment requirements. New bakeries would be required to comply at the time of startup.

Bakeries not subject to the control equipment or recordkeeping requirements discussed above are not subject to Rule 67.24.

Notice of Workshop - Rule 67.24

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If you would like a copy of proposed Rule 67.24, please call Juanita Ogata at (619) 694-8851. If you have any questions concerning these proposals, please call Natalie Zlotin at (619) 694-3312 or me at (619) 694-3303.

Richard J. Smith

RICHARD J. SMITH
Deputy Director

RJSm:PC:jo
9/28/92

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

NEW PROPOSED RULE 67.24

RULE 67.24. BAKERY OVENS

(a) APPLICABILITY

Except as provided in Section (b), this rule is applicable to bakery ovens which emit volatile organic compounds (VOC's) during the baking of yeast-leavened products.

Bakery ovens subject to this rule shall not be subject to Rule 66.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to bakery ovens which are located at a stationary source where the combined rated heat input capacity of all ovens is less than 2 million British Thermal Units (BTU) per hour .

(2) The provisions of this rule shall not apply to ovens used exclusively for the baking of products leavened chemically without yeast.

(3) The provisions of Sections (d) and (g) of this rule shall not apply to bakery ovens which are located at a stationary source where the uncontrolled actual emissions of VOC's from all ovens combined is less than 25 tons per year.

(c) DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

(1) **"Bakery Oven"** means a convection oven which bakes yeast-leavened products, including but not limited to breads, buns, and rolls.

(2) **"Exempt Compound"** means any of the following compounds or classes of compounds: 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), chlorodifluoromethane (HCFC-22), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), dichlorotrifluoroethane (HCFC-123), dichlorofluoroethane (HCFC-141b), tetrafluoroethane (HFC-134 and HFC-134a, both isomers), chlorodifluoroethane (HCFC-142b), chlorotetrafluoroethane (HCFC-124), pentafluoroethane (HFC-125), trifluoroethane (HFC-143a), difluoroethane (HFC-152a); and the following four classes of perfluorocarbon (PFC) compounds:

- (i) cyclic, branched, or linear, completely fluorinated alkanes;
- (ii) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- (iii) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
- (iv) sulphur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(3) **"Fermentation Time"** means the elapsed time between adding yeast to dough or sponge and placing the dough or sponge into an oven, expressed in hours.

(4) **"Stationary Source"** means an emission unit or aggregation of emission units, located on the same or contiguous properties. Emission units which are on the same or contiguous property but which are not under the same ownership or entitlement to use and which are not related, shall not be considered a single stationary source. Contiguous property means two or more parcels of land with a common boundary or separated solely by a public or private roadway or other public or private right-of-way.

(5) **"Volatile Organic Compound (VOC)"** means any compound of carbon, which may be emitted to the atmosphere during bakery oven operations, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(6) **"Yeast Percentage"** means the pounds of yeast added to a hundred pounds of total flour in the recipe.

(d) **STANDARDS**

(1) No person shall operate a bakery oven subject to this rule, unless VOC emissions are controlled using an air pollution control system which:

- (i) has been installed in accordance with an Authority to Construct; and
- (ii) includes an emission collection system(s) which ducts the exhaust gases from all stacks on all ovens to a VOC emission control device(s). Such ducting shall be maintained so as to be free of visible holes, breaks, openings or separations

between adjoining components from which fugitive VOC's would be emitted to the atmosphere; and

(iii) has one or more VOC emission control devices, each with reduction efficiency of at least 90 percent by weight.

(2) A person subject to the requirements of Subsection (d)(1) shall submit an Operation and Maintenance Plan for the proposed emission control device and emission collection system to the Air Pollution Control Officer for approval, and receive such approval prior to the operation of the control equipment. Such plan shall:

(i) identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsection (d)(1)(iii) such as temperature, pressure, and/or flow rate; and

(ii) include proposed inspection schedules and anticipated ongoing maintenance regarding the key system operating parameters.

(3) A person subject to the requirements of Subsection (d)(2) shall implement the plan upon approval of the Air Pollution Control Officer, and shall comply with the provisions of the approved plan thereafter.

(e) RECORDKEEPING

A person operating a bakery oven subject to this rule shall maintain records in accordance with the following:

(1) Maintain current records necessary to determine emissions for each oven including, but not limited to, type of each yeast-leavened baked product, yeast percentage for each product, and fermentation time for each product; and

(2) Maintain monthly records of production rates, by weight, of finished baked product for each yeast-leavened product; and

(3) For control equipment subject to Section (d), maintain daily records of key system operating parameters specified in Subsection (d)(2)(i).

