

# Aero Biotechniques

## (Cleanroom Validation Services & Products)

### Home

Aero Biotechniques (ABT) is a cleanroom validation service providing company. ABT is the only company in India with NSF49 accreditation for certifying biosafety cabinets. ABT has cleanroom validation accreditations from CTCB-I, UK, London. ABT also is a major supplier of Air Filters and Air Filtration Systems for various industrial applications such as Clean Rooms, Cleanroom Equipment, AHU's, and Hydraulic Oil Machines etc.

We are the only company in India having NSF49 field accreditation for Biosafety Cabinet certification. We also have CTCB-I, Cleanroom Certifications from London, UK. Our company is ISO 9001 certified and also have ISHRAE and CCSI certifications for various cleanroom test.

### About Us

Aero Biotechniques (ABT) is a leading cleanroom validation service provider and supplier of air filters and air filtration systems for various industrial applications. Since 2011, ABT has been committed to providing high-quality products to ensure the cleanliness and safety of critical environments.

ABT services include cleanroom validation services to ensure that cleanrooms are functioning properly and meeting industry standards. Validation services include particle counting, airflow visualization, air exchange rate measurement, and temperature and humidity monitoring. Thermal mapping and RH mapping services are provided, ETO validation services are offered as per ISO 11135 standard. Autoclave validation is provided using dataloggers. Indoor air quality testing services are offered with solutions for improvement or achieving a desired cleanliness level. ABT expertises in customizing filtration solution for critical environment or residential environments. ABT also offers validation of specialized pharmaceutical equipments such as Biosafety cabinets, Laminar air flow hoods, pass boxes, garment cubicles, hanging LAFs, dispensing and sampling booths, fume hoods as per ISO, FED, EU and BIS standards. We have qualified and trained teams for pharma validation. ABT also provides Operating Theatre validation services which includes all parameters as required for NABH guideline qualification.

ABT also offer cleanroom designing and setup for complete solutions, our customers include pharmaceutical companies, hospital and SMT lines of automotive industries.

ABT's product range includes HEPA filters, micro-fine filters, pre-filters, mini-pleat filters, metallic viscous filters, air conditioning filters, spray-paint booth filters, bag filters, suction strainers, fan filter units, turbine filters, hydraulic oil filters, carbon filters, compressor filters, plastic molding machine filters, air testing equipment, and air ventilation allied filters.

ABT's HEPA filters are designed to remove 99.99% of particles as small as 0.3 microns, making them ideal for use in cleanrooms and other critical environments. The micro-fine filters are designed to remove smaller particles down to 0.1 microns. Pre-filters are used to extend the life of more expensive filters by removing larger particles before they reach the primary filter. The mini-pleat filters are used in applications where space is limited, but high-efficiency filtration is still required.

ABT's metallic viscous filters are designed for high-temperature applications, such as those found in industrial ovens and furnaces. The air conditioning filters are designed for use in HVAC systems to improve indoor air quality. Spray-paint booth filters are used to capture overspray and prevent it from contaminating the surrounding environment. Bag filters are used in applications where high-efficiency filtration is required, such as in pharmaceutical manufacturing.

Suction strainers are used to protect pumps and other equipment from damage caused by contaminants in the fluid being pumped. Fan filter units are used to create a laminar airflow in cleanrooms and other critical environments. Turbine filters are designed for use in gas turbines to protect the blades from damage caused by airborne contaminants. Hydraulic oil filters are used to remove contaminants from hydraulic oil to prevent damage to hydraulic components.

Carbon filters are used to remove odors and gases from the air. Compressor filters are used to remove contaminants from compressed air to protect downstream equipment. Plastic molding machine filters are used to prevent contaminants from entering the molding process, which can result in defective products. Air testing equipment is used to monitor the quality of the air in critical environments. Air ventilation allied filters are used in HVAC systems to improve indoor air quality.

In summary, Aero Biotechniques is a reliable supplier of air filters and air filtration systems for various industrial applications. Their commitment to quality and safety is evident in their extensive product range and cleanroom validation services. Whether you need HEPA filters for your cleanroom or carbon filters for odor control, ABT has the expertise and products to meet your needs.

## **Why Aero Biotechniques**

1. **High-Quality Products:** Aero Biotechniques is committed to providing high-quality air filters and air filtration systems to ensure the cleanliness and safety of critical environments. Their products are designed to meet industry standards and are tested rigorously to ensure optimal performance.
2. **Cleanroom Validation Services:** ABT offers cleanroom validation services to ensure that cleanrooms are functioning properly and meeting industry standards. Their validation services include particle counting, airflow visualization, air exchange rate measurement, and temperature and humidity monitoring.
3. **Extensive Product Range:** ABT offers a wide range of air filters and air filtration systems, including HEPA filters, micro-fine filters, pre-filters, mini-pleat filters, metallic viscous filters, and more. Their products are designed for various industrial applications such as clean rooms, cleanroom equipment, AHU's, and hydraulic oil machines.
4. **Expertise and Experience:** Aero Biotechniques has been in the air filtration industry since 2011 and has gained a reputation for expertise and experience. Their team of professionals is dedicated to providing exceptional customer service and support to ensure that their clients receive the best products and services.

## **Our Vision & Mission**

## PRODUCTS

### 1. AIR FILTERS



#### a. HEPA FILTER

HEPA or high efficiency particulate air filters are high density mats composed of randomly arranged glass fibers. HEPA filters, as defined by the DOE (Department of Energy, USA) standard adopted by most American industries, remove at least 99.97% of airborne particles 0.3 micrometers ( $\mu\text{m}$ ) in diameter. Most of the contaminating and pathogenic bacteria found to exist in nature are of about the size 0.3  $\mu\text{m}$  and larger. Therefore by using hepa filters one

can get a supply of ultra clean air and build a cleanroom.

HEPA filters have a wide range of applications, some of them are as follows:

- Cleanrooms and factories for semiconductor manufacturing,
- The food and beverage industry
- Pharmaceutical industry
- Biotechnology industry
- Nuclear power and energy plants
- Telecommunication industry
- Aerospace industry
- Movie theatre industry
- Portable residential air cleaners
- Cleanroom equipments such as biosafety cabinets, laminar air flow hoods etc
- Hospitals and Operation theatre



[ATHLETE HEPA FILTER \(BOX TYPE\)](#)

**HEPA** filters are manufactured under strict quality control and are tested and certified on our cold D.O.P. test facility to meet ISO 14644 cleanroom standards.

<b>SPECIFICATION</b>	
Efficiency	99.99% for filtering out particles down to 0.3 microns, which is rated as H14 in accordance to EN 1822 standard
Filtration Class	Fed 209E Class 100 or more recent ISO class 5 in accordance to ISO defined 14644 cleanroom standards can be achieved using this filter
Frame Type	Available in deep pleated flange or box type
Frame Material	Standard model is constructed in aluminium frame. SS 304/Galvanized steel frame with or without powder coating are also available on order.
Filter Media	100% Sub-Micronic boro-silicate glass fibre media We use HEPA Media Imported from Hollingsworth & Vose, USA
Gasket	Silicone coated pu foam gasket is used
Separators	Corrugated aluminium separators are used
Sealant	Epoxy resin or Polyurethane based sealant is used
Face Guard	An optional perforated metal or expanded metal guard (with or without powder coating) to protect the face of the filter, <b>is available only on request</b>
Pressure Drop	Initial pressure drop ~20mm WG and recommended final pressure drop is ~50mm WG
Operating Conditions	Filter can withstand temperature up to 110°C and relative humidity of 100%

**\*High temperature HEPA Filters for hot air oven application are also available**

**\*High flow and super high flow air filter are also available on order**

**\*HEPA/ULPA filters with different filtration efficiency ratings in accordance to EU/ISO 14644 standards are also available on request**

<b>HEPA Filter Selection Chart</b>						
Size	Dimensions (inches)	Dimensions (millimeters)	Rated Airflow		Pressure Drop (mm WG)	
			Cfm	M <sup>3</sup> /hr	Initial	Final
1	12 x 12 x 6	305 x 305 x 150	125	212	25	60
2	12 x 12 x 12	305 x 305 x 305	250	424	25	60
3	24 x 24 x 6	610 x 610 x 150	500	850	25	60
4	24 x 24 x 12	610 x 610 x 305	1000	1700	25	60
5	24 x 30 x 6	610 x 762 x 150	625	1065	25	60
6	36 x 24 x 6	915 x 610 x 150	750	1275	25	60
7	48 x 24 x 6	1220 x 610 x 150	1000	1700	25	60

**\*Custom build sizes offered on request**

## b. PRE FILTERS



**Pleated Box Type**



**Rod Type Metal Box Frame**



**PH Filter**



**ROD Type**



**Grease Filter**



**Metallic Filter**

**ATHLETE Pre Filters** are designed to meet the requirements of high efficiency filtration under high chemical exposure and high humidity conditions. These are available in 3 different variations namely: **H.D.P.E** (High Density Polythene) **pleated/rod type**, **Pleated Channel type** and **Rod-Frame type PH Filter**. All the pre filters are made

under strict quality control scanner for complete customer satisfaction and comply with recent ASHRAE 52.2/EN779/EUROVENT standards.

