COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

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Director

Gerard Seeley, Jr.
Regional Director

STATIONARY SOURCE PERMIT TO OPERATE

This permit implements the requirements for Reasonably Available Control Technology (RACT) for Volatile Organic Compounds (VOC) in the Richmond, Virginia Emissions Control Area.

This permit (i) is for the purpose of implementing the "reasonably available control technology" (RACT) requirements of 9 VAC 5-40-7390 of the Regulations of the Board and (ii) establishes control technology and other requirements for the control of volatile organic compound (VOC) emissions from the Kraft Foods Global, Inc. – Richmond Bakery in the Richmond, Virginia Ozone Nonattainment Area. These RACT requirements shall be the legal and regulatory basis for control of VOC emissions from this facility. This permit shall be effective upon approval by the U. S. Environmental Protection Agency following the requirements of 40 CFR Part 51 (Requirements for Preparation, Adoption, and Submittal of Implementation Plans) and upon such approval this permit shall supersede your consent order dated April 24, 1991.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Kraft Foods Global, Inc.
Richmond Bakery
6002 South Laburnum Avenue
Richmond, VA 23231
Registration No.: 50703
State-County-Plant ID No.: 51-087-0083

is authorized to operate

a commercial bakery

located at

6002 South Laburnum Avenue
Richmond, VA 23231

in accordance with the Conditions of this permit.

Approved on **September 19, 2007.**

Gerard Seeley, Jr.
Regional Director

Permit consists of 6 pages.
Permit Conditions 1 to 23.

PERMIT CONDITIONS - The regulatory reference or authority for each condition is listed in parentheses after each condition.

PROCESS REQUIREMENTS - VOC Equipment List

1. **Equipment List** – In accordance with 9 VAC 5-40-7370, the facility shall meet either the presumptive RACT requirements of 9 VAC 5-40-7390 or the RACT requirements determined by a RACT determination in accordance with 9 VAC 5-40-7370 for the following equipment which are sources of VOC emissions and implemented through the remaining conditions of this permit:

Unit Ref. No.	Equipment / Operation Description	Maximum Rating Capacity		Fuel
Oven #1	Sponge/Straight Dough Oven	14	MMBtu/hr	Nat. Gas/Propane
	(Sponge Dough Oven)	6.7	tons/hr	
	(Straight Dough Oven)	6.7	tons/hr	
Oven #2	Straight Dough Oven	14	MMBtu/hr	Nat. Gas/Propane
		4.0	tons/ hr	
Oven #3	Straight Dough Oven	9.1	MMBtu/hr	Nat. Gas/Propane
		4.6	tons/ hr	
Oven #4	Straight Dough Oven	14	MMBtu/hr	Nat. Gas/Propane
		4.4	tons/ hr	
Oven #5	Straight Dough Oven	9.1	MMBtu/hr	Nat. Gas/Propane
		3.3	tons/ hr	
Oven #6	Straight Dough Oven	12.3	MMBtu/hr	Nat. Gas/Propane
		5.2	tons/ hr	
Oven #8	Straight Dough Oven	9.1	MMBtu/hr	Nat. Gas/Propane
		3.6	tons/ hr	
Oven #9	Straight Dough Oven	15	MMBtu/hr	Nat. Gas/Propane
		4.0	tons/ hr	

(9 VAC 5-80-850)

PROCESS REQUIREMENTS – VOC Emission Controls

2. **Emission Controls** – Volatile organic compound (VOC) emissions from the Oven #1, when baking sponge-dough, shall be controlled by the use of a catalytic incinerator having a destruction efficiency of at least 95 percent on a mass basis. The catalytic incinerator shall be provided with adequate access for inspection and shall be in operation when the Oven #1 is operating. (9 VAC 5-40-7370 and 9 VAC 5-80-850)

3. **Emission Controls** –Oven #1, when baking sponge-dough, shall meet the criteria presented in Appendix A for a permanent total enclosure during its operation. (9 VAC 5-40-7370 and 9 VAC 5-80-850)