These records shall be maintained on site for at least three years and shall be made available to the District upon request.

:

(f) TEST METHODS

(1) For the purposes of this rule, VOC emission factors for each yeast-leavened bakery product shall be determined in accordance with Table 67.24. Annual emission rates shall be calculated by using those emission factors and the annual production rate for each yeast-leavened finished bakery product.

Alternatively, VOC emission factors for any yeast-leavened bakery product may be determined by the method(s) specified in Subsection (f)(2), together with exhaust flow rates and oven throughput.

(2) Measurement of VOC emission control device efficiency subject to Subsection (d)(1)(iii) of this rule shall be conducted in accordance with EPA Methods 18 and/or 25A (40 CFR 60) as they exist on (*date of adoption*).

(g) COMPLIANCE SCHEDULE

A person operating a bakery oven subject to Section (d) of this rule shall meet the following increments of progress:

(1) For an oven which commenced operation prior to (*date of adoption*) :

(A) By (*twelve months after date of adoption*), submit to the Air Pollution Control Officer any necessary application for Authority to Construct and Permit to Operate an air pollution control system meeting the requirements of Subsection (d)(1);

(B) By (*twenty-one months after date of adoption*), issue purchase orders for the basic control device and other long-delivery time components necessary to comply with Subsection (d)(1);

(C) By (*thirty-six months after date of adoption*), demonstrate compliance with Subsection (d)(1).

(2) For an oven which commences operation on or after (*date of adoption*), be in compliance with Subsection (d)(1) by the date of commencement of oven operation.

TABLE 67.24

Yt*	Emission Factor**	Yt*	Emission Factor**	Yt*	Emission Factor**
1.0	0.8488	11.0	5.2947	21.0	9.7405
1.5	1.0711	11.5	5.5170	21.5	9.9628
2.0	1.2934	12.0	5.7393	22.0	10.1851
2.5	1.5157	12.5	5.9616	22.5	10.4074
3.0	1.7380	13.0	6.1839	23.0	10.6297
3.5	1.9603	13.5	6.4061	23.5	10.8520
4.0	2.1826	14.0	6.6284	24.0	11.0743
4.5	2.4049	14.5	6.8507	24.5	11.2966
5.0	2.6272	15.0	7.0730	25.0	11.5189
5.5	2.8495	15.5	7.2953	25.5	11.7412
6.0	3.0718	16.0	7.5176	26.0	11.9635
6.5	3.2941	16.5	7.7399	26.5	12.1857
7.0	3.5163	17.0	7.9622	27.0	12.4080
7.5	3.7386	17.5	8.1845	27.5	12.6303
8.0	3.9609	18.0	8.4068	28.0	12.8526
8.5	4.1832	18.5	8.6291	28.5	13.0749
9.0	4.4055	19.0	8.8514	29.0	13.2972
9.5	4.6278	19.5	9.0737	29.5	13.5195
10.0	4.8501	20.0	9.2959	30.0	13.7418
10.5	5.0724	20.5	9.5182		

* $Y_t = (\text{Yeast Percentage}) \times (\text{Fermentation Time})$

If yeast is added in two steps,

$Y_t = (\text{percentage of initial yeast addition}) \times (\text{time from initial yeast addition to placement in oven})$
 $+ (\text{percentage of second yeast addition}) \times (\text{time from second yeast addition to placement in oven})$

** Emission Factor = pounds of VOC per ton of finished baked product



Air Pollution Control Board
Brian P. Bilbray District 1
Dianne Jacob District 2
Pamela Slater District 3
Leon L. Williams District 4
John MacDonald District 5

Air Pollution Control Officer
R. J. Sommerville

**NOTICE OF WORKSHOP
TO DISCUSS THE PROPOSED ADOPTION OF
NEW RULE 67.24 - BAKERY OVENS**

The San Diego County Air Pollution Control District will hold a second public workshop to consider the adoption of a new rule, Rule 67.24 - Bakery Ovens, and to discuss the results of the Socioeconomic Impact Assessment (SIA) for this rule conducted by the District. Comments regarding the proposed rule and the SIA may be submitted in writing before, or made at, the workshop which is scheduled as follows:

DATE: January 20, 1994, Thursday
TIME: 9:00 a.m. to 12 Noon
PLACE: S. D. Air Pollution Control District
9150 Chesapeake Dr., Rm. 139
San Diego, CA 92123

Rule 67.24 is a new rule designed to control emissions of volatile organic compounds (VOC's) from bakery operations. VOC's are ozone precursors. San Diego County has been classified as a serious ozone non-attainment area pursuant to the California Clean Air Act which requires the District to adopt all feasible measures to reduce emissions of ozone precursors. In addition, the District is mandated by the federal Clean Air Act Amendments of 1990 (FCAA) to adopt rules reflecting reasonably available control technology (RACT) for all major sources. These are facilities emitting 25 tons per year or more of VOC's.

