



Laboratory Hoods – What's the Difference?

Many research and animal laboratories use containment devices to keep the user separated from the hazards they are working with. These devices are often referred to by many different names including cell culture hood, tissue culture hood, laminar flow hood, PCR hood, clean bench, or biosafety cabinet. An important thing to note, however, is that not all of these devices perform or provide the same level of protection. The common feature is that the equipment provides laminar airflow for a “clean” work area, but not all equipment provides additional personnel or environmental protection. Work involving hazardous agents should always be conducted in an appropriate containment device in order to protect the worker. It is important to understand the safety features of each device and consider their application to your research.

Biological Safety Cabinet

A Biological Safety Cabinet (BSC) is a valuable supplement to good sterile technique and a necessary containment device when working with potentially infectious materials. All BSCs use high efficiency particulate air (HEPA) filters to treat intake and exhaust air. These filtered cabinets are primarily designed to protect against exposure to particulates or aerosols. 70% of the air in most BSCs is recirculated back into the lab through its exhaust HEPA filter. This purifies the air of potentially infectious aerosols and animal dander or bedding but does not reduce exposure to chemicals or gases including waste anesthetic gases such as isoflurane. For further information on BSCs, please [refer to this document](#).

Laminar Flow Hoods (Clean Benches)

A Laminar Flow Hood (LFH), is not a biological safety cabinet. These devices do not provide any protection to the worker. They are designed to provide a sterile environment to protect the product. Air potentially contaminated with infectious agents may be blown towards the worker. LFHs should only be used for work with non-infectious materials such as media preparation. They should never be used with potentially infectious materials, toxins, volatile chemicals, or materials that may cause hypersensitivity to the worker such as animal dander.

Animal Transfer Station

Animal transfer and cage changing stations are portable downdraft-filtered laminar flow benches (clean benches) that have been specifically modified for small rodent handling and cage changing. These stations provide improved laboratory animal allergen control from dust and dander while performing animal husbandry activities. These units are not designated as a biosafety cabinet and should not be used for work with potentially infectious materials, toxins, or volatile chemicals.

Chemical Fume Hood

A fume hood is a ventilated, enclosed workspace intended to capture, contain and exhaust harmful or dangerous chemical fumes, vapors and particulate matter generated by procedures conducted within the hood. No HEPA filtration of either the intake or exhaust air takes place. The air is exhausted outside the laboratory. This makes a fume hood most suitable for chemical use and other work where sterility is not a concern. Fume hoods should be utilized for hazardous drug or chemical preparation and use with waste anesthetic gases such as isoflurane. For further information on fume hoods, please [refer to this document](#).

Laminar Flow Hood (Clean Bench)	Biosafety Cabinet	Chemical Fume Hood	Animal Transfer Station
			
Primarily designed to provide a sterile work environment. Does not provide any protection to personnel or environment.	Primarily designed to protect against exposure to particulates and aerosols from biological agents. Provides product, personnel and environmental protection.	Ventilated, enclosed work space intended to capture, contain and exhaust harmful or dangerous chemical fumes, vapors and particulate matter outside the laboratory.	Primarily designed to provide animal allergen control while performing husbandry operations including, cage changing or animal transfer.
Should only be used for work with non-infectious materials, such as media preparation.	Should only be used for work with infectious agents or for the capture of nuisance dust and allergens from bulk operations such as animal cage changing or dumping	The most suitable choice for chemical use including preparation of hazardous drugs and volatile anesthetic gases used for animal anesthesia and/or euthanasia	Should only be used for husbandry operations with healthy animals that have not been infected with biological agents or administered hazardous drugs.
Never use with: - potentially infectious materials - volatile or flammable chemicals - Waste anesthetic gases including isoflurane	Never use with: - volatile or flammable chemicals - Waste anesthetic gases including isoflurane	Do not use where sterility of the product is a concern.	Never use with: - potentially infectious materials - volatile or flammable chemicals - Waste anesthetic gases including isoflurane