



Standard Test Method for Grease Particle Capture Efficiency of Commercial Kitchen Filters and Extractors¹

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1. Scope

1.1 This test method can be used to determine the grease particle capture efficiency of components and systems used in commercial kitchens to capture grease effluent prior to entering the exhaust duct. The results can be used to select a filter system best suited to a particular application.

1.2 This test method is applicable to filter components and systems. The performance information is obtained for new or clean filters and does not include the performance of used or loaded filters.

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

1.3.1 Pressure drop as a function of airflow through the filter (10.3), and

1.3.2 Particulate capture efficiency by particle size (10.4).

1.4 The values stated in inch-pound units are to be regarded as standard. The values 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 *ASHRAE Standard*:²

ANSI/ASHRAE Standard 52.2-1999, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

¹ This test method is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.07 on Commercial Kitchen Ventilation.

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² Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329.

2.2 *ISO Standard*:³

ISO Standard 3966, Measurement of Fluid Flow in Closed Conduits—Velocity Area Method Using Pitot Static Tubes

3. Terminology

3.1 *Definitions*:

3.1.1 *airflow rate, n*—volumetric flow rate of air that passes through a filter or a bank of filters.

3.1.2 *capture efficiency, n*—proportion of aerosol particles removed by a filter as a function of particle size, usually expressed as a percentage.

3.1.3 *cartridge filter, n—removable extractor*, a removable, integral component of listed exhaust hoods, which is typically constructed of stainless steel and containing a series of horizontal baffles designed to remove grease and drain it into a container.

3.1.4 *fixed extractor, n—water-wash hood or linear slot hood*, a fixed, integral component of listed exhaust hoods, which is typically constructed of stainless steel and containing a series of horizontal baffles that run the full length of the hood.

3.1.5 *grease filter, n*—device installed into a hood to capture grease effluent before it enters the exhaust duct. Several identical devices may be installed in parallel in a hood. The device may consist of more than one component or section.

3.1.6 *pressure drop, n*—change in static pressure between the front surface of the grease filter and its rear surface under the rated airflow rate conditions.

3.1.7 *reference hood, n*—Type I exhaust hood used for the “no extractors” condition when measuring the efficiency and pressure drop of fixed extractor hoods. This is typically the same hood that is used for testing removable grease filters and removable cartridge filters.

3.2 *Symbols*:

E = capture efficiency

n = number of sample sets

³ Available from International Organization for Standardization (ISO), 1 rue de Varembe, Case postale 56, CH-1211, Geneva 20, Switzerland.