Proposed Rule 67.24 will require the bakeries in San Diego County that are federal major sources to reduce VOC emissions by at least 90 percent. It will also require moderate-sized bakeries that are not federal major sources to keep yearly records. Most smaller bakeries will be exempt from the rule.

The first workshop for Rule 67.24 was held on November 5, 1992. Subsequently, the rule was revised as a result of comments received from bakeries and the state Air Resources Board (ARB). In addition, the rule has been revised to reflect emissions estimation methodology developed by the U.S. Environmental Protection Agency (EPA), and to reflect the results of District emission source tests.

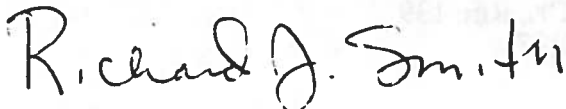
Specifically, the most recent changes to proposed new Rule 67.24 will:

- Require that emission factors be determined according to the formula specified in the EPA's Alternative Control Technology document for bakeries. This replaces the emission factors developed by the American Institute of Baking. Additionally, source testing will be required in cases where VOC emissions calculated according to the EPA formula are 20 tons per year or more (80 percent of the major source threshold), or other cases as deemed appropriate by the Air Pollution Control Officer.

- Revise recordkeeping requirements (necessary to establish VOC emissions from bakery ovens) from monthly records to calendar year records.
- Revise the compliance schedule for installing add-on control equipment.
- Add definitions for 'retardation time', 'purge stack', 'comfort hood vent', and 'uncontrolled emissions'.
- Revise and update test methods for determining compliance with the rule.

The District has prepared a Socioeconomic Impact Assessment (SIA) of proposed Rule 67.24 as required by State law. It estimates the emission reduction potential and the cost-effectiveness of the proposed rule. The SIA also presents the range of probable costs to industry, including small business, the availability and cost-effectiveness of alternatives, and the impact of the rule on employment and the economy of the region.

If you would like a copy of the revised proposed new Rule 67.24, 1st Workshop Report or the Socioeconomic Impact Assessment, please call Juanita Ogata at (619) 694-8851. If you have any questions concerning the proposal, please call Natalie Zlotin at (619) 694-3312 or me at (619) 694-3303.



RICHARD J. SMITH
Deputy Director

RJSm:PC:jo
12/9/93

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

NEW PROPOSED RULE 67.24

RULE 67.24. BAKERY OVENS

(a) APPLICABILITY

Except as provided in Section (b), this rule is applicable to bakery ovens which emit volatile organic compounds (VOC's) during the baking of yeast-leavened products.

Bakery ovens subject to this rule shall not be subject to Rule 66.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to bakery ovens which are located at a stationary source where the combined rated heat input capacity of all bakery ovens is less than 2 million British Thermal Units (BTU) per hour.

It shall be the responsibility of any person claiming the exemption in Subsection (b)(1) to provide information necessary for the District to determine combined rated heat input capacity of all bakery ovens. Such information may include oven or burner manufacturer specifications, or may include fuel or energy consumption rates for oven start-up period(s) in cases where manufacturer specifications are unavailable.

(2) The provisions of this rule shall not apply to ovens used exclusively for the baking of products leavened chemically without yeast.

(3) The provisions of Sections (d) and (g) of this rule shall not apply to bakery ovens which are located at a stationary source where the uncontrolled ~~actual~~ emissions of VOC's from all bakery ovens combined is less than 25 tons per calendar year.

(c) DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

(1) **"Bakery Oven"** means a convection oven which bakes yeast-leavened products, including but not limited to breads, buns, and rolls.

(2) **"Comfort Hood Vent"** means a vent or hood used to control air flow outside the entrance or exit of a bakery oven.

(2) (3) **“Exempt Compound”** means any of the following compounds or classes of compounds: 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), chlorodifluoromethane (HCFC-22), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), dichlorotrifluoroethane (HCFC-123), dichlorofluoroethane (HCFC-141b), tetrafluoroethane (HFC-134 and HFC-134a, both isomers), chlorodifluoroethane (HCFC-142b), chlorotetrafluoroethane (HCFC-124), pentafluoroethane (HFC-125), trifluoroethane (HFC-143a), difluoroethane (HFC-152a); and the following four classes of perfluorocarbon (PFC) compounds:

- (i) cyclic, branched, or linear, completely fluorinated alkanes;
- (ii) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- (iii) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
- (iv) sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine;

and any other compound(s) listed as negligibly reactive by the U.S. Environmental Protection Agency.

