Designation: F3150 – 18

Standard Specification for HEPA Filtration System Performance of Residential and Commercial Vacuum Cleaners[1]

This standard is issued under the fixed designation F3150; 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 specification defines industry acceptable test methods and approaches for evaluating residential and commercial vacuum cleaner filtration systems to HEPA filtration performance levels.

1.2 This specification defines the minimum filtration efficiency requirements for achieving HEPA performance for filtration systems of residential and commercial vacuum cleaners.

1.3 This specification applies only to residential and commercial vacuum cleaning products that are used in non-critical applications. Non-critical applications refers to applications not requiring the removal of hazardous dust as defined per IEC 60335-2-69.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

F1977 Test Method for Determining Initial, Fractional, Filtration Efficiency of a Vacuum Cleaner System

F2608 Test Method for Determining the Change in Room Air Particulate Counts as a Result of the Vacuum Cleaning Process

F395 Terminology Relating to Vacuum Cleaners

2.2 *European Standards:*[3]

EN 1822–5 High Efficiency Air Filters (EPA, HEPA, and ULPA) – Part 5: Determining the Efficiency of Filter Elements

2.3 *IEST Standards:*[4]

IEST-RP-CC001 HEPA and ULPA filters

IEST-RP-CC007 Testing ULPA Filters

IEST-RP-CC034 HEPA and ULPA Filter Leak Tests

2.4 *IEC Standard:*[5]

IEC 60335–2–69, Edition 5.0 Particular Requirements for Wet and Dry Vacuum Cleaners for Commercial use, Clause 3.104

2.5 *ISO Standard:*[6]

ISO 29463-5 High-efficiency filters and filter media for removing particles in air – Part 5: Test method for filter elements

3. Terminology

3.1 *Definitions:*

3.1.1 *commercial vacuum cleaner*—a vacuum cleaner suitable for the heavy duty and sometimes continuous cleaning tasks encountered in establishments such as hotels, motels, office buildings, churches, clubs, etc.

3.1.2 *filtration system*—refers to the filtration efficiency performance of the vacuum cleaner's dust capturing system minus any motor emissions. Motor emissions are not included in determining filtration system efficiency performance since motor emissions are generated independently of the cleaning

[1] This specification is under the jurisdiction of ASTM Committee F11 on Vacuum Cleaners and is the direct responsibility of Subcommittee F11.23 on Filtration.

Current edition approved Oct. 1, 2018. Published October 2018. Originally approved in 2015. Last previous edition approved in 2015 as F3150 – 15. DOI: 10.1520/F3150-18.

[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 British Standards Institution (BSI), 389 Chiswick High Rd., London W4 4AL, U.K., http://www.bsigroup.com.

[4] Available from Institute of Environmental Sciences and Technology (IEST), Arlington Place One, 2340 S. Arlington Heights Rd., Suite 100, Arlington Heights, IL 60005-4516, http://www.iest.org.

[5] Available from International Electrotechnical Commission (IEC), 3, rue de Varembé, P.O. Box 131, CH-1211 Geneva 20, Switzerland, http://www.iec.ch.

[6] Available from International Organization for Standardization (ISO), ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, http://www.iso.org.