

AAALAC POSITION STATEMENTS

Safety Requirements for Walk-In Cage/ Rack Washers and Bulk Sterilizers

Human fatalities have occurred when operators were entrapped in walk-in cage/rack washers. This Position Statement is intended to help mitigate that risk. Institutions must demonstrate that safety issues related to cage/rack washers and bulk sterilizers are addressed and regularly reviewed. These machines must be risk assessed as part of the occupational health and safety program (OHSP), considering appropriate use of safety equipment (engineering controls and personal protective equipment) and the development of processes and procedures (administrative controls). Trained personnel should regularly evaluate equipment to confirm that safety features function properly.

AAALAC International recognizes that equipment design, usage, and facility operations vary across institutions. At a minimum, the following must be included in a safety plan:

- **Training.** Equipment operators must receive appropriate and timely training to minimize risk. Training must occur before initial use and be reinforced periodically. It should cover equipment-specific safety features, how to de-energize the machine, and escape mechanisms. External signage should identify safety features and activation methods.
- **Entrapment.** The risk of entrapment during operation must be minimized through engineering controls, effective procedures, and personnel training.
- **Emergency shut-off controls.** An emergency shut-off mechanism to de-energize the machine must be present.
 - For bulk sterilizers, emergency stop mechanisms immediately halt the sterilization cycle and initiate processes to place the chamber in a safe mode. Door systems are designed with redundant safety features (mechanical locks, pressure controls) and programmed to remain locked until the chamber returns to atmospheric pressure and a safe temperature, preventing hazardous release of steam and/or pressurized contents. The time from cycle termination to door release varies with chamber size, load, and operating parameters but generally requires several minutes and is never immediate. Operators must rely on pressure indicators and interlocks to confirm the chamber is safe to open.
 - For rack washers, de-energizing means immediate stoppage of water flow and termination of the wash cycle, requiring deliberate reactivation. Safety and egress features inside the washer must be clearly identified, easy to distinguish and accessible.
- **Alternative approaches.** The following may be used individually or in combination instead of a de-energizing mechanism:
 - A lock-out system, requiring active disengagement of the emergency stop mechanism before restart.
 - A buddy system requiring at least two individuals to be present when equipment is being operated, with both verifying no personnel are in the chamber prior to activation.
 - Emerging technologies such as robotic or automated cage wash systems and racks specifically designed to prevent entry into bulk sterilizers.