(3) (4) **“Fermentation Time”** means the elapsed time between adding yeast to dough or sponge and placing the dough or sponge into an bakery oven, excluding retardation time, expressed in hours.

(5) **“Purge Stack”** means a bakery oven stack used exclusively for evacuation of residual gases from the bakery oven during burner ignition.

(6) **“Retardation Time”** means any portion(s) of the elapsed time between adding yeast to dough or sponge and placing the dough or sponge into a bakery oven, where the dough or sponge is refrigerated at temperatures of less than 10° C (50° F), for the specific purpose of retarding the fermentation process.

(4) (7) **“Stationary Source”** means the same as defined in Rule 20.1.
~~means an emission unit or aggregation of emission units, located on the same or contiguous properties. Emission units which are on the same or contiguous property but which are not~~

~~under the same ownership or entitlement to use and which are not related, shall not be considered a single stationary source. Contiguous property means two or more parcels of land with a common boundary or separated solely by a public or private roadway or other public or private right-of-way.~~

(8) **"Uncontrolled VOC Emissions"** means VOC emissions from a bakery oven, before application of add-on air pollution control equipment or process modification.

(5) (9) **"Volatile Organic Compound (VOC)"** means any compound of carbon, which may be emitted to the atmosphere during bakery oven operations, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(6) (10) **"Yeast Percentage"** means the pounds of yeast added to a hundred pounds of total flour in the recipe.

(d) **STANDARDS**

(1) No person shall operate a bakery oven subject to this rule, unless uncontrolled VOC emissions are reduced by at least 90 percent by weight. ~~are controlled~~

(2) A person may comply with the requirements of Subsection (d)(1) of this rule by using an air pollution control system which:

(i) has been installed in accordance with an Authority to Construct; and

(ii) includes an emission collection system(s) which ducts the exhaust gases from all stacks, except purge stacks and comfort hood vents, on all bakery ovens to a VOC emission control device(s). Such ducting shall be maintained so as to be free of visible holes, breaks, openings or separations between adjoining components from which fugitive VOC's would may be emitted to the atmosphere; and

(iii) has one or more VOC emission control devices, each with reduction efficiency of at least 90 percent by weight.

(3)(2) A person subject to the requirements of Subsection (d)(2) (1) shall submit an Operation and Maintenance Plan for the proposed emission control device and emission collection system to the Air Pollution Control Officer for approval, and receive such approval prior to the operation of the control equipment. Thereafter, the plan can be modi-

fied, with Air Pollution Control Officer approval, as necessary to ensure compliance. Such plan shall:

(i) identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsection (d)(2) (1)(iii) such as temperature, pressure, and/or flow rate; and

(ii) include proposed inspection schedules and anticipated ongoing maintenance regarding the key system operating parameters.

(4)(3) A person subject to the requirements of Subsection (d)(3) (2) shall implement the plan upon approval of the Air Pollution Control Officer, and shall comply with the provisions of the approved plan thereafter.

(e) **RECORDKEEPING**

After (six months after date of adoption), A a person operating a bakery oven(s) subject to this rule shall maintain records in accordance with the following:

(1) Maintain current records necessary to determine VOC emissions for each all bakery ovens including, but not limited to, type of each yeast-leavened baked product, yeast percentage for each product, and fermentation time for each product; and

(2) Maintain monthly annual records based on calendar year of production rates, by weight, of finished baked product for each yeast-leavened product.

(3) A person operating ~~For~~ air pollution control equipment subject to Subsection (d)(2) shall maintain daily records of key system operating parameters specified in Subsection (d)(3) (2)(i).

Records maintained in accordance with Subsection (e)(2) are subject to District verification after 60 days following the end of a calendar year. These records shall be maintained on site for at least three years and shall be made available to the District upon request.