**HDPE pleated/Rod type pre filter**

**Construction:** are made from high quality synthetic non-woven media, supported by a fine aluminium mesh from one side and HDPE media from other side. Media is then housed inside an extruded aluminium frame.

<b>SPECIFICATION</b>	
<b>Efficiency</b>	Standard HDPE pleated type filters have an efficiency of 90% for 10 micron size particles. Pre filters with an efficiency rating of 80 to 90% to capture 10 micron to 25 micron size particles are also available on order.
<b>Filtration Class</b>	Filter grades G3, G4, F5 of EN779, ASHRAE 52.2 equivalent MERV 6, 7, 8, 9, 10 and Eurovent EU3, EU4 and EU5 are available
<b>Frame Type</b>	Available in flange or box type
<b>Frame Material</b>	Standard model is constructed in Galvanized steel. Other models with Aluminium Anodized/Stainless steel frame with or without powder coating are also available on order.
<b>Filter Media</b>	HDPE and non-woven synthetic.
<b>Gasket</b>	No Gasket is installed in standard filter model. Non-woven synthetic/Rubber gasket can be ordered on request
<b>Separators</b>	None
<b>Sealant</b>	PU based epoxy
<b>Support</b>	Large frame size models are made wobble resistant using GI/Aluminium/SS support
<b>Face Guard</b>	No face guard with standard model is supplied. On order/request filter can be protected with expanded mesh on both sides
<b>Nominal Depth</b>	Depth size is available from 1.0 inches to 6 inches (Pre HDPE Pleated and rod type)
<b>Sizes</b>	Standard size of the filter is 610 x 610 x 50mm in box or flange type. Other sizes are build on order.
<b>Pressure Drop</b>	Initial pressure drop ~2.5mm WG and recommended final pressure drop is 5-10mm WG
<b>Operating Conditions</b>	Filter can withstand temperature up to 80°C and relative humidity of 100% at 0 condensation. Filter is washable or can be cleaned by applying air pressure and reused.
<b>Application</b>	Athlete Pre filters are most suited for: Air Handling Units (AHUs), Air-conditioning systems, Power Plants, Chemical and Fertilizer complexes, Green Houses, Automatic Drain Holes, Paint Shops, Textile Mills, Cement Factories, Laminar Air Flow Units, Biosafety Hoods, Fan Filter Units (FFU), Gas Turbine Industry, Compressor, Diesel Engines, Nuclear Power Station, CD-Rom Production Industry, Picture Tube Production Industry, Semi-conductor Industry, Aeronautical Industry and Miscellaneous Industrial Ventilation.

**Athlete Pre Filter Selection Chart**

Model No.	Dimensions (inches)	Dimensions (millimeters)	Rated Airflow		Pressure Drop (mm WG)	
			Cfm	M <sup>3</sup> /hr	Initial	Final

APPF1	20 x 20 x 2	508 x 508 x 50			2.5	5
APPF2	24 x 20 x 2	610 x 508 x 50			2.5	5
APPF3	24 x 24 x 2	610 x 610 x 50			2.5	5

\*Custom build sizes offered on request

### c. FINE FILTERS



**Brand Name: ATHLETE**

#### **PRODUCT DESCRIPTION**

**ATHLETE Fine Filters:** Fine filters, also referred to as MICROVEE FILTERS, are indispensable components installed within Air Handling Units (AHUs) to ensure optimal air quality. Their primary function is to prevent the passage of dust particles and contaminants, guaranteeing that only clean and purified air circulates through the HVAC system. These are extended surface filters that can be manufactured either in either "Rigid pocket" or "Soft pocket" types to suit the application. They are available up to filtration efficiency of 95% for 1micron particle size. (Overall filtration efficiency by using discrete particle count efficiency test method). Suitable for use as filter grades F5 to F9 of EN779 and MERV 8 to MERV 15 of ASHRAE 52.2. Can be manufactured with or without "Flange" or "Header". Optional perforated metal or expanded metal guard.

Available in casing thickness from 0.5 to 1.5 mm in MOC variants of Galvanized sheet steel, Aluminium or Stainless steel in varying depths of 25, 100, 150, or 300 mm.

Suitable surface finish for the casing can be provided.

Choose the right grade of filter that suits your requirement from the table below:

<b>Eurovent 4/5</b>	<b>EU3</b>	<b>EU4</b>	<b>EU5</b>	<b>EU6</b>	<b>EU7</b>	<b>EU8</b>	<b>EU9</b>
<b>EN 779</b>	<b>G3</b>	<b>G4</b>	<b>F5</b>	<b>F6</b>	<b>F7</b>	<b>F8</b>	<b>F9</b>
Arrestance	60 to 80%	80 to 90%	90 to 95%	95 to 98%	>98%	>98%	>98%
Dust spot efficiency	< 20%	20 to 35%	40 to 55%	60 to 80%	80 to 90%	90 to 95%	>95%
MERV	5,6	7,8	9,10	11,12	13	14	15
% Min. PSE @ 10 micron	90	98	100	100	100	100	100
% Min. PSE @ 5 micron	75	80	95	98	100	100	100
% Min. PSE @ 3 micron	NA	NA	85	90	95	98	100
% Min. PSE @ 1 micron	NA	NA	55	70	85	90	95
% Min. PSE @ 0.5 micron	NA	NA	35	50	65	75	85
% Min. PSE @ 0.3 micron	NA	NA	20	40	50	60	70

Manufactured in standard sizes as mention below and also for the customer's specific sizes.

**Construction:** high quality synthetic non-woven media is housed inside a filter frame supported by a fine aluminium mesh on one side and HDPE media on the other side.

<b>SPECIFICATION</b>	
<b>Efficiency</b>	95% for 5 micron (typically F5)
<b>Filtration Class</b>	Filter grades F5 – F9 of EN779, ASHRAE 52.2 equivalent MERV 9-15 and Eurovent EU5 – EU9 are available
<b>Frame Type</b>	Available in flange or box type
<b>Frame Material</b>	Standard model is constructed in Galvanized steel. Other models with Aluminium Anodized/Stainless steel frame with or without powder coating are also available on order.
<b>Filter Media</b>	HDPE and non-woven synthetic.
<b>Gasket</b>	Supplied with PU foam gasket, neoprene gasket can be ordered on request
<b>Separators</b>	Crimp / Comb Separators used to keep pleats in place.
<b>Sealant</b>	PU based epoxy
<b>Support</b>	Large frame size models are made wobble resistant using GI/Aluminium/SS support
<b>Face Guard</b>	No face guard with standard model is supplied. On order/request filter can be protected with expanded/welded mesh on both sides
<b>Nominal Depth</b>	Depth size is available from 2.0 inches to 12 inches
<b>Sizes</b>	Standard size of the filter is 610 x 610 x 50mm in box or flange type. Other sizes are build on order.
<b>Pressure Drop</b>	Initial pressure drop ~3.0 mm WG and recommended final pressure drop is 15-18mm WG
<b>Face Velocity</b>	1.25 m/s for 150 mm thick & 2.5m/s for 300mm thick
<b>Operating Conditions</b>	Filter can withstand temperature up to 80°C and relative humidity of 100% at 0 condensation. Filter is washable or can be cleaned by applying air pressure and reused. Filters that can withstand high temperature can be made on request.
<b>Application</b>	Athlete Pre filters are most suited for: Air Handling Units (AHUs), Air-conditioning systems, Power Plants, Chemical and Fertilizer complexes, Green Houses, Automatic Drain Holes, Paint Shops, Textile Mills, Cement Factories, Laminar Air Flow Units, Biosafety Hoods, Fan Filter Units (FFU), Gas Turbine Industry, Compressor, Diesel Engines, Nuclear Power Station, CD-Rom Production Industry, Picture Tube Production Industry, Semi-conductor Industry, Aeronautical Industry and Miscellaneous Industrial Ventilation.

