

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

MAR 10 1998

Dr. Anne G. Giesecke, Ph. D.
Vice President of Environmental Activities
American Bakers Association
1350 I Street, Northwest
Suite 1290
Washington, D.C. 20005-3305

Dear Dr. Giesecke:

In response to your letter dated December 23, 1997, the Air Pollution Control Program agrees that a bakery oven may be considered an enclosure provided that negative pressure within the oven can be demonstrated. We additionally concur that a CO₂ plume generated with dry ice and water, as discussed in your attached letter from the U.S. Environmental Protection Agency, is an acceptable alternative to conventional smoke tubes for displaying that such negative pressure exists.

A total removal efficiency of eighty percent (80%) is required for a bakery oven to comply with Missouri Regulation 10 CSR 10-5.440. Absent any additional demonstration that the oven itself constitutes a total enclosure (beyond a demonstration of negative pressure) capture efficiency will be assumed to be ninety percent (90%). Destruction efficiency of a control device must therefore be shown to be no less than eighty-nine percent (89%) for the required level of removal to be achieved.

Thank you for your cooperation in meeting Missouri's air quality objectives.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Roger D. Randolph
Director

RDR:pyt

c: St. Louis Division of Air Pollution Control
St. Louis County Department of Health, Air Pollution Control Section



RECEIVED
AMERICAN BAKERS ASSOCIATION

87 DEC 30 AM 9 22

AMERICAN BAKERS ASSOCIATION
100 YEARS

Anne G. Giesecke, Ph.D.
Vice President of
Environmental Activities

December 23, 1997

Mr. Roger Randolph, Director
Air Pollution Control Program
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. Randolph:

It is my understanding that Randy Raymond, Deputy Director of the Air Pollution Control Program, forwarded to you in April a letter to me regarding capture efficiency testing. The Missouri Air Conservation Commission requires that the CE (capture efficiency) of the control device be determined using a permanent or temporary enclosure or an approved alternative method.

The American Bakers Association proposes that bakery ovens be considered an enclosure since yeast-raised bakery products do not release ethanol until the bread is near the center of the oven and a slight negative pressure is critical to the efficient and even bake of the products. In lieu of testing negative pressure by the methods specified by Method 24 (streamers, smoke tubes, or tracer gases) the negative pressure of the oven could be tested by creating a carbon dioxide plume by immersing dry ice in hot water. If this visual test shows that the ovens are operating under a negative pressure then the CE for the operations is assumed to be between 90 and 100 percent depending on the individual state rules. A copy of a letter from USEPA dated March 20, 1997 describing the procedure is enclosed.

The American Bakers Association requests that you approve this alternative method. I look forward to hearing from you in the near future.

Sincerely,

A handwritten signature in cursive script that reads "Anne G. Giesecke".

Anne G. Giesecke, Ph.D.

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

MAR 20 1997

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Ms. Anne G. Giesecke, Ph.D.
Vice President
American Bakers Association
Suite 1290
1350 I Street, N.W.
Washington, D.C. 20005-3305

Dear Ms. Giesecke:

This letter is in response to your letter dated January 14, 1997 concerning capture efficiency (CE) testing for bakery ovens. In the letter you stated that this issue arose as a result of a rule developed by the Missouri Air Conservation Commission which requires the CE of the control device be determined using a permanent or temporary enclosure or an approved alternative method.

It is my understanding that the American Bakery Association is proposing that the bakery oven be considered an enclosure since yeast raised bakery products do not release ethanol until the bread is near the center of the oven and a slight negative pressure is critical to the efficient and even bake of the products. The association is also proposing to test the negative pressure of the bakery oven by creating a carbon dioxide plume by immersing dry ice in hot water, in lieu of streamers, smoke tubes, or tracer gases as specified in Method 204. If this visual test shows that the ovens are operating under a negative pressure then the CE for the operations is assumed to be between 90 and 100 percent depending on the individual State rules.

The EPA determined this is an acceptable approach. Enclosed is the protocol, developed in conjunction with the American Bakery Association, for testing the negative pressure of the bakery ovens.

I appreciate the opportunity to be of service and trust that this information will be useful to you.

Sincerely,

Henry Thomas

John S. Seitz

for Director

Office of Air Quality Planning
and Standards

Enclosure

cc: Robert Lebens, OPAR
Candace Sorrell, EMC (MD-19)
Josh Tapp, Region VII

Negative Pressure Enclosure Qualitative Test Method for Bakery Ovens

The following test procedure has been adapted from EPA Method 204, "Criteria for and Verification of a Permanent Total Enclosure," and is an alternative approach to determining capture efficiency for a bakery oven.^a This procedure is applicable for qualitatively evaluating the bakery oven as a negative pressure enclosure.

Test Method

- 1) The facility shall maintain a log which clearly labels by identification number and location, each natural draft opening (NDO) for each bakery oven. NDO is defined in Method 204.
- 2) The following test shall be conducted for each NDO at each bakery oven during normal oven operations:
 - a) A visible plume^b shall be generated at a minimum of five different sites for each NDO. These five sites shall be: the center of the NDO and each of the four corners of the NDO. If it is not physically possible to test at these sites, the source shall locate the plume as close as physically possible to these sites. The plume shall be placed at a distance of 12 inches \pm 2 inches from the NDO threshold at all times during the test.
 - b) For each site, two non-consecutive plumes shall be generated for a one minute period, not more than one hour apart.
 - c) For each site, the date and time, and the direction of the plume (inward/outward) shall be recorded. The facility shall record each instance (including time and duration) that the plume failed to flow toward the oven NDO.
- 3) The observation of any period during which the plume does not flow into the NDO shall constitute a failure to demonstrate that the bakery oven operates under negative pressure. For each failure at an oven, the facility shall record in an oven maintenance record, all of the steps that were taken to evaluate the operation of the oven and all of the steps that were taken to improve the enclosure integrity. A re-test can be performed at any time after an evaluation has been conducted and appropriate operational improvements have been made.

A passing evaluation can provide the regulatory agency with some assurance that fugitive volatile organic emissions from oven NDO's have been minimized and that capture efficiencies in the range of 90 to 100% can be assumed for the oven.

An inspector may require the source to perform this test at any time to demonstrate that the oven is operating under negative pressure.

^a If a facility fails to demonstrate negative pressure via this method, the Administrator may require the facility to perform EPA Method 204 or another applicable method, to demonstrate compliance with the applicable regulation or permit.

^b The American Baker's Association recommends using a carbon dioxide plume created by immersing dry ice in a vessel of hot water.