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An American National Standard

Standard Test Method for Performance of Deck Ovens[1]

This standard is issued under the fixed designation F 1965; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method evaluates the energy consumption and cooking performance of deck ovens. The food service operator can use this evaluation to select a deck oven and understand its energy consumption.

1.2 This test method is applicable to gas and electric deck ovens.

1.3 The deck oven can be evaluated with respect to the following (where applicable):

1.3.1 Energy input rate and thermostat calibration (10.2),

1.3.2 Preheat energy consumption and time (10.3),

1.3.3 Idle energy rate (10.4),

1.3.4 Pilot energy rate (if applicable) (10.5), or

1.3.5 Cooking energy efficiency and production capacity (10.6).

1.4 The values stated in inch-pound units are to be regarded as standard. The SI units given in parentheses are for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASHRAE Documents:*[2]

ASHRAE Handbook of Fundamentals, "Thermal and Related Properties of Food and Food Materials," Chapter 30, Table 1, 1989.

ASHRAE Guideline 2-1986 (RA90) Engineering Analysis of Experimental Data

2.2 *Other Document:*

AOAC Procedure 984.25 Moisture (Loss of Mass on Drying) in Frozen French Fried Potatoes[3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *cooking energy efficiency*, *n*—quantity of energy imparted to the specified food product, expressed as a percentage of energy consumed by the deck oven during the cooking event.

3.1.2 *cooking energy rate*, *n*—average rate of energy consumption (Btu/h or kW) during the cooking energy efficiency tests. Refers to all loading scenarios (heavy, medium, light).

3.1.3 *deck oven*, *n*—an appliance that cooks the food product within a heated chamber. The food product can be placed directly on the floor of the chamber during cooking and energy may be delivered to the food product by convective, conductive, or radiant heat transfer. The chamber may be heated by gas or electric forced convection, radiants, or quartz tubes. Top and bottom heat may be independently controlled.

3.1.4 *energy input rate*, *n*—peak rate at which a deck oven consumes energy (Btu/h or kW).

3.1.5 *idle energy rate*, *n*—the deck oven's rate of energy consumption (Btu/h or kW), when empty, required to maintain its cavity temperature at the specified thermostat set point.

3.1.6 *oven cavity*, *n*—that portion of the deck oven in which food products are heated or cooked.

3.1.7 *pilot energy rate*, *n*—rate of energy consumption (Btu/h or kW) by a deck oven's continuous pilot (if applicable).

3.1.8 *preheat energy*, *n*—amount of energy consumed (Btu or kWh), by the deck oven while preheating its cavity from ambient temperature to the specified thermostat set point.

3.1.9 *preheat time*, *n*—time (minutes) required for the deck oven cavity to preheat from ambient temperature to the specified thermostat set point.

3.1.10 *production capacity*, *n*—maximum rate (lb/h) at which a deck oven can bring the specified food product to a specified cooked condition.

3.1.11 *production rate*, *n*—rate (lb/h) at which a deck oven brings the specified food product to a specified cooked condition; does not necessarily refer to maximum rate. Production rate varies with the amount of food being cooked.

3.1.12 *uncertainty*, *n*—measure of systematic and precision errors in specified instrumentation or measure of repeatability of a reported test result.

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[1] This test method is under the jurisdiction of ASTM Committee F–26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.06 on Productivity and Energy Protocol.

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[2] Available from ASHRAE, 1791 Tullie Circle, N.E., Atlanta, GA 30329.

[3] Available from AOAC International, 481 North Frederick Avenue, Suite 500, Gaithersburg, Maryland 20877-2417.

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