<b>Athlete Fine Filter Selection Chart (F5)</b>						
<b>Model No.</b>	<b>Dimensions (inches)</b>	<b>Dimensions (millimeters)</b>	<b>Rated Airflow</b>		<b>Pressure Drop (mm WG)</b>	
			<b>Cfm</b>	<b>M<sup>3</sup>/hr</b>	<b>Initial</b>	<b>Final</b>
AMF FF1	12 x 12 x 6	305 x 305 x 152	250	425	5	18
AMF FF2	12 x 12 x 12	305 x 305 x 305	500	850	5	18
AMF FF3	24 x 12 x 6	610 x 305 x 152	500	850	5	18
AMF FF4	24 x 12 x 12	610 x 305 x 152	1000	1700	5	18
AMF FF5	24 x 24 x 6	610 x 610 x 152	1000	1700	5	18
AMF FF6	24 x 24 x 12	610 x 610 x 305	2000	3400	5	18

\*Custom build sizes offered on request

#### **d. MINI PLEAT HEPA FILTER**

We manufacture Mini Pleat Hepa Filters on state-of-the-art pleating machine with Hotmelt Glue separators. Both box type and flange type frame configurations are standard. Mini Pleat filters are available in various sizes and depths. Mini pleat filters are available from H10 grade to U15.

Mini Pleat filters have a wide range of applications, some of them are as follows:

- Cleanrooms and factories for semiconductor manufacturing,
- The food and beverage industry
- Pharmaceutical industry
- Biotechnology industry
- Nuclear power and energy plants
- Telecommunication industry
- Aerospace industry
- Movie theatre industry
- Portable residential air cleaners
- Cleanroom equipments such as biosafety cabinets, laminar air flow hoods etc
- Hospitals and Operation theaters



## MINI PLEAT HEPA FILTER (BOX / FLANGE TYPE)

**MINI PLEAT HEPA** filters are manufactured under strict quality control and are tested

SPECIFICATION	
Efficiency	99.99% for filtering out particles down to 0.3 microns, which is rated as H14 in accordance to EN 1822 standard
Filtration Class	Fed 209E Class 100 or more recent ISO class 5 in accordance to ISO defined 14644 cleanroom standards can be achieved using this filter
Frame Type	Available in mini pleated flange or box type
Frame Material	Standard model is extruded aluminium frame with or without powder coating. Custom sizes are fabricated from sheets
Filter Media	100% Sub-Micronic boro-silicate glass fibre media
Gasket	Silicone coated PU foam gasket is used
Separators	Hot melt separators are used
Sealant	Epoxy resin or Polyurethane based sealant is used
Face Guard	Expanded metal guard (with or without powder coating) to protect the face of the filter, is available
Pressure Drop	Initial pressure drop ~15mm WG and recommended final pressure drop is ~30mm WG
Operating Conditions	Filter can withstand temperature up to 110°C and relative humidity of 100%

**\*High temperature HEPA Filters for hot air oven application are also available**

**\*High flow and super high flow air filter are also available on order**

**\*HEPA/ULPA filters with different filtration efficiency ratings in accordance to EU/ISO 14644 standards are also available on request**

### **HEPA FILTERS GRADE AVAILABLE:**

H13 GRADE: 99.97% EFFICIENCY FOR 0.3 MICRON SIZE PARTICLES

H14 GRADE: 99.99% EFFICIENCY FOR 0.3 MICRON SIZE PARTICLES

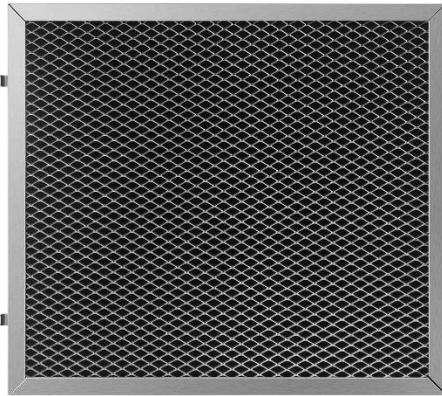
U15 GRADE: 99.995% EFFICIENCY FOR 0.3 MICRON SIZE PARTICLES

MINI PLEAT HEPA Filter Selection Chart							
Size	Dimensions (inches)	Dimensions (millimeters)	Face Velocity (m/s)	Rated Airflow		Pressure Drop (mm WG) (H14 GRADE)	
				Cfm	M <sup>3</sup> /hr	Initial	Final
1	12 x 6 x 2.75	305 x 150 x 70	0.5	50	85	15	30
2	12 x 12 x 2.75	305 x 305 x 70		100	170	15	30
3	24 x 24 x 2.75	610 x 610 x 70		400	680	15	30
4	36 x 24 x 2.75	915 x 610 x 70		600	1020	15	30
5	48 x 24 x 2.75	1220 x 610 x 70		800	1360	15	30
6	12 x 6 x 3.5	305 x 150 x 90	0.75	75	127.5	15	30
7	12 x 12 x 3.5	305 x 305 x 90		150	255	15	30
8	24 x 24 x 3.5	610 x 610 x 90		600	1020	15	30
9	36 x 24 x 3.5	915 x 610 x 90		900	1530	15	30
10	48 x 24 x 3.5	1220 x 610 x 90		1200	2040	15	30
11	12 x 6 x 4.7	305 x 150 x 120	1.0	100	170	15	30
12	12 x 12 x 4.7	305 x 305 x 120		200	340	15	30
13	24 x 24 x 4.7	610 x 610 x 120		800	1360	15	30
14	36 x 24 x 4.7	915 x 610 x 120		1200	2040	15	30
15	48 x 24 x 4.7	1220 x 610 x 120		1600	2720	15	30

**\*Custom build sizes offered on request**

MINI PLEAT ULPA Filter Selection Chart							
Size	Dimensions (inches)	Dimensions (millimeters)	Face Velocity (m/s)	Rated Airflow		Pressure Drop (mm WG) (H14 GRADE)	
				Cfm	M <sup>3</sup> /hr	Initial	Final
1	12 x 6 x 2.75	305 x 150 x 70	0.5	50	85	20	40
2	12 x 12 x 2.75	305 x 305 x 70		100	170	20	40
3	24 x 24 x 2.75	610 x 610 x 70		400	680	20	40
4	36 x 24 x 2.75	915 x 610 x 70		600	1020	20	40
5	48 x 24 x 2.75	1220 x 610 x 70		800	1360	20	40
6	12 x 6 x 3.5	305 x 150 x 90	0.75	75	127.5	20	40
7	12 x 12 x 3.5	305 x 305 x 90		150	255	20	40
8	24 x 24 x 3.5	610 x 610 x 90		600	1020	20	40
9	36 x 24 x 3.5	915 x 610 x 90		900	1530	20	40
10	48 x 24 x 3.5	1220 x 610 x 90		1200	2040	20	40
11	12 x 6 x 4.7	305 x 150 x 120	1.0	100	170	20	40
12	12 x 12 x 4.7	305 x 305 x 120		200	340	20	40
13	24 x 24 x 4.7	610 x 610 x 120		800	1360	20	40
14	36 x 24 x 4.7	915 x 610 x 120		1200	2040	20	40
15	48 x 24 x 4.7	1220 x 610 x 120		1600	2720	20	40

#### e. ACTIVATED CHARCAOL FILTER



Activated carbon air filters are made by using activated carbon pellets (cylindrical shape of 2-5 mm) to effectively remove all kinds of odor in the air. It is combined with pre filter and features high adsorption capacity, high removal efficiency, and reliable performance. The thickness of 50-100 – mm; aperture: small hole, medium hole, large hole. Dimensions can be chosen according to the site environment.

Adsorption performance: A, benzene adsorption capacity: more than 90% B, iodine adsorption capacity: 800mg/g.

Deodorization performance: A, in 30 min, ethylmercaptan: removal rate is greater than 90%, B, trimethylamine removal rate is greater than 90%.

Heat resistance, temperature range of use: – 20 °C ~ 130 °C . Resistance: gas line velocity 1.0m/s, 4mm pressure drop 42Pa, 20mm pressure drop 98Pa. The frame material can be made of aluminum alloy, galvanized steel plate, or stainless steel plate.

Carbon filters have a wide range of applications, some of them are as follows:

- Hospitals and Operation theaters
- Cleanrooms and factories for semiconductor manufacturing,
- The food and beverage industry
- Pharmaceutical industry
- Biotechnology industry
- Nuclear power and energy plants
- Telecommunication industry
- Aerospace industry
- Movie theatre industry
- Portable residential air cleaners
- Cleanroom equipments such as biosafety cabinets, laminar air flow hoods etc
- Fume Hoods

**ATHLETE ACTIVATED CHARCAOL** filters are manufactured under strict quality control using best material.

#### **SPECIFICATIONS:**

SIZE: CUSTOMIZED BASED UPON REQUIREMENT

FRAME: GI/ALUMINIUM (BOX TYPE)

FILTER MATERIAL USED: ACTIVATED CHARCOAL PELLETS AND SYNTHETIC NON WOVEN FABRIC.

