The Joint Commission

Glossary for the Medication Compounding Certification

active pharmaceutical ingredient (API)

Any substance or mixture of substances intended to be used in the compounding of a drug preparation, thereby becoming the active ingredient in that preparation and furnishing pharmacological activity by direct effect in the diagnosis, cure, mitigation, treatment, or prevention of disease or by affecting the structure and function of the body.

ante-area

An International Organization for Standardization (ISO) Class 8 or cleaner area where staff hand hygiene and garbing procedures and other activities that generate high-particulate levels are performed. The ante-area is the transition area between the unclassified area of the facility and the buffer area. The ante-area is sometimes referred to as an anteroom when solid doors and walls are present.

anteroom

Transition area between the general area and the room containing the primary engineering controls. Hand hygiene, garbing, staging of components, order entry, and other particle-generating activities are performed in the anteroom. For sterile compounding, the anteroom meets International Organization for Standardization (ISO) Class 7 conditions.

aseptic technique

A process by which separate, sterile components (for example, drugs, containers, or closures) are brought together under conditions that maintain their sterility. The components can either be purchased as sterile or, when starting with nonsterile components, can be separately sterilized prior to combining (for example, by membrane filtration or autoclave).

batch

More than one unit of a compounded sterile preparation (CSP) prepared in a single process and intended to have uniform characteristics and quality, within specified limits.

beyond-use date (BUD)

The date after which a compounded preparation should not be used; determined from the date the preparation is compounded.

biological safety cabinet (BSC)

A ventilated cabinet with unidirectional, high-efficiency particulate air (HEPA)-filtered airflow and (HEPA)-filtered exhaust to protect the worker from hazardous drugs. A BSC used to prepare a compounded sterile preparation (CSP) must be capable of providing an International Organization for Standardization (ISO) Class 5 environment for preparation of the CSP.

biological safety cabinet (BSC) class I

A BSC that protects staff and the environment but does not protect the product/preparation. Staff protection is provided at a minimum velocity of 75 linear feet per minute of unfiltered room air drawn through the front opening and across the work surface. The air is then passed through a high-efficiency particulate air (HEPA) and ultra-low penetration air (ULPA) filters either into the room or to the outside in the exhaust plenum, providing environmental protection.

biological safety cabinet (BSC) class II

Partial barrier systems that rely on the movement of air to provide staff, environmental, and product/preparation protection. Staff and product/preparation protection is provided by the combination of inward and downward airflow captured by the front grille of the cabinet. Side-to-side cross-contamination of products/preparations is minimized by the internal downward flow of high-efficiency particulate air (HEPA) and ultra-low penetration air (ULPA) filtered air moving toward the work surface and then drawn into the front and rear intake grilles. Environmental protection is provided when the cabinet exhaust air is passed through HEPA and ULPA filters.

biological safety cabinet (BSC) class III

The Class III BSC is designed for working with highly infectious microbiological agents and other hazardous operations. It provides maximum protection for the environment and the worker. It is a gas-tight enclosure with a viewing window that is secured with locks and/or requires the use of tools to open. Both supply and exhaust air are high-efficiency particulate air (HEPA) and ultra-low penetration air (ULPA) filtered. Exhaust air must pass through a HEPA and an ULPA filter in series before discharge to the outdoors.

buffer area

An International Organization for Standardization (ISO) Class 7 (or ISO Class 8 if using an isolator) or cleaner area where the primary engineering control (PEC) that generates and maintains an ISO Class 5 environment is physically located.

bulk component containers

A conventionally manufactured sterile product for parenteral use that contains many single doses intended for use in a pharmacy admixture program. A pharmacy bulk package may either be used to prepare admixtures for infusion or, through a sterile transfer device, for the filling of empty sterile syringes.

certificate of analysis

A report from the supplier of a component, container, or closure that accompanies the supplier’s material and contains the specifications, results of all analyses, and a description of the material.