4. **Monitoring Devices** – Kraft shall install, calibrate, operate, and maintain monitoring devices that continuously measure and record the gas temperature upstream of the catalyst bed during baking of sponge-dough in Oven #1 and shall comply with the following requirements:

   a. The temperature sensor shall be installed as close as possible to the catalyst bed inlet.

   b. Each continuous monitoring device shall be calibrated annually and have an accuracy of ±1 percent of the temperature being measured in Celsius degrees or ± 0.5°C, whichever is greater.

c. Kraft shall determine and record, in addition to the record made by the continuous monitoring device, the 3-hour average temperature of the gas stream at the catalyst bed inlet.

(9 VAC 5-40-7370 and 9 VAC 5-80-850)

PROCESS REQUIREMENTS - Operational Limitations

5. **SAPCB Regulations** – Kraft shall comply with all applicable SAPCB Regulations including the requirements for monitoring, notification, recordkeeping, reporting, maintenance, and malfunction. Kraft agrees that this permit is not construed to mean that its operation is automatically in compliance with all aspects of the SAPCB Regulations. Compliance with all air pollution regulations must be a continuing, full time effort.
(9 VAC 5-80-850)

6. **Oil Type** – The type of oil used in the oil treatment facilities shall be limited to only vegetable oils.
(9 VAC 5-40-7370 and 9 VAC 5-80-850)

7. **Dough Type** – The feed to Oven Numbers 2, 3, 4, 5, 6, 8, and 9 shall be limited to only straight-dough and shall not contain any sponge-dough.
(9 VAC 5-40-7370 and 9 VAC 5-80-850)

8. **Exhaust Fan** – The exhaust gas flow rate from Oven #1 to the incinerator shall not be less than 3,500 scfm during the baking of sponge-dough in Oven #1. Compliance with this requirement shall be achieved by installing and operating the fan model with a rated capacity no less than 3,500 scfm.
(9 VAC 5-80-850)

9. **Throughput** – The throughput of sponge-dough products for the Oven #1 shall not exceed 108 tons per day and 32,400 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
(9 VAC 5-80-850)

10. **Throughput Option** – As long as Kraft continues to include the in-process product that comes out after the end of the last shift of a week in the production record of that shift, Kraft has an option to average the productions recorded for the first and the last shifts of that week to demonstrate compliance for only those two days with the daily production limit specified in Condition 9. This option may only be exercised when both the shifts produce only sponge-dough products.
(9 VAC 5-80-850)

EMISSIONS LIMITATIONS

11. **Emission Limits** - Emissions from the operation of the Oven #1 shall not exceed the limits specified below:

Volatile Organic Compounds	96	lbs/day	13.5	tons/yr

(9 VAC 5-80-850)

TESTING

12. **Annual Testing** - When baking sponge-dough in Oven #1, Kraft shall demonstrate continued compliance with the destruction efficiency specified in Condition 2 by maintaining the 3-hour average

gas temperature at the catalyst bed inlet at not less than 5°F below that established during the initial performance test. Kraft shall test the catalyst annually to demonstrate the catalyst is still functioning properly and in compliance with Condition 2. The facility shall furnish written notification to the Director, Piedmont Region of the testing and testing results.
(9 VAC 5-80-850)

RECORDS

13. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Director, Piedmont Regional Office. These records shall include, but are not limited to:

    a. The daily and yearly sponge-dough products from Oven #1 shall be measured and recorded by Kraft.

    b. The time period during which straight-dough is baked in Oven #1.

    c. The dates of the catalyst testing, cleaning, and replacement as stated in Condition 12.