EFFICIENCY OF ACTIVATED CHARCAOL: iodine adsorption capacity: >800mg/g  
PRE FILTER EFFCIENCY: 90% @ FOR FILTERING OUT 10 MICRON PARTICLES  
DENSITY: 3.9 Kg / sqft activated charcoal

**f. SUCTION STRAINER**



**TYPE** : Wire mesh pleated

**MICRON RATING** : 25 Microns.

**MATERIAL** : Aluminium, Brass, MS, SS.

**CONNECTION** : Any standard Thread inside or out side.

**FLOW / RATE** : 5 - 250 lpm.

**APPLICATION** : Athlete suction filter used for high pressure hydraulic filtration where pump protection is important.



**HYRAULIC FILTER**

**WATER FILTER AND HOUSJNG**



**SPIN ON FILTER**

**TYPE :** Pleated paper.

**MICRON RATING :** Min. 5 Microns.

**MATERIAL :** Mild Steel.

**CONNECTION :** Threaded.

**FLOW / RATE :** 5 - 150 lpm.

**APPLICATION :** Spin on are available in a variety of sizes for lube oil, air fuel and water filtration in heavy diesel engines. They are easy to fit and provide high efficiency and long service life .



## g. FAN FILTERS



### ATHLETE FAN FILTER UNITS

Athlete Fan Filter Units (FFU's) are air-cleaning equipments that provide a continuous supply of bacteria free laminar airflow. These equipments work by treating the dirty air in a given room by continuous recirculation through a high efficiency particulate air (HEPA) filter.

Depending upon the area and level of cleanroom class to be achieved the customer can opt for different sizes and number of equipments. These equipments are highly energy efficient requiring as low as only 85Watts of power in a 2' x 2' unit. Other than this there is no need to build special air supply ducts for these units unless otherwise required, as they have an inbuilt motor/blower assembly for air recirculation. These unit can either be hanged on a wall or ceiling mounted as per requirement. FFU's are totally self-sufficient plug-n-play equipments and only require a source of 230V~ of power supply to operate. These units are very easy to maintain as they have a cassette style rear channel for sliding pre filter and a detachable front panel to easily unscrew the HEPA filters when service is required.

Features:

- Available in standard sizes of 4' x 2', 3' x 2' and 2' x 2' in height of 12". Non standard sizes available on request
- Option of SS 304 (or) SS 316 (or) Aluminium (or) Galvanized sheet steel enclosure with suitable surface finish.
- Option of down stream perforated grille having MOC SS 304 (or) SS 316 (or) Aluminium (or) Galvanized sheet steel with suitable surface finish if needed.
- Replaceable H13 or H14 Mini pleat Hepa Filter and 5 micron Pre filter.
- Facility to measure pressure differential across Hepa Filter.
- Suitable for ceiling suspension or for direct fitment on mezzanine floor.
- Energy efficient reverse centrifugal impeller.
- Dynamically balanced motor and blower for reduced vibration.
- Filtration up to 0.3 microns down to 99.999% efficiency.
- Noise level less than 65 dB.
- Face velocity of 0.45 m/s.
- Acoustic insulation for reduced noise.
- Tested for Air Flow rate, Particle counts, noise level and DOP scan.
- Most suitable for clean room applications involving short project times, and reduced space for installing supply and return ducts above false ceiling.

## 2. AIR PURIFIER



**COMMERCIAL AIR PURIFIERS FOR CLINICS, HOSPITALS**



**COMMERCIAL/HOUSEHOLD USE LARGE CAPACITY PORTABLE AIR PURIFIERS**



**METAL BODY AIR PURIFIERS**



**WOODEN SIDE TABLE CUM AIR PURIFIER**

Air Purifier units are air-cleaning equipments that provide a continuous supply of bacteria free laminar airflow. These equipments work by treating the dirty air in a given room by continuous recirculation through a high efficiency particulate air (HEPA) filter.

Depending upon the area and level of cleanroom class to be achieved the customer can opt for different sizes and number of equipments. These equipments are highly energy efficient and require only 125-200 Watts of power per unit. Other than this there is no need to build special air supply ducts for these units unless otherwise required, as they have an inbuilt motor/blower assembly for air recirculation. These unit can either be hanged on a wall or ceiling mounted as per requirement. FFU's are totally self-sufficient plug-n-play equipments and only require a source of 230V~ of power supply to operate.

These units are very easy to maintain as they have a cassette style rear channel for sliding pre filter and a detachable front panel to easily unscrew the HEPA filters when service is required.

### 3. CLEANROOM EQUIPMENTS

#### a. NEGATIVE PRESSURE SYSTEM FOR ISOLATION ROOM



(CAN BE DESIGNED SPECIFICALLY FOR COVID ISOLATION ROOM)

**The HEPA UNIT** is a portable, self-contained high efficiency particulate air (HEPA) filtration system designed to easily and economically create a negative pressure isolation room that will meet OSHA and CDC TB guidelines.

**The HEPA Filtration Unit** can be used as a positive pressure clean air recirculating system in clinics, waiting rooms, hospital emergency rooms and other confined areas or as a partial or complete exhausting system to create a negative pressure isolation room for possible use with patients known or suspected of having COVID 19, TB, SARS or other infectious diseases.

As a recirculating unit, the HEPA Filtration Unit has a powerful motor/blower that can deliver up to 800 cubic feet per minute (CFM) or 1360 m<sup>3</sup> /hr to provide a large number of room air changes per hour to minimize the spread of airborne diseases to patients and healthcare workers.

**As a negative pressure unit**, the air passing through the HEPA filter is cleansed of 99.99% of particles as small as 0.3 micron and may be exhausted directly to the exterior through a window, or through a wall simply by connecting flexible ducting to the 12 in. (305 mm) collar located on the top of the equipment.

**As a Partial Exhaust system:** Same HEPA filtration unit can be used as a partially exhaust and major recirculation unit. This means that, about 10-20% of the total air can be exhausted into the environment and the rest of the air is recirculated. In this type of setup a negative pressure is created in the room along with hepa filtration in the same area. In layman's terms, it means that although negative pressure is maintained in the room still the unit is able to maintain cleanliness level in the room.

**As a positive pressure system**, the HEPA filtration unit can be optimized to intake required amount of fresh air and mix it in the recirculated air. In a typical clinical (hospital) setup,

where cleanliness levels are of utmost priority positive pressure is maintained in the room using small percentage of fresh air and mixing in the recirculated air.

**As a fresh air filtration unit**, the HEPA filtration unit can be used as a 100% fresh air unit which along with providing clean air, also provides ventilation. This setup is usually designed for households, gyms, shops, showrooms etc.

The HEPA filtration unit consists of high grade H14 mini pleat filters.

**Low Cost Isolation Room:** This system is an easy and economical solution for creating a negative pressure, isolation room. Simply roll the HEPA filtration unit into a standard room, connect flexible ducting to the 6 in. (150 mm) collar on the side of the unit for partial exhaust or to the optional 12 in. (305 mm) flanged collar for total exhaust and vent the purified air to the exterior through a window or wall.

### **Flexible Applications**

The versatile HEPA Filtration Unit can be used as a clean air recirculating unit, a positive pressure unit, a negative pressure unit or as a split system to create both negative pressure and clean air recirculation by simultaneously exhausting some of the air out while recirculating the remainder back into the room.

### **Adjustable Airflow**

With speeds ranging from 300 to 800 CFM (510 to 1360 m<sup>3</sup>/hr),

The HEPA filtration unit provides effective air filtration for a wide variety of room sizes.

### **Room Air Changes Per Hour**

The HEPA Filtration System is capable of providing up to 27 room air changes per hour (ACH) in a typical 15 x 15 x 8 ft (4.5 x 4.5 x 2.4 m) patient room or up to 12 ACH for rooms up to 4,000 cubic feet (113 cubic meters).

### **Working Principle**

Room air, along with airborne contaminants, are drawn into the intake grille at the bottom of the equipment, while the purified air is discharged at the top of the HEPA Filtration Unit, which generates a sweeping air circulation pattern with adequate "reach" to optimize the clean breathing zone for patient and staff.

### **Small and Portable**

The HEPA Filtration unit can be rolled from one room to another and easily fit into areas with limited floor space (Wheels with lock)

### **Simple Maintenance**

Both HEPA filter and prefilter are easily accessible for replacement by authorized personnel.

### **Quiet Operation**

52 dBA on low, 56 dBA on medium and 60 dBA on high speed measured 30 in. (762mm) from face of the unit.

## **Filter**

### **HEPA Filter**

Aluminum Framed HEPA type, with a minimum efficiency of 99.99% @ 0.3 micron, aerosol challenged (zero probed).

Airflow sensor indicates when the filter needs changing. Prefilter

10 MICRON Pre Filter (G5 grade) Washable type Fine Filter

5 MICRON Fine Filter (F8 Grade) Washable type.

## **UV light**

Providing intensity of  $>40 \mu\text{W}/\text{cm}^2$  at HEPA filter surface (hour meter provided for extra charge on request)

## **Airflow Speed Control**

Adjustable airflow speed control from 300 – 800 CFM  $\pm 10\%$ .