(f) **TEST METHODS**

(1) For the purposes of this rule, VOC emission factors for each yeast-leavened bakery product shall be determined in accordance with Table 67.24 the following formula:

$$EF = 0.95 Y_i + 0.19 t_i - 0.51 S - 0.86 t_s + 1.90$$

where Y_i = initial yeast percentage
 t_i = total fermentation time
 S = second (spiking) yeast percentage, if applicable
 t_s = fermentation time for second yeast percentage, if applicable, and
 EF = emission factor, pounds of VOC emissions per ton of baked product

Annual uncontrolled emission rates shall be calculated by using these emission factors and the annual production rate for each yeast-leavened finished bakery product. In cases where annual emissions determined for a stationary source exceeds 80 percent of the annual emissions specified in Subsection (b)(3), or other cases as deemed appropriate by the Air Pollution Control Officer, emission factors shall instead be determined in accordance with Subsection (f)(2).

(2) Alternatively, VOC emission factors for any yeast-leavened bakery products may be determined by the method(s) specified in Subsection (f)(2) EPA Methods 18, 25, and/or 25A (40 CFR 60) as they exist on (date of adoption), together with exhaust flow rates and oven throughputs using a test protocol approved by the Air Pollution Control Officer. For purposes of federal enforcement of this rule, the U.S. Environmental Protection Agency is not subject to approval of test protocols by the Air Pollution Control Officer.

(3)(2) Measurement of VOC emission control device reduction efficiency subject to Subsection (d)(2) ~~(1)~~(iii) of this rule shall be conducted in accordance with EPA Methods 18, 25, and/or 25A (40 CFR 60) as they exist on (date of adoption), using a test protocol approved by the Air Pollution Control Officer. For purposes of federal enforcement of this rule, the U.S. Environmental Protection Agency is not subject to approval of test protocols by the Air Pollution Control Officer.

(g) COMPLIANCE SCHEDULE

A person operating a bakery oven(s) subject to Subsection (d)(2) of this rule shall meet the following increments of progress:

(1) For an oven which commenced operation prior to (date of adoption), or for a replacement of such an oven:

(i) By *(twelve months after date of adoption)*, submit to the Air Pollution Control Officer any necessary application for Authority to Construct and Permit to Operate an air pollution control system meeting the requirements of Subsection (d)~~(2)~~ (1);

(ii) ~~By *(twenty one months after date of adoption)*, issue purchase orders for the basic control device and other long delivery time components necessary to comply with Subsection (d)(1);~~

~~(iii)~~ (ii) By *(thirty-six months after date of adoption)*, demonstrate compliance with Subsection (d)(1).

(2) For an oven which commences operation on or after *(date of adoption)*, be in compliance with Subsection (d)(1) by the date of commencement of oven operation.

(3) For an existing stationary source having a calculated annual emission rate pursuant to Subsection (f)(1) exceeding 80 percent of the emission rate specified in Subsection (b)(3), by *(two months after date of adoption)*, submit to the Air Pollution Control Officer for approval a plan for emissions testing pursuant to Subsection (f)(2). Such plan shall provide for emissions testing to be completed, and test report(s) submitted, by *(six months after date of adoption)*.

TABLE 67.24

Yt*	Emission Factor**	Yt*	Emission Factor**	Yt*	Emission Factor**
1.0	0.8488	11.0	5.2947	21.0	9.7405
1.5	1.0711	11.5	5.5170	21.5	9.9628
2.0	1.2934	12.0	5.7393	22.0	10.1851
2.5	1.5157	12.5	5.9616	22.5	10.4074
3.0	1.7380	13.0	6.1839	23.0	10.6297
3.5	1.9603	13.5	6.4061	23.5	10.8520
4.0	2.1826	14.0	6.6284	24.0	11.0743
4.5	2.4049	14.5	6.8507	24.5	11.2966
5.0	2.6272	15.0	7.0730	25.0	11.5189
5.5	2.8495	15.5	7.2953	25.5	11.7412
6.0	3.0718	16.0	7.5176	26.0	11.9635
6.5	3.2941	16.5	7.7399	26.5	12.1857
7.0	3.5163	17.0	7.9622	27.0	12.4080
7.5	3.7386	17.5	8.1845	27.5	12.6303
8.0	3.9609	18.0	8.4068	28.0	12.8526
8.5	4.1832	18.5	8.6291	28.5	13.0749
9.0	4.4055	19.0	8.8514	29.0	13.2972
9.5	4.6278	19.5	9.0737	29.5	13.5195
10.0	4.8501	20.0	9.2959	30.0	13.7418
10.5	5.0724	20.5	9.5182		

*Yt = (Yeast Percentage) x (Fermentation Time)

If yeast is added in two steps,

Yt = (percentage of initial yeast addition) x (time from initial yeast addition to placement in oven)
 + (percentage of second yeast addition) x (time from second yeast addition to placement in oven)

** Emission Factor = pounds of VOC per ton of finished baked product