

REFERENCE MATERIAL

List of useful Abbreviations and Acronyms

°C	Degrees Celsius
°F	Degrees Fahrenheit
μ	Micrometers
ABSA	American Biological Safety Association
ACFM	Actual Cubic Feet Per Minute
ACGIH	American Conference of Government Industrial Hygienists, Inc.
AGS	American Glovebox Society
AFI	Air Filter Institute
AIChE	American Institute of Chemical Engineers
ALAP	As Low As Practicable (obsolete term for ALARA)
ALARA	As Low As Reasonably Achievable
AMCA	Air Moving and Conditioning Association
ANL	Argonne National Laboratory (East is in Illinois and West is in Idaho)
ANS	American Nuclear Society
ANSI	American National Standards Institute
	ANSI A199.1 – Construction and Industrial Plywood
	ANSI B132.1 – High Efficiency Air Filter Units
	ANSI N45.2.2 – Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants
	ANSI N45.2.2 – Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants
APA	American Plywood Association
APHIS	Animal and Plant Health Inspection Services
ARI	Air-Conditioning and Refrigeration Institute
ARS	Animal Research Services
ARW	Air Conditioning Refrigeration Wholesale
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASHRAE 52-1	Method of Testing Air Cleaning Devices used in General Ventilation for Removing Particulate Matter
ASHRAE 52-2	Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
ASME	American Society of Mechanical Engineers
ASME-AG1	Nuclear Air and Gas Treatment
	Section AA – Common Articles
	Section BA – Fans and Blowers
	Section CA – Conditioning Equipment
	Section DA – Dampers and Louvers
	Section HA – Housings
	Section FA – Moisture Separators
	Section FB – Medium Efficiency Filters

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	Section FC – HEPA Filters
	Section FD – Type II Adsorber Cells
	Section FE – Type III Adsorber Cells
	Section FF – Adsorbent Media
	Section FG – Frames (Holding)
	Section FH – Other Adsorbers
	Section FI – Metal Media Filters
	Section FJ – Low Efficiency Filters
	Section FK – Special Round and Duct Connected HEPA Filters
	Section GA – Pressure Vessels, Piping, Heat Exchangers, and Valves
	Section GB – Noble Gas Hold-up Equipment
	Section GC – Compressors
	Section GD – Other Radionuclide Equipment
	Section GE – Hydrogen Recombiners
	Section GF – Gas Sampling
	Section IA – Instrumentation and Controls
	Section RA – Refrigeration Equipment
	Section SA – Ductwork
	Section TA – Field Testing of Air Treatment Systems
	Section TB – Field Testing of Gas Treatment Systems
ASME-N-509-1989	Reaffirmed in 1996 Nuclear Power Plant Air-Cleaning Units and Components
ASME-N-509-2002	Nuclear Power Plant Air-Cleaning Units and Components
ASME-N-510-1989	Reaffirmed in 1995 Testing of Nuclear Air Treatment Systems
ASME-N-511	Periodic In-Service Testing of Nuclear Air Treatment, Heating, Ventilation and Air-Conditioning Systems
ASME NQA-1	Quality Assurance Program Requirements for Nuclear Facilities
ASNT	American Society of Nondestructive Testing
ASTM	American Society for Testing and Materials
ASZM	Copper - Silver - Zinc - Molybdenum (Type of carbon)
AWG	American Wire Gauge
AWS	American Welding Society
BAR	Unit of pressure, 1 bar = 14.5 psi
BDP	Biological Defense Program
BFE	Bacterial Filtration Efficiency
BMBL	Biosafety in Microbiological and Biomedical Laboratories
BNCS	Board of Nuclear Codes and Standards
BOA	Basic Ordering Agreement
BS EN ISO 14644	Standards for Cleanrooms
BS EN ISO 14644-1	Classification of Air Cleanliness
BS EN ISO 14644-2	Requirements for periodic testing of a Cleanroom or clean zone
BS EN ISO 14644-3	Test methods that may be used for the purpose of characterizing a Cleanroom
BS EN ISO 14644-4	Specifies the requirements for the design and construction of Cleanroom facilities
BS EN ISO 14644-5	Cleanliness levels achieved during the operation of the Cleanroom and equipment.
BS EN ISO 14644-7	Separative devices (clean air hoods, gloveboxes, isolators and mini-environments)
BS EN ISO 14644-8	Classification of airborne molecular contamination
BSI	British Standards Institution
BTU	British Thermal Unit
CAN	National Standards of Canada
CBD	Chemical and Biological Defense
CBR	Chemical Biological Radiological
CBRN	Chemical Biological Radiological and Nuclear
CBRNE	Chemical Biological Radiological Nuclear and Explosives
CDC	Centers for Disease Control and Prevention
CFM	Cubic Feet Per Minute
CFR	Code of Federal Regulations 15 CFR 350 – Defense Priorities and Allocation System
CH ₃ I	Methyl Iodide
CIIT	Chemical Industry's Institute of Technology