## **VIRUS BURN OUT HEATER (OPTIONAL)**

An optional 2KW heater can be installed with controller in the same model (at an extra charge)

## **Filter Health Indicator**

Indicator for HEPA filter is provided. It turns on red when the filter is choked, its green if the filter is healthy

## **Warranty**

1 year against any manufacturing defects

### **b. LAMINAR FLOW HOOD**



**HORIZONTAL**

**VERTICAL**

### c. BIO SAFETY CABINETS



**A2**



**B2**

Bio-Safety Cabinet Class-II (4'x2'x2')

#### **AERO BIOTECH BIOLOGICAL SAFETY CABINET CLASS II**

Working Table SS.304,

Outer Body of SS 304

- Mini Pleat HEPA of 0.3 micron of an efficiency of 99.99% down to 0.3micron glass fiber media
- Pre filter of dry fiber washable type with the frame.
- Air Flow: 100% Exhaust.
- Confirm to international standards FED209 E.
- Statically Balanced motor blower Assembly (Heavy Duty)
- Noise level is very low
- Static pressure Manometer.
- Transparent Front Door
- Vibration is also very low.
- Normal working fluorescent Light.
- U. V. Light 1 x 15/30 watts.
- Sliding Front Door of Acrylic Sheet (Transparent)  
Gas cock

### d. SAMPLING & DISPENSING BOOTH



**e. PASS BOXES**



- f. GARMENT CUBICLE
- g. DYNAMIC PASS BOX

# Certificate of Accreditation

THIS IS TO CERTIFY THAT

**Mr. Vipul Chadha**

Aero Biotechniques  
Room 5, IInd Floor (Alishan Complex), 40 DLF, Kirti Nagar Industrial Area,  
New Delhi 110015  
India

HAS MET THE REQUIREMENTS OF THE  
NSF BIOSAFETY CABINET FIELD CERTIFIER  
ENHANCED ACCREDITATION PROGRAM AND  
HAS BEEN GRANTED FULL ACCREDITATION.



A handwritten signature in black ink, appearing to read 'David Purkiss'.

---

Certificate Number: C0208721 - 01  
Initial Accreditation Date: January 11, 2023  
Expiration Date: January 11, 2028

David Purkiss  
Vice President, Global Water Division

Aero Biotechniques has CTCB-I professional accreditation from UK, London exclusively for performing cleanroom validation.

# CLEANROOM TESTING AND CERTIFICATION BOARD - INTERNATIONAL



**Vipul Chada**

has passed theory and practical examinations in

**CLEANROOM TESTING**

Level attained: **Professional**

Tim Triggs  
Chairman, CTCB-I

Tim Triggs  
Chairman, CCN  
Course Leader



**Date of Issue:** 20th May 2023

**Date of expiry:** 20th May 2028

**Certificate Number:** CCN0750523

This certificate is specific to the above-named candidate. It is not an endorsement of a particular Company.

Aero Biotechniques is an ISO 17025 certified company.



# Certificate of Compliance

This is to certify that the  
General requirements for the competence of testing and calibration laboratories  
of

## AERO BIOTECHNIQUES

at

Room 5, 2nd Floor, (ALISHAN BUILDING) 40 DLF, Kirti Nagar Industrial  
Area, New Delhi-110015, India

has been independently assessed and is  
compliant with the requirements of:

### ISO/IEC 17025:2017

For the following scope of activities:

BSL 3 LAB Validation, BSL 2 Lab Validation, Cleanroom Validation, Operating Theatre Validation, Compressed Air Validation, ISO 14644 / EU GMP Cleanroom Validation, Laminar Air Flow Hood Validation, Biosafety Cabinet Validation, Autoclave Validation, ETO Validation, Temperature and RH Mapping, Particle Count Test, HEPA Integrity Test, Air Velocity and Uniformity Test, Recovery Test, Air Flow Pattern Test, Filter Test and Mask Testing

**Certificate Number: UQ - 2023051596**

Validity of this certificate can be verified at [www.ukcertifications.org.uk/verify](http://www.ukcertifications.org.uk/verify)

Date of Certification	15th May 2023
1 <sup>st</sup> Surveillance Audit Due	14th May 2024
2 <sup>nd</sup> Surveillance Audit Due	14th May 2025
Certificate Expiry	14th May 2026

*Daniel..*  
Authorised Signatory



This certificate is the property of UK Certification & Inspection Limited and shall be returned immediately on request.  
71-75 Shelton Street, Covent Garden, London, WC2H 9JQ, United Kingdom  
Website:- [www.ukcertifications.org.uk](http://www.ukcertifications.org.uk), email:- [info@ukcertifications.org.uk](mailto:info@ukcertifications.org.uk)  
Company No. 11847851

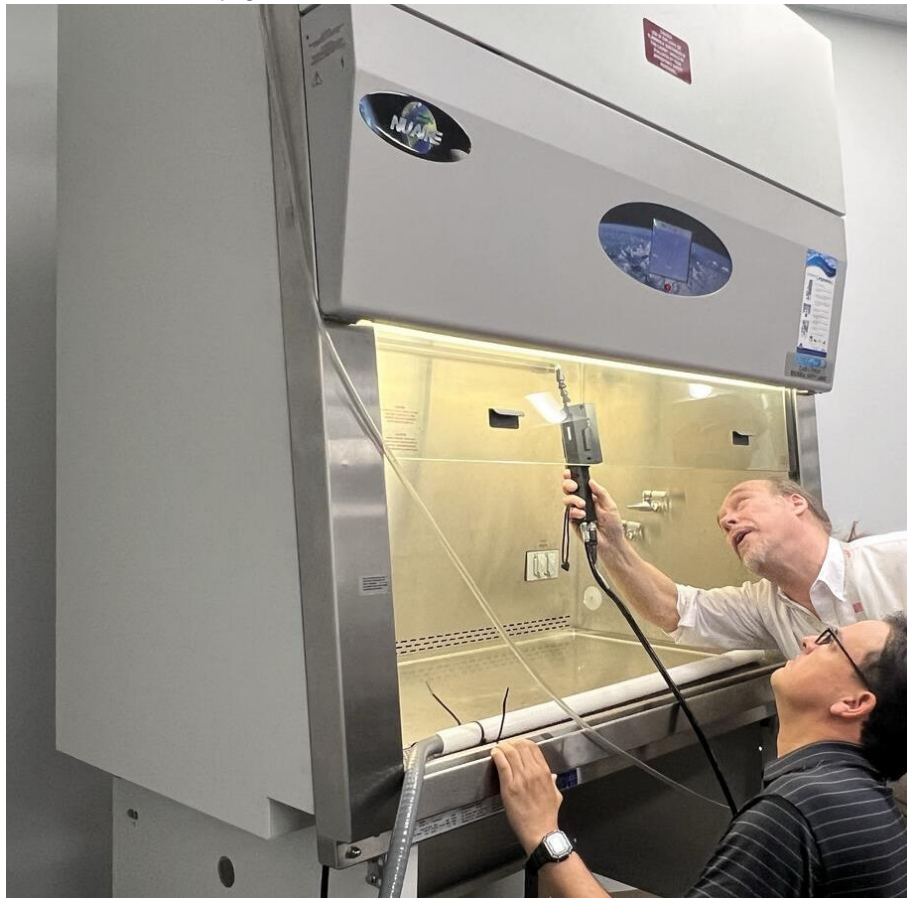


## OUR SERVICES:

### 1. CLEANROOM EQUIPMENT VALIDATION:

#### a. BIOSAFETY CABINET TESTING AND CERTIFICATION

Understanding biosafety cabinet certification requirements is of utmost importance, which is why Aero Biotech offers comprehensive biological safety cabinet testing, certification and maintenance. Our skilled technicians are authorized to perform warranty repairs for all major equipment manufacturers. All biosafety cabinet certification is performed in accordance with established Aero Biotech SOPs, which are updated to remain compliant with federal and international safety guidelines.



Biological safety cabinets (BSCs) are field tested in accordance with NSF/ANSI 49, OSHA, NIH/CDC, and the manufacturer's specifications. Generally speaking, these tests should be conducted whenever the units are installed or relocated. Additionally, this type of testing should be done following any significant maintenance, including the replacement of HEPA filters. NSF 49 also recommends that certifications should take place at least every 12 months, although many applications require BSC certifications to be performed more frequently such as a BSC used in a cGMP environment which would require a semi-annual certification cycle.

Because preventing contamination and inaccurate experiment results is paramount to protecting patients, biosafety cabinet testing and certification should be a regular element of the precautions taken by a laboratory. Our

services can ensure that such testing is successfully completed in accordance with all appropriate standards.

