



Keeping the Clean Room Clean

GOAL

1. To acquire skills in keeping the sterile compounding environment clean

BACKGROUND/PERTINENT INFORMATION

Components of Primary Engineering Controls

(Figures 6.1–6.3)

Laminar airflow hood

The laminar airflow hood (LAH) is an open front clean bench that utilizes horizontal airflow. It draws International Standard Organization (ISO) 7 air into its prefilter and pushes it out horizontally through a high efficiency particulate air (HEPA) filter to create ISO 5 conditions within its direct compounding area. The opening features:

- ◆ Two sides.
- ◆ A top for rails and hooks on which to hang supplies.
- ◆ A back that contains the HEPA filter blowing air horizontally.
- ◆ A bottom that is split into two virtual areas.

From the front edge of the bottom surface to 6 inches within is called the 6-inch zone where no compounding must occur. The direct compounding area (DCA) encompasses the rest of the bottom surface and is where compounding takes place.



Figure 6.1

Biological safety cabinet

The biological safety cabinet (BSC) is a Class II partially open type of compounding hood that utilizes vertical airflow. It draws ISO 7 air into its prefilter and pushes it downward through a HEPA filter to create ISO 5 conditions. The BSC is considered partially open due to its Plexiglas front barrier, which is pulled down to cover approximately 75% of the hood opening while compounding takes place. The BSC also features vents in its opening to draw air, maintaining a negative pressure environment within the hood itself so hazardous airborne particles do not escape the opening; this effort is furthered by a HEPA filter used for the air vented from the BSC as well. The BSC does not feature a 6-inch zone like the LAH; rather, its DCA is any area beyond the Plexiglas front and opening vents.

Compounding aseptic containment isolator / compounding aseptic isolator

Compounding aseptic containment isolator / compounding aseptic isolators (CACI/CAIs) are closed cabinets used for limiting airborne exposure of the compounder and surrounding environment through the use of vertical HEPA-filtered air. The cabinet consists of a small chamber featuring a door to the outside of the cabinet in which to place supplies, a pass-through door in this chamber to the DCA, and a HEPA-filtered DCA on the other side of the pass-through. Once the pass-through door is closed, the DCA features:

- ◆ A front with a set of fixed gloves to allow the compounder access to the DCA.
- ◆ A back with shelving that contains compounding supplies.
- ◆ Sides that can be blank or feature a pass-through door.
- ◆ A top where the HEPA filter will supply downward vertical filtered air.
- ◆ A bottom where compounding takes place and provides access to a sealed waste receptacle via a door or port.

Rails and hooks may also be present with the DCA to hang bags and bottles during compounding.

A CACI is different from a CAI primarily by its use of a HEPA-filtered exhaust ventilation system located on/in the bottom of the DCA (much like that of a BSC), which enables compounding of hazardous substances.



Figure 6.2