

## **REGULATION 7.81 Standard of Performance for New or Modified Bakery Oven Operations**

### **Air Pollution Control District of Jefferson County Jefferson County, Kentucky**

**Relates To:** KRS Chapter 77 Air Pollution Control

**Pursuant To:** KRS Chapter 77 Air Pollution Control

**Necessity and Function:** KRS 77.180 provides that the Air Pollution Control Board may make and enforce all needful orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation provides for the quantification and control of Volatile Organic Compound (VOC) emissions from new or modified bakery oven operations.

#### **SECTION 1 Applicability**

This regulation is applicable to new or modified bakeries that produce bread, rolls, buns, and similar products, but not those that produce crackers, pretzels, sweet goods or baked foodstuffs that are not yeast-leavened. This regulation applies to each new or modified bakery oven that commenced operation or had a construction permit issued after the effective date of this regulation.

#### **SECTION 2 Definitions**

Terms used in this regulation not defined herein shall have the meaning given them in Regulation 1.02.

- 2.1 "Bakery oven" means any type of equipment or apparatus used to bake bread.
- 2.2 "Bread" means yeast-leavened pan bread, rolls, buns or similar yeast-leavened products.
- 2.3 "Leavened" means to raise a dough by causing gas to permeate it.
- 2.4 "Spike" means an additional amount of yeast added upon the dough side.
- 2.5 "Spike time" means the interval period over which spiking is accomplished.
- 2.6 "Yeast percentage" means the weight ratio of yeast to total recipe flour.

#### **SECTION 3 Standard for Control of Voc Emissions from New or Modified Bakery Ovens**

A person who owns or operates one or more bakery ovens that in total, exceed 150 pounds of VOC per day as calculated per Section 6 shall either:

- 3.1 Reduce VOC emissions to less than or equal to 150 pounds per day, or
- 3.2 Reduce VOC emissions by 85 percent, based on overall control efficiency.

#### **SECTION 4 Methods for Control of Voc Emissions from New or Modified Bakery Ovens**

Compliance with Section 3 may be accomplished by: add-on control devices, by process modification, or any combination thereof. This may be accomplished either by conventional or alternative technology. All compliance methods are subject to prior approval by the District. Alternative control technology or alternative process technology shall be evaluated on a case by case basis. It shall be demonstrated to the District's satisfaction to achieve an equivalent control efficiency.

## SECTION 5 Testing Requirements

- 5.1 An owner or operator subject to this regulation who installs a control device shall perform a stack test and submit test reports to the District within 180 days after start up of the control device using Method 25A under 40 CFR Part 60, Appendix A or other test methods approved by the District.
- 5.2 An owner or operator subject to this regulation who performs a stack test shall provide the District with at least a 30 day prior notice of any performance test.
- 5.3 The District requires a test protocol to be submitted for approval within seven working days prior to test notification.
- 5.4 The District shall be notified of start up by the owner or operator within five days of the initial start up.

## SECTION 6 Methods for Calculating VOC Emissions from Bakery Ovens

The total non-methane VOC emissions from bakery ovens shall be calculated by using the following emission factor equations.

- 6.1 For bread made with yeast spike, the formula is:

$$\text{E.F.} = 0.95Y_i + 0.195T_i - 0.51S - 0.86T_s + 1.90$$

where:

- E.F. = pounds VOC per ton of baked bread.
- $Y_i$  = initial baker's percent of yeast to the nearest tenth of a percent, expressed in decimal form (i.e. 3.2% is equivalent to .032).
- $T_i$  = total yeast action time in hours to the nearest tenth of a hour.
- S = final (spike) baker's percent of yeast to the nearest tenth of a percent, expressed in decimal form.
- $T_s$  = spiking time in hours to the nearest tenth of an hour.

- 6.2 For bread made with no final yeast spike, the formula is:

$$\text{E.F.} = 0.95Y_i + 0.195T_i + 1.90$$

- 6.3 For daily emissions from yeast-leavened bread, the formula is:

$$\text{Emissions pounds per day} = \text{E.F.} \times \text{BP}$$

where:

- E.F. = pounds VOC per ton of baked bread.
- BP = bread production in tons per day.

## SECTION 7 Exemptions

- 7.1 An owner or operator of one or more new or modified bakery ovens that emit less than or equal to 150 pounds of VOC per day is exempt from the requirements in Sections 3, 4, and 5.
- 7.2 This regulation shall not apply to bakery ovens used exclusively for the baking of bakery products leavened chemically in the absence of yeast.

7.3 This regulation shall not apply to bakery ovens used exclusively for the baking of bakery products other than bread. Such products include, but are not limited to, muffins, croutons, breadsticks and crackers.

**SECTION 8 Recordkeeping Requirements**

An owner or operator of one or more new or modified bakery ovens subject to this regulation shall maintain daily production records of bread. The owner or operator shall use the formula in Section 6 in order to calculate the total daily VOC emissions. This log shall be on file at the company and shall be maintained for a period of five years. This log shall be made available to the District upon request within a reasonable time.

Adopted v1/7-19-95; effective 7-19-95.

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