Primary tests performed include:

- Inflow velocity measurements – ensures proper inflow is maintained for operator protection and environmental protection.
- Downflow velocity measurements – documents the air in the work area is unidirectional and functioning as designed, preventing cross contamination, and providing product protection from the environment
- HEPA filter integrity testing – documents leakage or defects and ensures HEPA filters provide required filtration to prevent both product and environmental contamination
- Smoke pattern testing – qualitatively verifies airflow directions using a small source of visible fog
- Site installation testing and alarm calibration – confirms alarm performance and assesses installation of units for NSF and OSHA compliance

Optional tests include:

- Non-viable particle counting – performed in accordance with ISO 14644-1 or EC Annex 1, and provides a quantitative evaluation of air quality in terms of particulate in the work area
- Electrical safety testing – ensures the unit is electrically grounded, limiting the shock risk to end users
- Fluorescent light testing – ensures fluorescent lighting levels are sufficient to prevent operator fatigue
- UV light testing – ensures the UV light operates adequately and provides UVC output for proper exposure calculation
- Pressure decay and cabinet integrity testing – establishes structural integrity and confirms contamination cannot escape through welds, joints or panels
- Vibration testing – ensures product is not subject to damage due to vibration and may be performed in association with troubleshooting
- Sound testing - verifies hood operation/usage will not contribute to worker fatigue/stress and may be performed in association with troubleshooting
- Airflow visualization studies – provides a qualitative identification of appropriate work zones and identifies techniques that could lead to contamination risk

Routine biosafety cabinet certification is vital to the safety of your laboratory technicians as well as the validity of your research. Aero Biotechniques is exclusive in India with NSF49 field certifier, “Mr. Vipul Chadha” is an NSF Accredited service technician.

When it comes to choosing a biosafety cabinet testing company, we are the clear choice. Just one call puts you in touch the most experienced staff in India. Call 9971009830 to schedule services or contact us online for more information.

With every service call, Aero Biotech offers you

- responsive service to minimize downtime
- customized documentation and technical writing services
- softcopy of your reports for review
- Raw data records of more than 5 years
- the assurance of an ISO 9001 certified quality system

## **b. LAMINAR AIR FLOW HOOD VALIDATION SERVICES**

Aero Biotech offers comprehensive, certification and maintenance of unidirectional flow devices (also known as laminar flow hoods or clean benches). Our skilled technicians are authorized to perform warranty repairs for all major equipment manufacturers. All unidirectional flow device testing is performed in accordance with established Aero Biotech SOPs, which we update to remain compliant with applicable local, federal and international certification requirements, current good manufacturing practices [cGMPs], and our own ISO 9001-certified quality system.



Clean bench testing and certification is performed in accordance with applicable guidelines from IEST, ISO, and manufacturers' specifications.

Primary tests include:

- HEPA filter integrity testing - documents leakage or defects and demonstrates that no contamination will enter the work area through the supply filter
- Airflow velocity profile – documents airflow uniformity and demonstrates that the unit is operating at a sufficient velocity
- Non-viable particle counting – performed in accordance with ISO 14644-1 or EU Annex 1 and reports the amount of particulate, if any, within the work zone

Optional tests include:

- Airflow smoke pattern testing – airflow patterns are observed using a neutrally buoyant visible medium to verify unidirectional airflow and to ensure lower quality air does not enter the unit
- Light testing – ensures fluorescent lighting levels are sufficient to prevent operator fatigue and ensures UV lighting is operating adequately
- Vibration testing – ensures product is not subject to damage due to vibration
- Sound testing – verifies hood operation/usage will not contribute to worker fatigue

### c. **PASS BOX VALIDATION**

A dynamic pass box is an active cleanroom device used to transfer materials between different areas of controlled environments without causing contamination. Unlike a static version, it uses an internal air filtration system with a motor and blower, along with HEPA filters, to create a positive pressure environment and maintain cleanliness. These boxes are also equipped with interlocking doors to prevent both from being open at the same time.

Following tests are required to verify a dynamic pass box:

- Air velocity,
- Cleanroom classification using a particle counter
- Filter integrity test
- Smoke test to check for uniform unidirectional airflow
- Verify the door interlock system
- Check the differential pressure gauge

**d. DISPENSING BOOTH VALIDATION**

A dispensing booth is a specialized, controlled enclosure used in industries like pharmaceuticals for weighing, sampling, and dispensing powders and chemicals. It protects the product, the operator, and the environment by using a HEPA filtration system and controlled airflow to prevent contamination and contain dust.

Performance and safety features are validated through a series of following tests:

- HEPA filter integrity test
- Checking Airflow Velocity and Laminarity
- Measuring Exhaust Volume
- Confirming proper Illumination, noise levels, and
- Cleanliness level using a non-viable particle counter

**e. SAMPLING BOOTH VALIDATION**

A sampling booth is a controlled, enclosed space used for safely handling and taking samples of powders and other materials, primarily in the pharmaceutical, chemical, and food industries. It protects the operator from airborne particles, prevents product contamination, and stops dust from spreading to the surrounding cleanroom environment. These booths work by creating a clean, filtered airflow that captures and removes airborne particles.

Performance and safety features are validated through a series of following tests:

- HEPA filter integrity test
- Checking Airflow Velocity and Laminarity
- Measuring Exhaust Volume
- Confirming proper Illumination, noise levels, and
- Cleanliness level using a non-viable particle counter

**f. AIR SHOWER VALIDATION**

An air shower is a specialized enclosure with high-velocity, HEPA-filtered air jets used to remove particulate matter from a person or material before entering a cleanroom or other controlled environment. These systems are crucial for industries like pharmaceuticals, electronics, and food processing to prevent contamination and maintain product quality.

Validating air velocity at nozzles is a major test for this equipment.

**g. ISOLATOR VALIDATION**

A biosafety isolator is a completely enclosed, sealed workspace designed for maximum containment, protecting both personnel and products. It creates a physical barrier using glove ports for manipulation, high-efficiency particulate

air (HEPA) filtration to clean incoming and outgoing air, and either positive or negative pressure to control airflow. This allows for the safe handling of high-risk pathogens or potent compounds while also maintaining sterility for sensitive materials.

These are validated for on following parameters:

- Particle Count test
- HEPA Integrity
- Air Velocity Uniformity
- Air flow pattern
- Noise Level
- Lux Level
- UV intensity
- Vibration
- Integrity

## **2. CLEANROOM VALIDATION**

Cleanrooms are rooms designed, constructed, and operated to control the concentration of airborne particulates within the room. The control of airborne particulate concentrations can be accomplished using engineering controls such as HEPA-filters and airflow design parameters such as unidirectional and non-unidirectional airflow. Cleanrooms can also incorporate additional design considerations such as hazardous particulate containment, temperature/humidity control, and electrostatic discharge (ESD) protection. To verify a cleanroom is performing within operational limits, a certification must be routinely performed to ensure accordance with client, industry, and regulatory specifications.



At AERO BIOTECH, cleanroom testing is performed by our highly qualified technicians in accordance with current good manufacturing practices [cGMP], Institute of Environmental Sciences Technologies [IEST], International Organization for Standardization [ISO], and any applicable customer design specifications.

Our primary cleanroom testing and certification services include:

- Airflow volume/velocity readings – ensures both unidirectional and non-unidirectional flow areas are properly balanced and unidirectional zones are maintaining proper airflow patterns
- Room air exchange rate [RAER] – confirms a proper ventilation rate is being achieved
- Room differential pressure testing – verifies room differential pressures meet design requirements
- HEPA filter testing – detects any defects or damage in the filter media and ensures filters are properly installed by detecting bypass leakage.
- Non-viable particle counting – conducted per ISO 14644 or EU Annex 1, reports the concentration of airborne particulates at a specified size, class limit/grade, and operational status.
- Temperature/relative humidity measurement – confirms whether HVAC controls are functioning properly and uniformly

Optional tests include:

- Airflow visualization studies – qualitatively verifies airflow patterns using a neutrally buoyant visible medium

- Viable environmental monitoring [EM] – performed in both air and on surfaces to determine if any bacterial and/or fungal contamination is present
- Compressed air and gas testing – ensures compressed air and gas systems meet the requirements of the controlled environment, testing includes: non-viable and viable particulate, total hydrocarbon (oil), and dew point determination
- Lighting, vibration, and sound tests – performed to design specifications to ensure worker comfort
- Room recovery testing – performed to determine whether an area is adequately capable of returning to a specified cleanliness level after non-routine exposure events
- Aero Biotech can perform additional testing as specified by client and/or ISO/IAEST guidelines

**Few Cleanroom Types that we validate includes:**

**a. OPERATION THEATRE VALIDATION**

An operation theatre (OT) is a specialized, sterile room in a hospital or healthcare facility where surgical procedures are performed. These rooms are equipped with advanced medical equipment like operating tables, surgical instruments, and anesthesia machines, and are designed with specific features to ensure patient and staff safety, including specialized lighting, ventilation, and strict sterilization protocols. Aero Biotech test OT as per NABH, HTM2025 or JCI standard for air quality.

