



Standard Practice for Aerospace Cleanrooms and Associated Controlled Environments—Cleanroom Operations¹

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1. Scope

1.1 This practice specifies basic requirements, procedures, and practices for operating aerospace cleanrooms and controlled environments and precautions associated with the facility and equipment used.

1.2 *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 737 Test Method for Air Permeability of Textile Fabrics
- E 595 Test Method for Total Mass Loss and Collected Volatile Condensable Materials from Outgassing in a Vacuum Environment
- E 1216 Practice for Sampling for Surface Particulate Contamination by Tape Lift
- E 1234 Practice for Handling, Transporting and Installing Nonvolatile Residue NVR Plates Used in Environmentally Controlled Areas for Spacecraft
- E 1235 Test Method for Gravimetric Determination of Non-volatile Residue (NVR) in Environmentally Controlled Areas for Spacecraft
- E 1549 Specification for ESD Controlled Garments Required in Cleanrooms and Controlled Environments for Spacecraft for Non-Hazardous and Hazardous Operations
- E 1559 Test Method for Contamination Outgassing Characteristics of Spacecraft Materials
- E 1560 Test Method for Gravimetric Determination of Non-volatile Residue from Cleanroom Wipers
- E 1731 Test Method for Gravimetric Determination of Non-volatile Residue for Cleanroom Gloves
- E 2042 Practice for Cleaning and Maintaining Controlled

Areas and Cleanrooms

- E 2088 Practice for Selecting, Preparing, Exposing, and Analyzing Witness Surfaces for Measuring Particulate Deposition in Cleanrooms and Associated Controlled Environments
- E 2217 Practice for Design and Construction of Aerospace Cleanrooms and Contamination Controlled Areas
- F 25 Test Method for Sizing and Counting Airborne Particulate Contamination in Cleanrooms and Other Dust-Controlled Areas Designated for Electronic and Similar Applications
- F 50 Practice for Continuous Sizing and Counting Airborne Particulate Contamination in Dust-Controlled Areas and Cleanrooms Using Instruments Capable of Detecting Single Sub-Micrometer and Larger Particles
- F 51 Test Method for Sizing and Counting Particulate Contamination in Non- Cleanroom Garments
- F 318 Practice for Sampling Airborne Particulate Contamination in Cleanrooms for Handling Aerospace Fluids
- 2.2 *Government Standards:*³
 - Federal Standard 209E Airborne Particulate Cleanliness Classes in Cleanroom and Clean Zones (cancelled Nov. 29, 2001)
 - NASA-STD-6001, Test #7 Flammability, Odor, Offgassing and Compatibility Requirements and Test Procedures for Materials in Environments That Support Combustion
- 2.3 *Other Technical Society Standards:*
 - IEST-RP-CC003 Garments Required in Cleanrooms and Controlled Environments⁴
 - IEST-RP-CC004 Evaluating Wiping Materials Used in Cleanrooms and Other Controlled Environments⁴
 - IEST-RP-CC005 Cleanroom Gloves and Finger Cots⁴
 - IEST-RP-CC018 Cleanroom Housekeeping—Operating and Monitoring Procedures⁴
 - IEST-RP-CC020 Substrates and Forms for Documentation in Cleanrooms⁴
 - IEST-RP-CC022 Electrostatic Charge in Cleanrooms and Other Controlled Environments⁴

¹ This practice is under the jurisdiction of ASTM Committee E21 on Space Simulation and the 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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

⁴ Available from Institute of Environmental Sciences and Technology (IEST), 5005 Newport Dr., Suite 506, Rolling Meadows, IL 60008-3841.

