Biological Risk Management and Containment

Calibration, Testing and Certification of Containment Equipment

Monitoring and Measuring Performance

Containment Laboratory Reference

Version 2- February 2021

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This document was originally Version 1 which was extensively reviewed and approved in February 2021.

Record of Amendments to Version 2

Date	Page number	Nature of amendment

Contents

1. Who is this reference document for?

This document is intended for **principal investigators (PIs), designated persons in charge, designated laboratory person (DLPs)**, technical staff and students who require access to laboratories within University of Auckland containment and transitional facilities.

2. Biological safety cabinets (BSCs)

2.1 Testing and calibration of BSCs

BSCs at the University are tested annually against the relevant Standard appropriate for the BSC. These standards include Australian/New Zealand standard (AS/NZS), European or National Science Foundation (NSF) testing procedures. Testing is performed by an International Accreditation New Zealand (IANZ) accredited testing company.

BSCs are to be tested as soon as possible after being moved. BSCs are not to be used if they do not have current certification.

3. Autoclaves

In the University we have multiple types of autoclaves. For the BRMC purpose, we only refer to the ones used for waste decontamination. The autoclaves (mostly the benchtop type) that are used for glassware sterilisation or other purposes do not have to meet all the requirements below, but they still need appropriate maintenance as defined by the Machinery and Plants safety protocol.

3.1 Safety testing of autoclaves

Autoclaves are tested annually under the requirements of the Pressure Equipment, Cranes and Passenger Ropeways Regulations 1999, and receive a safety test certificate. Testing is performed by an IANZ-accredited testing company. The safety test certificate is to be posted beside the autoclave. For more information, please refer to the guidelines *Autoclave Usage for Biohazardous Waste.*

3.2 Autoclave temperature probe calibration

Autoclave temperature probes are calibrated annually, and calibration certificates are to be retained as part of approved autoclave documentation.

3.3 Autoclave prevacuum testing

Helix tests are to be undertaken on a weekly basis for all prevacuum autoclaves as per the instructions in *Autoclave Usage for Biohazardous Waste*. The results are to be documented in a folder beside the autoclave. See Appendix 1 for a suggested format for recording these results.

Where biological indicator tests are run on a weekly basis, prevacuum testing is not required.

3.4 Biological indicator testing

Bio-indicator tests are to be performed monthly at a minimum as per the instructions outlined in *Autoclave Usage for Biohazardous Waste.* Biological indicators are to use an accredited biological indicator containing > 10^5 *Geobacillus stearothermophilus* spores. The test kits may either be configured for rapid results (i.e. 3M Attest 1292) or use conventional indicator systems (i.e. Attest 1262). Documentation of test results is to indicate the type of bio-indicator test used, the lot of indicator and the incubation times used.

The results are to be documented in a folder beside the autoclave. See Appendix 1 for a suggested format for recording these results.

4. Room Pressure

Testing and calibration of directional airflows, negative pressure and air pressure gauges

4.1 PC2 Laboratories

Directional airflows into PC2 laboratories are verified at the time of monthly laboratory inspection by designated persons in charge. Verification can be undertaken with the

use of a simple tell-tale (strip of tissue) and recorded as a simple yes/no for directional airflow.

Measurement of speed of airflows in each entrance can be estimated using a wire anemometer (a device used for measuring the speed of wind), although this is not mandatory.

Where magnehelic gauges* are present, the readings should be documented on monthly lab inspection result sheets.

4.2 PC3 Laboratories

Where pressure differentials are critical for containment (i.e. in a PC3 laboratory), magnehelic gauges are to be calibrated and tested by an IANZ-accredited supplier at two-year intervals.

* A magnehelic gauge is an instrument that measures the static pressure in a heating, venting and cooling or HVAC system.

5. Definitions

Designated laboratory person (DLP) means the trained person in each research group who has been given the authority to receive purchase requests made in SciTrack and to make a formal request for a purchase order via PeopleSoft. In containment and transitional facilities DLPs will have additional training to enable them to scrutinise documentation for restricted items and provide support to researchers.

Designated person in charge means a staff member in any of the following roles: sector manager, facility manager, floor manager, technical manager or an appointed delegate.

Principal Investigator (PI): In the context of hazard containment and transitional facilities, a principal investigator is the holder of an independent grant administered by the University and the lead researcher for the grant project, usually in the sciences, such as a laboratory study or a clinical trial. The phrase is also often used as a synonym for "head of the laboratory" or "research group leader." The PI is responsible for assuring compliance with applicable University standards and procedures, and for the oversight of the research study and the informed consent process. Although the PI may delegate tasks, they retain responsibility for the conduct of the study.

6. Appendix 1: Autoclave Validation

Month:

Autoclave: **Location:**

Weekly Helix Test

To be undertaken on first run at the beginning of each week

					Pass/fail
Week 1	Date		Time		
Week 2	Date		Time		
Week 3	Date		Time		
Week 4	Date		Time		

Bio-indicator

To be undertaken at a minimum of once per month. Please refer to the *Autoclave usage for Biohazard waste* guideline for more information

Manufacture and type:

Lot # **Expiry:**

Date: **Time:**

Autoclave cycle type (waste, dry, liquid):

Approximate position in load:

Class 6 indicator (pass/fail):

	Incubation start time	Incubation finish time	Positive Growth	Negative Growth
Sample BI				
Positive control BI				

Result (pass/fail):