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CIF	Cost, Insurance & Freight (shipping)
CIP	Clean In Place
CMBA	China Medical Biotech Association
CMTR's	Certified Material Test Reports
CO ₂	Carbon Dioxide
CoC	Certificate of Conformance
Col Pro	Collective Protection
CONAGT	Committee on Nuclear Air and Gas Treatment
CSI	Construction Specifications Institute
C/W	Complete with
CWI	Certified Welding Inspector
DCAA	Defense Contract Audit Agency
DEAR	Department of Energy Acquisition Regulations
Decon	Abbreviated term for "decontamination"
Demil	Abbreviated term for "demilitarization"
DEP	Defense of Environmental Protection
DHC	Dust Holding Capacity
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DIN	German Institute for Standardization
DMMP	Dimethylmethyphosphonate
DNA	Deoxyribonucleic Acid
DOD	Department Of Defense
DOE FTF	Department of Energy Filter Test Facility
DOE QPL	Department of Energy Qualified Products List
DOE	Department Of Energy
DOJ	Department pf Justice
DOP	Dioctylphthalate
DOS	Dioctylsebacate
DOS	Department of State
EN 1822	European standard, High Efficiency Air Filters (HEPA and ULPA)
EN 1822 H10	85 %, Efficiency is defined according to 0.3μ particle removal efficiency
EN 1822 H11	95 %, Efficiency is defined according to 0.3μ particle removal efficiency
EN 1822 H12	99.5 %, Efficiency is defined according to 0.3μ particle removal efficiency
EN 1822 H13	99.95 %, Efficiency is defined according to 0.3μ particle removal efficiency
EN 1822 H14	99.995 %, Efficiency is defined according to 0.3μ particle removal efficiency
EN 1822 U15	99.9995 %, Efficiency is defined according to 0.12μ particles with MPPS method
EN 1822 U16	99.99995 %, Efficiency is defined according to 0.12μ particles with MPPS method
EN 1822 U17	99.999995 %, Efficiency is defined according to 0.12μ particles with MPPS method
EN 1822 U18 method	99.9999995 %, Efficiency is defined according to 0.12μ particles with MPPS method
EPA	U.S. Environmental Protection Agency
EPS	Electrostatic Precipitator Prefilter
ERDA	Energy Research and Development Administration
ESF	Engineered Safety Feature (system)
Ft ³	Cubic Feet
FAR	Federal Acquisition Regulations
FAT	Factory Acceptance Testing
FBO	Foreign Building Operation
FDA	Food and Drug Administration
FED-STD	Federal Standards
FED-STD-209E	Airborne Particulate Cleanliness Classes in Cleanrooms and Clean Zones
FOB	Free On Board
FPM	Feet Per Minute
GMAW	Gas Metal Arc Welding
GMP	Good Manufacturing Practices
GPM	Gallons Per Minute