**b. CLEANROOM VALIDATION**

This primarily include cleanrooms that exist in pharmaceuticals, micro processor manufacturing companies, electronic industry, food packaging companies, aero space industries etc. Validating air quality parameters is the primary goal of the activity and presenting report in compliance to international standard such as ISO 14644, so that it can be used as a pharma regulatory compliance document.

**c. BSL 3 LAB VALIDATION**

A BSL-3 (Biosafety Level 3) lab is a facility for working with pathogens that can cause serious or potentially lethal diseases through inhalation. These labs have enhanced security and engineering controls, such as directional airflow, double-door entrances, and specialized personal protective equipment (PPE). Work is restricted to agents that may pose an aerosol transmission risk, and all experiments are performed inside a biosafety cabinet. Aero Biotech has performed validation in BSL 3 nationally and internationally these include TB labs, IRL (Intermediate Reference Laboratories), Covid testing labs, Clinical microbiology laboratories handling pathogens, Virus Laboratories etc.

**d. BSL 2 LAB VALIDATION**

A BSL-2 lab (Biosafety Level 2) is a facility that handles moderate-risk infectious agents associated with human diseases. These labs require specific safety protocols, including personal protective equipment like gloves and eyewear, restricted access, and the use of safety cabinets for aerosol-generating procedures. BSL-2 labs include features not found in BSL-1 labs, such as hand washing sinks, eyewash stations, and waste decontamination facilities like autoclaves. Aero Biotech validates these labs for air quality and submits reports in compliance with national and international standards.

**e. MICROBIOLOGY LABORATORY VALIDATION**

A microbiology laboratory is a specialized facility for studying microorganisms like bacteria, viruses, fungi, and parasites. These labs are crucial for diagnosing infectious diseases, developing vaccines, and ensuring food and environmental safety. They use equipment such as microscopes, incubators, and culture plates to isolate, identify, and analyze microbes. Aero Biotech specializes in validating such labs and prepare reports in compliance with national and international standards.

**f. PHARMA VALIDATION**

A pharmaceutical company is a business that researches, develops, produces, and markets drugs and medications for human and veterinary use. These companies operate under strict government regulations to ensure the safety and effectiveness of their products, which can include brand-name, generic, and over-the-counter drugs. They play a crucial role in the healthcare sector by creating medicines that help prevent, treat, and cure diseases. Aero Biotech has a vast experience of catering pharma companies for their validation requirements companies like Mankind Pharma and Sun Pharmaceuticals are few of our happy customers.

**g. HVAC VALIDATION**

HVAC validation is a documented process that ensures a heating, ventilation, and air conditioning (HVAC) system is installed correctly and consistently performs as designed to meet specific requirements. This process includes tests for air velocity, airflow patterns, filter integrity, temperature, humidity, and particle counts, especially in sensitive environments like pharmaceutical manufacturing facilities. The goal is to provide documented evidence that the system functions as intended to meet design specifications and regulatory standards. Aero Biotechniques has a vast experience of validating HVAC setup in various companies, companies approach us to get their filters checked or air flow problems or detect other problems which they face. At Aero Biotech our target is to problems, suggest corrections or perform repairs so that the setup works in compliance.

**h. CLEANROOM THERMAL MAPPING**

Cleanroom thermal mapping is the process of systematically measuring and recording temperature distribution within a cleanroom over a specific period to identify hot and cold spots and ensure temperature stability. This is a critical part of quality assurance, particularly in industries like pharmaceuticals, to validate that the cleanroom environment is suitable for storing or manufacturing sensitive products and meets regulatory requirements. Aero Biotech provides datalogging using most accurate sensors available in the industry with 21cfr compliance and reporting as per international standards.

**3. EQUIPMENT VALIDATION**

**a. CO2 INCUBATOR VALIDATION**

CO2 incubator validation is a documented process to ensure an incubator consistently maintains the precise and stable environmental conditions required for cell culture. Aero Biotechniques is equipped with world class incubator CO2 analyzer and temperature and RH datalogger to provide the most accurate validation and calibration in the industry.



**b. AUTOCLAVE VALIDATION**

Autoclave validation is the documented process of confirming that an autoclave consistently sterilizes equipment and materials to the required sterility assurance level (SAL). This involves proving that critical parameters like temperature, pressure, and time are achieved uniformly throughout the load by using a combination of chemical and biological indicators. Validation ensures the autoclave is safe, reliable, and meets regulatory standards like those set by the FDA. Aero Biotech provide complete autoclave validation solution, some of our customers include pharmaceutical and bsl3 laboratories across India.

**c. ETO VALIDATION**

ETO validation (Ethylene Oxide validation) is the documented process of proving that an EO sterilization cycle consistently and reliably kills microorganisms on medical devices and other products, ensuring they meet sterility standards (like ISO 11135) through physical (temperature, humidity, EO levels) and biological (microorganism kill) testing, typically involving Installation Qualification (IQ), Operational Qualification (OQ), and Performance Qualification (PQ) phases. Aero Biotech provide complete ETO validation service solution.

**d. CENTRIFUGE VALIDATION**

Centrifuge validation is a documented process to prove a centrifuge consistently performs as expected for specific applications, ensuring accuracy, quality, and compliance, especially in regulated fields like clinical labs and geotechnical engineering, involving Installation Qualification (IQ), Operational Qualification (OQ), and Performance Qualification (PQ) to check speed, temperature, vibration, and sample integrity (like preventing hemolysis) against set standards. Aero Biotech provide complete validation service for Centrifuge.

**e. COLD ROOM THERMAL MAPPING**

Cold room thermal mapping is the process of placing temperature sensors (data loggers) throughout a cold storage area (like a warehouse, fridge, or freezer) for a set time to record temperature variations, identify hot/cold spots, and ensure the entire space consistently stays within required temperature

ranges, crucial for quality compliance in pharmaceuticals, food, and vaccines. It's a validation step to prove the storage unit's fitness for purpose, ensuring product safety and efficacy. Work is performed as per ISO, WHO and other international standards, at Aero Biotech we provide complete thermal mapping solution.

**f. DEEP FREEZER THERMAL MAPPING**

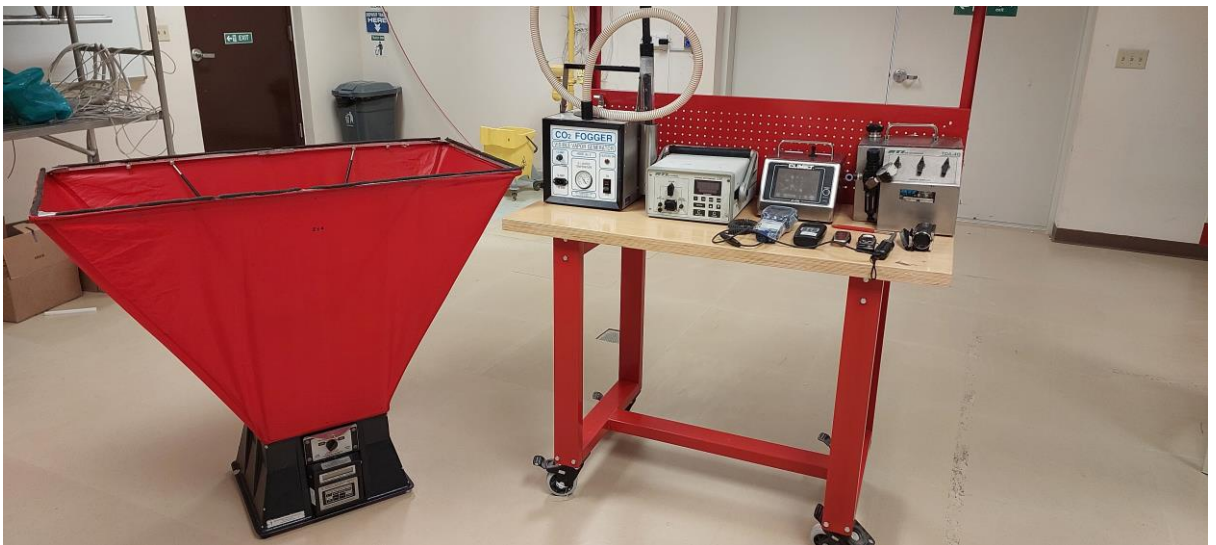
Deep freezer thermal mapping is the process of strategically placing calibrated temperature sensors (data loggers) inside a freezer to measure temperature distribution over time, identifying "hot" or "cold" spots and verifying the freezer consistently maintains precise, uniform temperatures for sensitive items like pharmaceuticals, vaccines, and food, ensuring product safety, quality, and regulatory compliance. It's a crucial part of equipment qualification, involving planning, sensor placement, data collection, analysis, and reporting to prove the freezer's fitness for its intended use. Aero Biotech provide mapping services as per standards like ISO, WHO etc

