



Standard Practice for Cleaning and Maintaining Controlled Areas and Clean Rooms¹

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1. Scope

1.1 This practice covers the procedures to be followed for the initial cleaning and normal maintenance of cleanrooms and controlled areas. This practice is applicable to aerospace clean areas where both particles and molecular films (NVR) must be controlled.

1.2 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.3 *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

D1193 Specification for Reagent Water

E1234 Practice for Handling, Transporting, and Installing Nonvolatile Residue (NVR) Sample Plates Used in Environmentally Controlled Areas for Spacecraft

E1235 Test Method for Gravimetric Determination of Nonvolatile Residue (NVR) in Environmentally Controlled Areas for Spacecraft

E1549 Specification for ESD Controlled Garments Required in Cleanrooms and Controlled Environments for Spacecraft for Non-Hazardous and Hazardous Operations

E1560 Test Method for Gravimetric Determination of Nonvolatile Residue From Cleanroom Wipers

E2352 Practice for Aerospace Cleanrooms and Associated Controlled Environments—Cleanroom Operations

F24 Test Method for Measuring and Counting Particulate Contamination on Surfaces

F25 Test Method for Sizing and Counting Airborne Particulate Contamination in Cleanrooms and Other Dust-Controlled Areas

F50 Practice for Continuous Sizing and Counting of Airborne Particles in Dust-Controlled Areas and Clean Rooms Using Instruments Capable of Detecting Single Sub-Micrometre and Larger Particles

2.2 IEST Standards:³

IEST-RP-CC007 Testing ULPA Filters

IEST-RP-CC016 The Rate of Deposition of Nonvolatile Residue in Cleanrooms

IEST-RP-CC0018 Cleanroom Housekeeping and Monitoring Procedures

IEST-RP-CC003 Garment System Considerations for Cleanrooms and Other Controlled Environments

IEST-RP-CC026 Cleanroom Operations

IEST-STD-CC1246D Product Cleanliness Levels and Contamination Control Program⁴

2.3 US Federal Standards:⁵

FED-STD-209E Airborne Particulate Cleanliness Classes in Cleanrooms and Clean Zones⁶

TT-I-735 Isopropyl Alcohol

O-A-51 Acetone⁵

2.4 US Department of Defense Standards:⁵

MIL-D-16791 Detergents, General Purpose (Liquid, Non-Ionic)

¹ This practice is under the jurisdiction of ASTM Committee E21 on Space Simulation and Applications of Space Technology and is the direct responsibility of Subcommittee E21.05 on Contamination.

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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 Institute of Environmental Science and Technology (IEST), 5005 Newport Dr., Suite 506, Rolling Meadows, IL 60008-3841.

⁴ IEST-STD-CC1246D replaced MIL-STD-1246.

⁵ Available from Superintendent of Documents, US Government Printing Office, Washington, DC 20402.

⁶ Cancelled Nov. 29, 2001 and replaced with ISO 14644-1 and 14644-2. FED-STD-209E may be used by mutual agreement between buyer and seller. Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401. FS209E cleanroom classes are given for reference in parentheses after the ISO classes.