    The records required by this permit shall be maintained by Kraft for a minimum of the most recent three year period and made available for review and inspection by representatives of the Department.
    (9 VAC 5-80-850)

NOTIFICATIONS

14. **Production Notification** - Whenever the actual production from Oven #1 exceeds the allowable production rate, Kraft shall record and furnish written notification to the Director, Piedmont Region of the period and amount of the excess production within ten days from the beginning of such occurrence.
(9 VAC 5-80-850)

15. **Monitoring Notification** - Kraft shall record and notify Director, Piedmont Region in writing within ten days of the date and time for each period during which any monitoring system is inoperative (except for calibration), the nature of the system problems, and the repairs or adjustments that were made.
(9 VAC 5-80-850)

16. **Malfunction Notification** - The written statement required by 9 VAC 5-20-180 of the SAPCB Regulations shall be submitted to Director, Piedmont Region within ten days from the beginning of the failure or malfunction of affected facility or related air pollution control equipment. For the purposes of 9 VAC 5-20-180 of the SAPCB Regulations, the malfunctions or failures include, but are not limited to, the following events:

    a. 3-hour average temperature of the gas stream at the catalyst bed inlet, when baking sponge-dough in Oven #1 is more than 28°C below the average temperature demonstrated during the most recent performance test.

    b. During baking of sponge-dough, Oven #1 or the catalytic incinerator fails or malfunctions and may cause excess emissions for more than 1 hour.

    (9 VAC 5-80-850)

GENERAL CONDITIONS

17. **Relationship to Other Permit Requirements** - Except to the extent that conditions in this permit may be more stringent, this permit does not supersede or replace any other valid permit, regulatory or statutory requirement. Furthermore, this approval to operate shall not relieve Kraft of the responsibility to comply with all other local, state and federal regulations, including permit regulations. (9 VAC 5-80-800 D and 9 VAC 5-80-820 F)

18. **Federal Enforceability** - Once this permit is approved by the U.S. Environmental Protection Agency into the Commonwealth of Virginia State Implementation Plan, the permit is enforceable by EPA and citizens under the federal Clean Air Act.
(9 VAC 5-80-800 C.2 and 9 VAC 5-80-820 F)

19. **Permit Modification** - The Board may revise (modify, rewrite, change or amend) or repeal this permit with the consent of Kraft, for good cause shown by Kraft, or on its own motion provided approval of the revision or repeal is accomplished in accordance with Regulations of the Board and the Administrative Process Act (§ 2.2-4000 et seq.). Such revision or repeal shall not be effective until the revision or repeal is approved by the U.S. Environmental Protection Agency following the requirements of 40 CFR Part 51 (Requirements for Preparation, Adoption, and Submittal of Implementation Plans).
(9 VAC 5-80-960 and 9 VAC 5-80-1000)

20. **Failure to Comply** - Failure by Kraft to comply with any of the conditions of this permit shall constitute a violation of a Permit of the Board. Failure to comply may result in a Notice of Violation and civil penalty. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of orders as appropriate by the Board as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.
(9 VAC 5-80-820 F, 9 VAC 5-80-910, and 9 VAC 5-80-1010)

21. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

    a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

    b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;

    c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and

    d. To sample or test at reasonable times.

    For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
    (9 VAC 5-170-130 and 9 VAC 5-80-850)

22. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Director, Piedmont Region of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-940)

23. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-80-860 D)

APPENDIX A

VOC Capture Efficiency
Criteria for and Verification of a Permanent of Temporary Total Enclosure

A. INTRODUCTION

1. Applicability. This procedure is used to determine whether a permanent or temporary enclosure meets the criteria of a total enclosure.

2. Principle. An enclosure is evaluated against a set of criteria. If the criteria are met and if all the exhaust gases are ducted to a control device, then the volatile organic compounds (VOC) capture efficiency (CE) is assumed to be 100 percent of CE need not be measured. However, if part of the exhaust gas stream is not ducted to a control device, CE must be determined.

B. DEFINITIONS

1. Natural Draft Opening (NDO) – Any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed.

2. Permanent Total Enclosure (PTE) – A permanently installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge through a control device.