chemotherapy glove

A medical glove that meets the American Society for Testing and Materials (ASTM) Standard Practice (D6978-05-2013) for Assessment of Resistance of Medical Gloves to Permeation by Chemotherapy Drugs.

clean room

A room in which the concentration of airborne particles is controlled through directional airflow and high-efficiency particulate air (HEPA)-filtered air supply to meet a specified airborne particulate cleanliness class. Microorganisms in the environment are monitored so that a microbial level for air, surface, and staff are not exceeded for a specified International Organization for Standardization (ISO)-classified space.

closed-system–drug-transfer device (CSTD)

A drug transfer device that mechanically prohibits the transfer of environmental contaminants into the system and the escape of hazardous drug or vapor concentrations outside of the system.

component

Any ingredient used in the compounding of a drug preparation, including any active ingredient or added substance that is used in its preparation.

compounded preparation

A nonsterile or sterile drug or nutrient preparation that is compounded in a licensed pharmacy or other health care–related facility pursuant to the order or anticipation of an order from a licensed prescriber.

compounded sterile preparation (CSP)

A preparation intended to be sterile that is created by combining, diluting, pooling, or otherwise altering a drug product or bulk drug substance. A product produced by reconstituting a conventionally manufactured product for an individual patient strictly in accordance with the directions contained in the approved labeling provided by the product manufacturer is not considered a CSP.

compounder

A professional who meets licensing requirements of his or her state to perform compounding pursuant to a prescription or medication order by a licensed prescriber.

compounding

The preparation, mixing, assembling, altering, packaging, and labeling of a drug, drug-delivery device, or device in accordance with a licensed practitioner's prescription, medication order, or initiative based on the practitioner/patient/pharmacist/compounder relationship in the course of professional practice.
Compounding includes the following:
- Preparation of drug dosage forms for both human and animal patients
- Preparation of drugs or devices in anticipation of prescription drug orders based on routine, regularly observed prescribing patterns
- Reconstitution or manipulation of commercial products that may require the addition of one or more ingredients
- Preparation of drugs or devices for the purposes of or incidental to chemical analysis, teaching, or research (clinical or academic)
- Preparation of drugs and devices for prescriber's office use where permitted by federal and state law

Description of Nonsterile Compounding Categories:

simple: Making a preparation that has a United States Pharmacopeia (USP) compounding monograph or appears in a peer-reviewed journal article that contains specific quantities of all components, compounding procedure and equipment, and stability data for that formulation with appropriate beyond-use dates; or reconstituting or manipulating commercial products that may require the addition of one or more ingredients as directed by the manufacturer. Examples include captopril oral solution and indomethacin topical gel.

moderate: Making a preparation that requires special calculations or procedures (such as calibration of dosage-unit mold cavities) to determine quantities of components per preparation or per individualized dosage units; or making a preparation for which stability data for that specific formulation are not available. Examples include morphine sulfate suppositories, diphenhydramine hydrochloride troches, and mixing two or more manufactured cream products when the stability of the mixture is not known.

complex: Making a preparation that requires special training, environment, facilities, equipment, and procedures to ensure appropriate therapeutic outcomes. Examples of possible complex preparation types include transdermal dosage forms, modified-release preparations, and some inserts and suppositories for systemic effects.

Description of Sterile Compounding Risk Levels:

low-risk: Compounding that starts with sterile ingredients and devices using aseptic technique in an ISO Class 5 or higher quality of air. It must be a simple transfer of not more than three commercially manufactured sterile nonhazardous products from the original containers and not more than two entries into any one sterile container or package (such as a bag or vial).
If sterility testing is lacking, low-risk compounded sterile preparations are stored for a maximum of 48 hours at a controlled room temperature between 20 and 25 degrees Celsius, 14 days at a cold temperature between 2 and 8 degrees Celsius, and for a maximum of 45 days at a freezing temperature between -10 and -25 degrees Celsius. Example includes transferring sterile liquids from manufacturer-sealed packages to sterile containers using sterile devices manipulating up to three manufactured products to create a sterile preparation.

