



Standard Test Method for Performance of Cook-and-Hold Ovens¹

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1. Scope

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

1.2 This test method is applicable to gas and electric cook-and-hold ovens.

1.3 The cook-and-hold oven can be evaluated with respect to the following (where applicable):

1.3.1 Energy input rate (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).

1.3.5 Cooking energy rate, and production capacity (10.7).

1.3.6 Holding energy rate, energy utilization factor, and product yield (10.7).

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 test method may involve hazardous materials, operations, and equipment. 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 *ASTM Standards:*²

D3588 Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

2.2 *ASHRAE Documents:*³

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

3. Terminology

3.1 *Definitions:*

3.1.1 *cook-and-hold oven, n*—an appliance with a closed heated cavity designed specifically for low-temperature cooking, followed by a holding period at a specified temperature.

3.1.2 *cooking energy rate, n*—average rate of energy consumption (Btu/h or kW) during the energy utilization factor tests.

3.1.3 *energy input rate, n*—peak rate at which a cook-and-hold oven consumes energy (Btu/h or kW).

3.1.4 *energy utilization factor, n*—the ratio of the energy consumed per pound yield (Wh/lbs) of food product during the cook-and-hold test.

3.1.5 *holding energy rate, n*—the rate of energy consumed (Btu/h or kW) by the cook-and-hold oven while maintaining the temperature of the cooked food product for a specified period.

3.1.6 *idle energy rate* (ready-to-cook condition), *n*—the cook-and-hold oven’s rate of energy consumption (Btu/h or kW), when empty, required to maintain its cavity temperature at the specified thermostat set point or to otherwise maintain the oven in a ready-to-cook condition.

3.1.7 *oven cavity, n*—that portion of the cook-and-hold oven in which food products are heated or cooked.

3.1.8 *pilot energy rate, n*—rate of energy consumed (Btu/h) by a cook-and-hold oven’s continuous pilot (if applicable).

3.1.9 *preheat energy, n*—amount of energy consumed (Btu or kWh), by the cook-and-hold oven while preheating its cavity from ambient temperature to the specified thermostat set point

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

³ Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329, <http://www.ashrae.org>.