**4. AIR QUALITY MONITORING & ANALYSIS**

Air quality monitoring is the process of continuously measuring and analyzing pollutants in the air (like PM2.5, ozone, CO, SO2) using sensors and instruments to assess its safety, identify pollution sources, track trends, ensure compliance with standards, and inform actions for public health and environmental protection, both indoors and outdoors. It helps communities understand pollution levels, manage climate impacts, and implement policies for cleaner air. Some of the tests that Aero Biotech provides is as follows:

- a. PM2.5, PM10 & PM1 DUST MONITORING**
- b. NOISE MEASUREMENT**
- c. LIGHT INTENSITY MEASUREMENT**
- d. CO2, CO, VOC, FORMALDEHYDE MEASUREMENT**
- e. BACTERIAL & MOLD AIR SAMPLING**
- f. RADIATION TEST**
- g. TEMPERATURE AND RH MEASUREMENT**
- h. AIR FILTER TESTING**
- i. AIR PURIFIER TESTING**

**5. CLEANROOM TESTS THAT WE PROVIDE**



**a. PARTICLE COUNT TEST / CLEANROOM CLASSIFICATION**

Particle count cleanroom classification defines how clean a controlled environment is by setting limits on the number of airborne particles (like dust, microbes) of specific sizes (e.g., 0.5  $\mu\text{m}$ , 1  $\mu\text{m}$ , 5  $\mu\text{m}$ ) allowed per cubic meter (or cubic foot) of air, with major standards like ISO 14644-1 replacing older ones like Federal Standard 209E, categorizing rooms from very clean (ISO 1/Class 1) to less clean (ISO 8/Class 100,000) for industries like pharmaceuticals, microelectronics, and biotech. Aero Biotech provides particle count testing services, we are equipped with particle counters ranging from 2.83 lpm to 100 lpm.

**b. HEPA INTEGRITY TEST**

A HEPA Integrity Test (or DOP/PAO Test) is a critical procedure to ensure High Efficiency Particulate Air (HEPA) filters are leak-free and functioning correctly, verifying no contaminants pass through tears in the filter media or gaps in the

seals, essential for maintaining sterile or ultra-clean environments like cleanrooms and pharma facilities by using an aerosol challenge (like PAO oil) upstream and scanning downstream with a photometer to find imperfections. Aero Biotech is equipped with aerosol photometers and aerosol generators to provide HEPA integrity testing services. We use PAO (poly alpha olefin oil) to perform the test.

**c. RECOVERY TEST / AHU RECOVERY TEST**

An AHU (Air Handling Unit) Recovery Test assesses a cleanroom's HVAC system's ability to quickly remove a high concentration of airborne particles and return to its specified cleanliness level (ISO standard) after a disturbance, like opening a door or a brief power failure, by measuring the time it takes the AHU to filter contaminants, crucial for industries like pharmaceuticals and biotech. This test confirms the system's efficiency in flushing particles, ensuring rapid restoration of controlled environments, often using an aerosol generator to challenge the system and particle counters to track the clean-up time. Aero Biotech provides recovery testing services as per ISO 14644 standards.

**d. AIR PATTERN TEST / AIR FLOW VISUALIZATION**

An air flow visualization test, or "smoke study," makes invisible airflow patterns visible using tracer particles (like smoke or fog) to show how air moves in a space, crucial for contamination control in places like cleanrooms, ensuring air reaches design points and identifies turbulent or stagnant zones for better HVAC design and validation. Aero Biotech is equipped with CO2 fogger, Water fogger, Glycerol Fogger, Dry ice fogger, Liquid Nitrogen fogger etc to provide this service.

**e. TEMPERATURE RH TEST**

Temperature and RH (Relative Humidity) monitoring is the continuous tracking of heat and moisture in an environment using sensors to ensure conditions stay within specific limits, crucial for quality control, safety, and compliance in industries like food, pharma, data centers, and museums, using systems that log data and send real-time alerts for deviations. Aero Biotech provide monitoring and logging services for temperature and RH.

**f. AIR VELOCITY TEST**

An air velocity test measures the speed and direction of air movement, typically using an anemometer, to assess HVAC performance, ensure indoor air quality, maintain industrial safety (like dust collection), and verify cleanroom standards (like HEPA filter efficiency). This testing confirms air is moving at designed rates for comfort, contaminant removal, and system balance, often measured in feet per minute (FPM) or meters per second (m/s). Aero Biotech is equipped with vel grid, vane type anemometer, Hotwire and pitot tube to cover all the range of velocity testing.

**g. AIR BALANCING**

Air balancing is the process of testing and adjusting a building's HVAC system to ensure heating and cooling are evenly distributed, delivering the right amount of conditioned air (hot/cold) to each room for optimal comfort, efficiency, and air quality, resolving issues like hot/cold spots and saving energy. HVAC technicians use specialized tools to measure airflow (CFM) and tweak dampers, fans, and controls to match the system's design specifications. Aero

Biotech is equipped with capture hood and micro manometers to perform the task in the best professional way.

**h. CONTAINMENT BARRIER TEST**

A containment barrier leak test is a critical quality and safety procedure to check if sealed enclosures (like isolators, cleanrooms, gloveboxes, nuclear containment) have tiny holes or gaps that allow harmful substances (air, radioactive material, contaminants) to escape or enter, often by pressurizing the system and monitoring for pressure drops or airflow changes over time. This non-destructive test ensures operator safety, product purity (e.g., sterility in pharma), and regulatory compliance (GMP, ISO) by verifying the barrier's integrity. Aero Biotech provide barrier leak test as per ISO 14644 standards.

**i. LIGHT INTENSITY**

A light intensity test measures the amount of light (illuminance) in a specific area, typically using a lux meter, to ensure it meets regulatory standards, supports visual tasks, enhances safety, and maintains quality control in environments like offices, cleanrooms, or manufacturing plants, confirming light levels are adequate for comfort and function without being too dim or bright. Aero Biotech provides light intensity testing services using Lux Meter as per ILS standards

**j. UV INTENSITY**

A UV intensity test measures the strength of ultraviolet radiation, either to assess how materials (like plastics, paints, fabrics) degrade under simulated sunlight (UV weathering) or to check the output of UV light sources (like tanning beds, curing lamps) for calibration, ensuring proper disinfection or curing. It can involve using specialized meters to quantify energy (mW/cm<sup>2</sup>) or simple color-changing cards that react to UV light, helping determine UV protection needs or product performance over time. Aero Biotech tests UV intensity of LAF, Biosafety cabinets using a radiometer as per NSF 49 standards.

**k. NOISE LEVEL**

A noise test is a procedure to measure, analyze, and evaluate sound levels in various environments (workplaces, homes, outdoors) using tools like sound level meters to ensure they meet safety, health, and regulatory standards, protecting people from hearing loss and disruption, and identifying problematic noise sources. It helps create comfortable environments by assessing exposure to harmful levels, often requiring action if it exceeds limits (e.g., <90 dB in factories, <45-50 dB in offices). Aero Biotech uses a sound meter to check sound levels in cleanrooms, Laminar Hoods, Biosafety cabinets etc as per international standards.

**l. VIBRATION TEST**

A vibration test is a controlled process that subjects products, components, or structures to simulated real-world shaking (vibrations) to assess their durability, reliability, and performance, uncovering design flaws, weaknesses, or potential failures before market release or during operation, crucial for industries like automotive, aerospace, and electronics. These tests use shakers to apply specific frequencies, amplitudes, and directions to mimic road bumps, transportation stress, or operational wear, ensuring safety and longevity. Aero Biotech provides vibration testing for various applications.

**m. VAIBLE MONITORING / BACTERIA AND MOLD TEST**

Viabile monitoring is the process of detecting and quantifying living microorganisms (like bacteria, fungi) in the air or on surfaces, crucial for quality control in pharma, food, and cleanroom environments to prevent product contamination. It confirms if a contamination risk exists by sampling, culturing, and counting living cells (CFU/m<sup>3</sup>), unlike non-viable monitoring which counts all particles, living or dead. Methods include active sampling (drawing air through a culture plate) and passive (settling plates), with newer technologies offering real-time data for better risk management and faster response to excursions. Aero Biotech offers passive and active air sampling using a air sampler of 100 cfm for pharma and medical applications.

**n. Compressed air and gas testing**

Compressed air purity testing is the standardized process of analyzing compressed air to detect and measure contaminants like water, oil, and solid particles, ensuring it meets specific quality requirements for industrial use, especially in sensitive sectors like food, pharma, and healthcare, to prevent equipment damage, product contamination, and health risks, often following standards like ISO 8573-1. This involves sampling air from the system and checking for these impurities, plus sometimes microbes, to assign a purity class and verify system performance. – ensures compressed air and gas systems meet the requirements of the controlled environment, testing includes: non-viable and viable particulate, total hydrocarbon (oil), and dew point determination.

**Contact Us**

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