medium-risk: Compounding that starts with sterile ingredients in an ISO Class 5 or higher environment for multiple doses of sterile preparations for administration to either multiple patients or to a single patient. The compounding process uses aseptic technique and more than one transfer.
If sterility testing is lacking, medium-risk compounded sterile preparations are stored for a maximum of 30 hours at a controlled room temperature between 20 and 25 degrees Celsius, 9 days at a cold temperature between 2 and 8 degrees Celsius, or 45 days at a freezing temperature between -10 and -25 degrees Celsius. Example include compounding total parenteral nutrition (TPN) and filling infusion devices with multiple sterile products.

high-risk: Compounding that starts with nonsterile ingredients or nonsterile devices, or exposes sterile

ingredients and devices to air quality below ISO Class 5 for more than one hour; or uses opened containers that are preservative-free and stored in an environment of less than ISO Class 5. If sterility testing is lacking, high-risk compounded sterile preparations are stored for a maximum of 24 hours at a controlled room temperature between 20 and 25 degrees Celsius, 3 days at a cold temperature between 2 and 8 degrees Celsius, and for a maximum of 45 days at a freezing temperature between -10 and -25 degrees Celsius. Examples include compounding a solution that will be terminally sterilized from nonsterile ingredients and manipulating sterile ingredients in a nonsterile device prior to sterilization.

compounding area

A critical area within the International Organization for Standardization (ISO) Class 5 primary engineering control (PEC) where critical sites are exposed to unidirectional high-efficiency particulate air (HEPA)-filtered air, also known as first air.

compounding aseptic containment isolator (CACI)

Designed for compounding sterile hazardous drugs and certified in accordance with Cleaning Equipment Trade Association-Compounding Isolator Testing Guide-002 (CETA-CAG-002). A CACI provides protection from exposure to undesirable levels of airborne drugs throughout the compounding and material transfer processes and provides an aseptic environment with unidirectional airflow for compounding sterile preparations. Air exchanged with the surrounding environment does not occur unless it is first passed through a microbially retentive filter (high-efficiency particulate air (HEPA) minimum) system capable of containing airborne concentrations of the physical size and state of the drug being compounded. Exhaust air from the isolator is removed by properly designed building ventilation.

compounding aseptic isolator (CAI)

An isolator specifically designed for compounding sterile, non-hazardous pharmaceutical ingredients or preparations that shall be certified in accordance with Cleaning Equipment Trade Association-Compounding Isolator Testing Guide-002 (CETA-CAG-002). It is designed to maintain an aseptic compounding environment within the isolator throughout the compounding and material transfer processes. Air exchange into the isolator from the surrounding environment does not occur unless the air has first passed through a microbially retentive filter (high-efficiency particulate air (HEPA) minimum). A CAI is not used for the manipulation of hazardous drugs.

compounding staff

Individuals participating in the compounding process who are competent in, knowledgeable of, and responsible for the preparation of hazardous drugs, using information from Standards MDCED.01 and MDCED.02, the organization’s policies and procedures, and instructions from the compounding supervisor.

compounding supervisor

The individual who is responsible for developing and implementing appropriate procedures; overseeing facility compliance with this chapter and other applicable laws, regulations, and standards; ensuring competency of staff; and assuring environmental control of the compounding areas.

container and closure system

The sum of packaging components that together contain and protect the dosage form. This includes primary packaging components and secondary packaging components, if the latter are intended to provide additional protection.

critical site

A location that includes any component or fluid pathway surfaces (such as, vial septa, injection ports, and beakers) or openings (such as, opened ampules and needle hubs) that are exposed and at risk of direct contact with air (such as, ambient room or high-efficiency particulate air (HEPA)-filtered), moisture (such as, oral and mucosal secretions), or touch contamination.

disinfectant

A chemical agent used on inanimate surfaces and objects to destroy fungi, viruses, and bacteria, but not necessarily their spores.