3. Temporary Total Enclosure (TTE) – A temporary installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge through ducts that allow for the accurate measurement of VOC rates.

C. CRITERIA OF A TEMPORARY TOTAL ENCLOSURE

1. Any NDO shall be at least 4 equivalent opening diameters from each VOC emitting point.

2. Any exhaust point from the enclosure shall be at least 4 equivalent duct or hood diameters from each NDO.

3. The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.

4. The average facial velocity (FV) of air through all NDO's shall be at least 3,600 m/hr (200 fpm). The direction of air through all NDO's shall be into the enclosure.

5. All access doors and windows whose areas are not included in Section C.3 and are not included in the calculations in Section C.4 shall be closed during routine operation of the process.

D. CRITERIA OF A PERMANENT TOTAL ENCLOSURE

1. Same as Sections C.1 and C.3 – C.5.

2. All VOC emissions must be captured and contained for discharge through a control device.

E. PROCEDURE

1. Determine the equivalent diameters of the NDO's and determine the distances from each VOC emitting point to all NDO's. Determine the equivalent diameter of each exhaust duct or hood and its distance to all NDO's. Calculate the distances in terms of equivalent diameters. The number of equivalent diameters shall be at least 4.

2. Measure the total area (A_t) of the enclosure and the total area (A_N) of all NDO's of the enclosure. Calculate the NDO to enclosure area ration (NEAR) and follows:

$$NEAR = \frac{A_N}{A_I}$$

The NEAR must be ≤ 0.05.

3. Measure the volumetric flow rate, corrected to standard conditions, of each gas stream exiting the enclosure through an exhaust duct or hood using EPA Method 2. In some cases (e.g. when the building is the enclosure), it may be necessary to measure the volumetric flow rate, corrected to standard conditions, of each gas stream entering the enclosure through a forced makeup air duct using Method 2. Calculate FV using the following equation:

$$FV = \frac{(Q_0 - Q_I)}{A_N}$$

where:

Q_0 = The sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood.

Q_I = The sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct; zero, if there is no forced makeup air into the enclosure.

A_N = Total area of all NDO's in enclosure.

The FV shall be at least 3,600 m/hr (200 fpm)

4. Verify that the direction of air flow through all NDO's is inward. Use streamers, smoke tubes, tracer gases, etc. Strips of plastic wrapping film have been found to be effective. Monitor the direction of air flow at intervals of at least 10 minutes for at least 1 hour.

F. QUALITY ASSURANCE

1. The success of this protocol lies in designing the TTE to simulate the conditions that exist without the TTE, i.e. the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be minimal. The TTE must enclose that application stations, coating reservoirs, and all areas from the application station to the oven. The oven does not have to be enclosed if it is under negative pressure. The NDO's of the temporary enclosure and a fugitive exhaust fan must be properly sized and placed.

2. Estimate the ventilation rate of the TTE that best simulates the conditions that exist without the TTE, i.e. the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be minimal. Figure 1 may be used as an aid. Measure the concentration (C_G) and flow rate (Q_G) of the captured gas stream, specify a safe concentration (C_F) for the fugitive gas stream, estimate the CE, and then use the plot in Figure 1 to determine the volumetric flowrate of the fugitive gas stream (Q_F). A fugitive VOC emission exhaust fan that has a variable flow control is desirable.

   a. Monitor the concentration of VOC into the capture device without the TTE. To minimize the effect of temporal variation on the captured emissions, the baseline measurement should be made over as long a time period as practical. However, the process conditions must be the same for the measurement in Section F.2.c as they are for this baseline measurement. This may require short measuring times for this quality control check before and after the construction of the TTE.

   b. After the TTE is constructed, monitor the VOC concentration inside the TTE. This concentration shall not continue to increase and must not exceed the safe level according to OSHA requirements for permissible exposure limits. An increase in VOC concentration indicates poor TTE design or poor capture efficiency.