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GTAW	Gas Tungsten Arc Welding
HCL	Hydrochloric Acid
HEGA	High Efficiency Gas Adsorber
HEMF	High Efficiency Metal Fiber (Filter)
HEPA	High Efficiency Particulate Air
HIFATS	Hi Flow Alternative Test System
HMO	Health Maintenance Organization
HMZD	High Mass and Zero Dust
HVAC	Heating, Ventilation and Air Conditioning
Hz	Hertz
IAEA	International Atomic Energy Agency
IBC	International Building Code
IEEE	Institute of Electrical and Electronic Engineering
IESNA	Illuminating Engineering Society of North America
IES	Institute of Environmental Sciences
IEST	Institute of Environmental Sciences and Technology
IEST-RP-CC001.3	HEPA And ULPA Filters (Old)
IEST-RP-CC001.4	HEPA And ULPA Filters (Recommended Practice) (Published 11/7/2005)
IEST-RP-CC002.2	Unidirectional Flow Clean-Air Devices (Recommended Practice) (Published 1/19/1999)
IEST-RP-CC003.3	Garments Systems Considerations For Cleanrooms And Other Controlled Environments (Recommended Practice) (Published 8/11/2003)
IEST-RP-CC004.3	Evaluating Wiping Materials Used In Cleanroom And Other Controlled Environments (Recommended Practice) (Published 8/23/2004)
IEST-RP-CC005.3	Gloves And Finger Cots Used In Cleanrooms And Other Controlled Environments (Recommended Practice) (Published 5/1/2003)
IEST-RP-CC006.2	Testing Cleanrooms (Old)
IEST-RP-CC006.3	Testing Cleanrooms (Recommended Practice) (Published 8/30/2004)
IEST-RP-CC007.1	Testing ULPA Filters (Recommended Practice) (Published 1/1/1992)
IEST-RP-CC008-84	Gas-Phase Adsorber Cells (Recommended Practice) (Published 1/1/1984)
IEST-RD-CC011.2	A Glossary Of Terms And Definitions Relating To Contamination Control (Recommended Document) (Published 1/1/1995)
IEST-RP-CC0012.1	Considerations In Cleanroom Design (Recommended Practice) (Published 3/1/1998)
IEST-RP-CC013	Equipment Calibration Or Validation Procedures (Old)
IEST-RP-CC013.2	Calibration Procedures And Guidelines For Selecting Equipment Used In Testing Cleanrooms And Other Controlled Environments (Recommended Practice) (Published 10/16/2006)
IEST-RP-CC014.1	Calibration And Characterization Of Optical Airborne Particle Counters (Recommended Practice) (Published 10/16/2006)
IEST-RP-CC016.2	The Rate Of Deposition Of Nonvolatile Residue Cleanrooms (Recommended Practice) (Published 11/15/2002)
IEST-RP-CC018.3	Cleanroom Housekeeping: Operating And Monitoring Procedures (Recommended Practice) (Published 11/15/2002)
IEST-RP-CC019.1	Qualifications For Organizations Engaged In The Testing And Certification Of Cleanrooms And Clean-Air Devices (Recommended Practice) (Published 1/23/2006)
IEST-RP-CC020.2	Substrates And Forms For Documentation (Recommended Practice) (Published 1/1/1996)
IEST-RP-CC021	Testing HEPA And ULPA Filter Media (OLD)
IEST-RP-CC021.2	Testing HEPA And ULPA Filter Media (Recommended Practice) (Published 9/20/2005)
IEST-RP-CC022.2	Electrostatic Charge In Cleanrooms And Other Controlled Environments (Recommended Practice) (Published 1/1/2004)

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IEST-RP-CC023.2	Microorganisms In Cleanrooms (Recommended Practice) (Published 1/31/2006)
IEST-RP-CC024	Measuring and Reporting Vibration in Microelectronics Facilities (OLD)
IEST-RP-CC024.1	Measuring and Reporting Vibration in Microelectronics Facilities (Recommended Practice) (Published 1/1/1994)
IEST-RP-CC026.2	Cleanroom Operations (Recommended Practice) (Published 1/31/2006)
IEST-RP-CC027.2	Personnel Practices And Procedures In Cleanrooms And Other Controlled Environments (Recommended Practice) (Published 3/27/2006)
IEST-RP-CC028.1	Minienvironments (Recommended Practice) (Published 9/31/2002)
IEST-RP-CC029.1	Automotive Paint Spray Applications (Recommended Practice) (Published 6/1/1999)
IEST-RP-CC031.1	Method For Characterizing Out-gassed Organic Compounds From Cleanroom Materials And Components (Recommended Practice) (Published 4/1/2003)
IEST-RP-CC034.1	HEPA And ULPA Filters Leak Tests (Old)
IEST-RP-CC034.2	HEPA And ULPA Filters Leak Tests (Recommended Practice) (Published 6/23/2005)
IEST-STD-CC1246D	Product Cleanliness Levels And Contamination Control Program (Standard) (Published 1/1/2002)
IEST-G-CC1001	Counting Airborne Particles For Classification And Monitoring Cleanrooms And Clean Zones (Technical Guide) (Published 1/1/1999)
IEST-G-CC1002	Determination Of The Concentration Of Airborne Ultrafine Particles (Technical Guide) (Published 1/1/1999)
IEST-G-CC1003	Measurement Of Airborne Microparticles (Technical Guide) (Published 1/1/1999)
IEST-G-CC1004	Particulate Cleanliness Of Air In Cleanrooms And Clean Zones (Technical Guide) (Published 1/1/1999)
In-Situ	Testing in its original place
in. Hg	Inches of Mercury
in. WG	Inches of Water Gauge
ISA	Instrument Society of America
IOS	International Organization for Standards
ISO 14644-1	Classification of Air Cleanliness
ISO 14644-2	Specifications for Testing and Monitoring to Prove Continued Compliance
ISPE	International Society of Pharmaceutical Engineers
JEPO	Joint Program Executive Office
JSI	Japanese Industrial Standards
KI	Potassium Iodide
kPa	Kilopascals
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
INL	Idaho National Laboratory
l/s	Liters Per Second
mA	Milliamp
MCE	Maximum Credible Event
MERV	Minimum Efficiency Reporting Value
MIC	Metal Inert Gas
MIL	Department of Defense Military Standard
MIL-F-51068F	Military Specification for Filters, Particulate, High Efficiency, Fire Retardant (Cancelled)
MIL-F-51079D	Military Specification for Filter Medium, Fire Resistant, High Efficiency (Cancelled)
MIL-F-51477(EA)	Military Specification, Filters, Particulate, High Efficiency, Fire Retardant Biological Use, General Specification for HEPA Filters (Cancelled)
MIL-STD-282	Filter Units, Protective Clothing, Gas Mask Components, and Related Products: Performance Test Methods
MPPS	Most Penetrating Particle Size
m/s	Meters Per Second
MSDS	Material Safety Data Sheets
MTR's	Material Test Reports