engineering control

Primary, secondary, and supplemental devices designed to eliminate or reduce worker exposure to a chemical, biological, radiological, ergonomic, or physical hazard, and in the case of compounded sterile preparations (CSPs), to protect the compounded product from environmental contamination. Examples include ventilation controls such as biological safety cabinets (BSCs) or compounding aseptic containment isolators (CACIs), closed-system drug-transfer device (CSTD), retracting syringe needles, and safety interlocks.

eye shields/protection

Tight-fitting goggles that completely cover the eyes, eye sockets, and facial area immediately surrounding the eyes and provide protection from impact, dust, and splashes. Some eye shields/protection will fit over corrective lenses.

hazardous communication labels

Written, printed, or graphic informational elements concerning a hazardous chemical that are affixed to, printed on, or attached to the immediate container of a hazardous chemical or to the outside packaging. For more information, see https://www.osha.gov/Publications/OSHA3636.pdf.

hazardous drug

Any drug identified by at least one of the following six criteria:
- Carcinogenicity
- Teratogenicity or developmental toxicity
- Reproductive toxicity
- Organ toxicity at low doses
- Genotoxicity
- New drugs that mimic existing hazardous drugs in structure or toxicity

hazardous medication waste

Components such as vials, ampules, IV bags, which once held hazardous medications.

high-efficiency particulate air (HEPA) filtration

Dry-type filter in a rigid frame, having a minimum particle collection efficiency of 99.97% for 0.3µm mass-median diameter particles when tested at a rated air flow in accordance with Military Standard (MIL STD) 282 using Institute of Environmental Sciences and Technology (IEST) Standard RP-CC001.5.

integrity test for filters

A test (for example, bubble-point test) performed after the filtration process to detect whether the integrity of a sterilizing-grade filter has been compromised.

International Organization for Standardization (ISO) class

An air-quality classification from the International Organization for Standardization.

isolator

An enclosure that provides high-efficiency particulate air (HEPA)-filtered International Organization for Standardization (ISO) Class 5 unidirectional air operated at a continuously higher pressure than its surrounding environment and is decontaminated using an automated system. It uses only decontaminated interfaces or rapid transfer ports for materials transfer.

label

A display of written, printed, or graphic matter on the immediate container of any article.

labeling

A term that designates all labels and other written, printed, or graphic matter on an immediate container of an article or preparation, or on, or in, any package or wrapper in which it is enclosed, except any outer shipping container. The term “label” designates that part of the labeling on the immediate container.

laminar airflow workbench (LAFW)

A device that is a type of laminar airflow system and provides an International Organization for Standardization (ISO) Class 5 or better environment for sterile compounding. The device provides a unidirectional high-efficiency particulate air (HEPA)-filtered airflow.

manufactured medication product

A pharmaceutical dosage form, usually the subject of a US Food and Drug Administration (FDA)-approved application, and manufactured under current good manufacturing practice conditions. Manufactured medication products are not compounded preparations.

master formulation record (MFR)

A documentation record (recipe) that's includes the following:
- Official or assigned name, strength, and dosage of the preparation
- Calculations needed to determine and verify quantities of components and doses of active pharmaceutical ingredients
- Description of all ingredients and their quantities
- Compatibility and stability information, including references when available
- Equipment needed to prepare the preparation, when appropriate
- Mixing instructions as follows:
 1. Order of mixing
 2. Mixing temperatures or other environmental controls
 3. Duration of mixing
 4. Other factors pertinent to the replication of the preparation as compounded
- Sample labeling information, which should contain the following, in addition to legally required information:
 1. Generic name and quantity or concentration of each active ingredient
 2. Assigned beyond-use date (BUD)
 3. Storage conditions
 4. Prescription or control number, whichever is applicable
- Container used in dispensing
- Packaging and storage requirements
- Description of final preparation
- Quality control procedures and expected results

media-fill test

A simulation used to qualify processes and staff engaged in sterile compounding to ensure that the processes and staff are able to produce compounded sterile preparations (CSPs) without microbial contamination.

