



UMD Research-Related Boiler or Pressure Vessel Management Program Standard

The UMD Research-Related Boiler or Pressure Vessel Management Program Standard involves state registration and routine recertification for research-related autoclaves and boilers, as required by the **Maryland Department of Labor (MD DLLR)** and completed by an **Authorized Insurance Agency (AIA)**. UMD's current AIA is Liberty Mutual.

The Biosafety team manages compliance for research-related autoclaves and associated boilers and serves as the liaison among MD DLLR, the AIA, and the research departments and/or laboratories responsible for these pressure vessels.

1. Scope of the Boilers or Pressure Vessels

- 1) Autoclaves are pressure vessels that utilize temperature and steam over a period of time to inactivate biological agents
- 2) Boilers are pressure vessels that heat water or generate steam; often located inside an autoclave to provide steam to the autoclave chamber
- 3) All autoclaves over a certain volume and pressure capacity require registration with MD DLLR and the assignment of a **jurisdictional number (MD#)**
 - a. Benchtop autoclaves and portable units rarely require state registration.
- 4) Pressure vessels registered with the state require routine inspections by UMD's AIA.
 - a. Autoclaves require inspection for recertification every 2 years (biannually).
 - b. Boilers require inspection for recertification every year (annually).
- 5) Autoclaves may be exempt from Maryland Law under [COMAR Section 12-903 - Boiler and Pressure Vessel Safety Act](#) in the following situations. See excerpt below:
 - (5) *a pressure vessel that does not exceed:*
 - (i) *5 cubic feet in volume and 250 psig pressure;*
 - (ii) *1 1/2 cubic feet in volume and 600 psig pressure; or*
 - (iii) *an inside diameter of 6 inches with no limitation on pressure;*
 - (6) *a pressure vessel that operates at a working pressure not exceeding 15 psig.*

2. Roles and Responsibilities

2.1 Compliance Officer or Departmental Representative

- 1) Post certificates near units when received from Biosafety team
- 2) Coordinate any repairs as identified by the AIA inspector and relayed by Biosafety
- 3) Designate unit as out of service in the event of failed recertification inspection or necessary maintenance period
- 4) Communicate autoclave status to users
- 5) Notify Biosafety team to coordinate reinspection upon completion of repairs
- 6) Adhere to the *Autoclave Validation Program Standard* for units performing inactivation of biological waste

2.2 Biosafety team

- 1) Coordinate registration inspections with both MD DLLR and AIA upon installation of a unit
- 2) Notify Compliance Officers and Points of Contact of scheduled inspections--new or routine
 - a. Confirm availability of space escort if unit is located behind security barriers
- 3) Facilitate and attend autoclave inspection with AIA and Facilities Management (FM) HVAC representative no more than 90 days prior to unit expiration
- 4) Notify POC in the event a unit fails recertification or needs repairs, including any applicable details relayed by the inspector
- 5) Supply POCs with electronic copies of updated inspection certificates upon receipt from DLLR roughly 1 month after AIA inspection completion

3. Inspection Procedure

The following procedure is completed by the Biosafety team for facilitation of annual and biannual inspections:

1. Communicate to AIA regarding unit expiration timeline and inspection request
 - a. Provide MD#, address, expiration date, and equipment type in advance
2. Notify unit Points of Contact of pending inspection date
 - a. If the space is secured by a card reader, blue diamond, or other security measure, please anticipate a request for access on the day of the inspection
3. Notify [compliance officers](#) of the inspections as well, if they are not already the point of contact for the pressure vessels
4. On the day of inspection, visit each unit with the AIA inspector and FM HVAC representative; maintaining record of units inspected and inspector comments
5. If any defects or deficiencies are identified during the inspection, notify the Point of Contact as soon as possible so they can coordinate repairs

- a. The unit should be visibly and clearly designated as “out of service” until it has been repaired and recertified if the repairs affect functionality
- b. Consider inclusion of a laminated sign to be applied to units under repair
 - i. Available upon request from Biosafety team

4. Documentation

The State provides certificates for the pressure vessels based on reports that the inspector sends. These are mailed directly to the Biosafety team and take about one (1) month post-inspection to arrive.

1. Each autoclave and boiler will have their own individual MD# and inspection certificate from Maryland’s Chief Boiler Inspector
 - a. Most autoclaves contain a boiler within their unit, but not all; some are supplied by building steam
 - b. Autoclave registration numbers include the letters ‘MD,’ followed by 6 numerical digits, and the letter ‘V’ at the end
 - i. Ex: **MD123456V**
 - c. Boiler registration numbers include the letters ‘MD,’ followed by 6 numerical digits, and no letter at the end
 - i. Ex: **MD789123**
2. If any certificates are missing, please contact autoclave@umd.edu with the MD#, building#, and room# of the unit
3. Once the certificates arrive, the Biosafety team will scan them and make digital copies
 - a. Digital copies will be disseminated to campus POCs to be printed and posted
 - b. If you lack printing capabilities, please notify Biosafety and we will post a copy
4. Check SciShield and update the equipment expiration date accordingly

5. New or Relocated Pressure Vessels

- 1) Notify the Biosafety team when plans are made to install a boiler and/or autoclave for use by research labs
- 2) Biosafety team will work with you to complete a [Notice of Installation of a Boiler or Pressure Vessel](#) form from the [MD DLLR website](#) for submission to the Chief Boiler Inspector
 - a. This is requested by MD DLLR at least 30 days prior to installation
- 3) Biosafety team will coordinate an initial inspection with the AIA (Form NB-5)
- 4) Upon completion of AIA inspection, the Biosafety team will contact the Chief Boiler Inspector about assigning an MD#
- 5) The inspection results will be processed by MD DLLR and certificates will be mailed out upon passing

- 6) Installation is considered complete when the certificate is received and posted near unit
- 7) If installing a boiler alongside the autoclave, be sure to acquire a copy of the CSD-1 (Controls and Safety Devices for Automatically Fired Boilers) from the installation company for your records
 - a. The installation company should have submitted a copy to MD DLLR
 - b. Submit a copy to autoclave@umd.edu if not yet submitted to MD DLLR

6. Contacts and Links

UMD Autoclave Informational Resources

General Autoclave Safety

<https://essr.umd.edu/who-we-are/research-safety/biological-safety/autoclaves>

Autoclaving Procedures

<https://essr.umd.edu/about/research-safety/biological-safety/autoclaves/autoclaving-procedures>

Autoclave/Steam Generator Installation Requirements

<https://essr.umd.edu/who-we-are/research-safety/biological-safety/autoclaves/autoclave-steam-generator-installation>

UMD Biosafety Contacts

autoclave@umd.edu *For autoclave specific questions*

biosafety@umd.edu *For general biosafety questions*

ESSR: 301-405-3960

MD DLLR Boiler/Pressure Vessel Safety links

MD DLLR Boiler and Pressure Vessel Safety - Safety Inspection

<https://www.dllr.state.md.us/labor/safety/boil.shtml>

MD DLLR Forms - Boiler and Pressure Vessel Safety

<https://www.dllr.state.md.us/labor/safety/boilforms.shtml>

To report a boiler or pressure vessel accident to MD DLLR, call: 410-767-2333