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MVOC	Microbiological Volatile Organic Compound
NADC	National Animal Disease Center
NAICS	North American Industrial Classification System
NBC	Nuclear Biological Chemical
NBS	National Bureau of Standards
NCR	Nonconformance Report
NCTR	National Center for Toxic Research
NDE	Nondestructive Examination
NDIA	The National Defense Industry Association
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NEI	Nuclear Energy Institute
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NFPA	National Fire Protection Association NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems
NHUG	Nuclear HVAC Utilities Group
NIAC	Nuclear Industry Assessment Committee
NIEHS	National Institute of Environmental Health Services
NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NNSA	National Nuclear Security Administration
NOPD	Normal Operating Pressure Differential
NO _x	Oxides of Nitrogen
Np	Neptunium
NPT	National Pipe Thread
NQA	Nuclear Quality Assurance
NRC	Nuclear Regulatory Commission
NSF	National Sanitation Foundation
NSF 49	Class II (Laminar Flow) Biohazard Cabinetry
NTS	Not To Scale
NVR	Nonvolatile Residue
NWTRB	Nuclear Waste Technical Review Board
OBE	Operating Basis Earthquake
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
OSHPD	Office of Statewide Health Planning Development
Pa	Pascals
PAO	Polyalphaolefins
PAPR	Powered Air Purifying Respirators
PE	Polyethylene
PEIS	Programmatic Environmental Impact Statement
PFA	Perfluoroalkoxy (Teflon)
PLC	Programmable Logic Controller
PPE	Personal Protective Equipment
ppm	Parts Per Million
PSI	Pounds Per Square Inch
PSIG	Pounds Per Square Inch Gage
PSL	Polystyrene Latex (spheres)
PTF	Perfluorocarbon Traces
PTFE	Polytetrafluoroethylene, Teflon [®] , Low boron media (from Gore)
Pu	Plutonium
PVC	Polyvinyl Chloride
P&ID	Piping and Instrumentation Diagram
QA	Quality Assurance

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QC	Quality Control
QPL	Qualified Products List
RAD	Radiation Absorbed Dose
RCRA	Resource Conservation and Recovery Act
rDNA	Recombinant DNA
RFETS	Rocky Flats Environmental Technology Site
RG	Regulatory Guide
RGS	Rigid Galvanized Steel
RH	Relative Humidity
RTP	Rapid-Transfer Port
RTV	Room Temperature Vulcanizing (caulking compound)
SAACE	South African Association of Consulting Engineers
SAAFoS	South African Association for Food, Science & Technology
SAE	Society of Automotive Engineers
SAFHE	South African Federation of Hospital Engineers
SAIMechE	South African Institute of Mechanical Engineers
\SAT	Site Acceptance Testing
SEMATECH	American Consortium for Semiconductor Manufacturers
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
SMAW	Shielded Metal-Arc Welding
SOP	Standard Operating Procedures
SOPD	System Operating Pressure Differential
SO _x	Oxides of Sulphur
SRL	Savannah River Laboratory
SRS	Savannah River Site
SSE	Safe Shutdown Earthquake
TAPPI	Technical Association of the Pulp and Paper Industry
TBD	To Be Determined
TEDA	Triethylenediamine
TEFC	Totally Enclosed Fan Cooled
TGT	Tracer Gas Testing
TIG	Tungsten Inert Gas
TRU Waste	Transuranic Waste
TT	Telegraphic Transfer
TVOC	Total Volatile Organic Compound
UBC	Uniform Building Code
UCNI	Unclassified Controlled Nuclear Information
UL	Underwriter's Laboratories UL 586 – Standard for High Efficiency Particulate Air Filter Units UL 900 – Test Performance of Air Filter Units
ULPA	Ultralow Penetration Air
USAMRIID	United States Army Medical Research Institute of Infectious Disease
USDA	United States Department of Agricultural
USDOD	United States Department of Defense
USDOE	United States Department of Energy
USDOS	United States Department of State
USGBC	United States Green Building Council
UV	Ultraviolet
UVGI	Ultraviolet Germicidal Irradiation
V	Volts
VA	Veterans Administration
VAV	Variable Air Volume
VFE	Viral Filtration Efficiency
VLSI	Very Large Scale Integrated
VOC	Volatile Organic Compounds
VVOC	Very Volatile Organic Compound
WIPP	Waste Isolation Pilot Plant

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