multiple-dose container

A container of sterile medication for parenteral administration (specifically, injection or infusion) that is designed to contain more than one dose of the medication. A multiple-dose container is usually required to meet the antimicrobial effectiveness testing criteria.

negative pressure room

A room that is at a lower pressure than the adjacent spaces and, therefore, the net flow of air is into the room.

pass-through

An enclosure with seals on interlocking doors that are positioned between two spaces for the purpose of minimizing particulate transfer while moving materials from one space to another.

personal protective equipment (PPE)

Items such as gloves, gowns, respirators, goggles, face shields, and others that protect individual workers from hazardous physical or chemical exposures.

preservative

A substance added to inhibit microbial growth or to prevent decomposition or undesirable chemical changes.

primary engineering control (PEC)

A ventilated device that provides a prescribed environment for the exposure of critical sites, and when desired, protects workers and the environment from exposure to the compounds under manipulation. PECs used for manipulation of hazardous drugs are designed for containment.

pyrogen-free

A substance lacking sufficient endotoxins or other fever-inducing contamination to induce a febrile or pyrogenic response.

quality assurance

A system of procedures, activities, and oversight that ensures that operational and quality standards are consistently met.

quality control

The sampling, testing, and documentation of results that, taken together, determine that specifications have been met before release of the preparation.

release checks and tests

Testing performed to determine that a preparation meets required quality characteristics.

repackaging

The act of removing a conventionally manufactured sterile product from its original primary container and placing it into another primary container, usually of smaller size.

restricted access barrier system (RABS)

An enclosure that provides high-efficiency particulate air (HEPA)-filtered International Organization for Standardization (ISO) Class 5 unidirectional air that allows for the ingress and/or egress of materials through defined openings that have been designed and validated to preclude the transfer of contamination; generally, not to be opened during operations. Examples of RABS include compounding aseptic isolators (CAIs) and compounding aseptic containment isolators (CACIs).

safety data sheet (SDS)

An informational document that provides written or printed material concerning a hazardous chemical that is prepared in accordance with law and regulation (previously known as a Material Safety Data Sheet [MSDS]).

secondary engineering control (SEC)

Physically defined spaces such as buffer areas and anterooms.

segregated compounding area

A designated, unclassified space, area, or room that contains a primary engineering control (PEC) and is suitable for preparation of Category 1 compounded sterile preparation (CSP) only.

single-dose containers

A container of sterile medication for parenteral administration (that is, injection or infusion) that is designed for use with a single patient as a single injection/infusion. A single-dose container usually does not contain a preservative.

specification

The tests, analytical methods, and acceptance criteria to which a drug substance, drug product, compounded sterile preparation (CSP), component, container-closure system, equipment, or other material used in drug preparation must conform to be considered acceptable for its intended use.

stability

The extent to which a preparation retains, within specified limits and throughout its period of storage and use, the same properties and characteristics that it possessed at the time of compounding.

sterility testing

A documented and established laboratory procedure for detecting viable microbial contamination in a sample or preparation.

sterilization

A process that destroys or eliminates all forms of microbial life (including spores) and is carried out by physical or chemical methods. Steam under pressure, dry heat, ethylene oxide gas, hydrogen peroxide gas plasma, and liquid chemicals are the principal sterilizing agents used in health care settings.

sterilization by filtration

Passage of a gas or liquid through a sterilizing-grade membrane to consistently yield filtrates that are sterile.

terminal sterilization

The application of a lethal process (that is, dry heat, steam, irradiation) to sealed containers for the purpose of achieving a predetermined sterility assurance level (SAL) of greater than 10-6 or a probability of less than one in one million of a nonsterile unit.

unidirectional airflow

Air within a primary engineering control (PEC) moving in a single direction in a uniform manner and at sufficient speed to sweep particles away from the direct compounding area or testing area.

verification

Confirmation that a method, process, or system will perform as expected under the conditions of actual use.