



Standard Test Method for Performance of Conveyor Toasters¹

This standard is issued under the fixed designation F 2380; 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 conveyor toasters. The food service operator can use this evaluation to select a conveyor toaster and understand its energy consumption.

1.2 This test method is applicable to gas and electric conveyor toasters.

1.3 The conveyor toaster can be evaluated with respect to the following (where applicable):

1.3.1 Energy input rate and preheat temperature profile (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 (10.8), and

1.3.6 Production capacity (10.8).

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

D 3588 Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

2.2 ASHRAE Document:

ASHRAE Guideline 2 (RA90) Engineering Analysis of Experimental Data³

2.3 UL Document:

UL 1026 Electric Household Cooking and Food Service Appliances⁴

3. Terminology

3.1 Definitions:

3.1.1 *conveyor toaster, n*—an appliance for caramelizing bread products that carries the bread product on a belt or chain into and through a heated chamber. The chamber may be heated by gas or electric forced convection, radiants, or quartz tubes. Top and bottom heat may be independently controlled.

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

3.1.3 *energy input rate, n*—peak rate at which a conveyor toaster consumes energy (Btu/h or kW).

3.1.4 *idle energy rate, n*—the conveyor toaster's rate of energy consumption (kW or Btu/h), when empty, required to maintain its cavity temperature at the predetermined temperature set point.

3.1.5 *toaster cavity, n*—that portion of the conveyor toaster in which bread products are heated or toasted.

3.1.6 *pilot energy rate, n*—rate of energy consumption (Btu/h) by a conveyor toaster's continuous pilot (if applicable).

3.1.7 *preheat energy, n*—amount of energy consumed (Btu or kWh), by the conveyor toaster while preheating its cavity from ambient temperature to the determined steady state temperature.

3.1.8 *preheat time, n*—time (min) required for the conveyor toaster cavity to preheat from ambient temperature to the specified set point.

3.1.9 *production capacity, n*—maximum rate (slices/h) at which a conveyor toaster can bring the specified bread product to a specified "toasted" condition.

3.1.10 *production rate, n*—rate (slices/h) at which a conveyor toaster brings the specified food product to a specified "toasted" condition. This does not necessarily refer to maximum rate. Production rate varies with the amount of food being toasted.

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

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

Current edition approved April 1, 2004. Published April 2004.

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.

⁴ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.