

# Autoclave Validation

## 1. Purpose

The purpose of this document is to provide guidance to those using biological indicators (SAP# 3000011990) to test their autoclave.

## 2. Scope

This document applies to all research spaces within the KAUST campus and Innovation Cluster.

## 3. Procedure

All autoclaves that are being used for sterilization of laboratory supplies and/or biological wastes are required to have a **monthly** biological indicator test. While indicator tape is widely used, it only indicates if the autoclave has reached the desired temperature. The biological indicator test is the best way to ensure that the autoclaves on campus continue to work properly and reach and keep the proper temperature and pressure to sterilize the laboratory materials.

### 3.1. Testing procedure

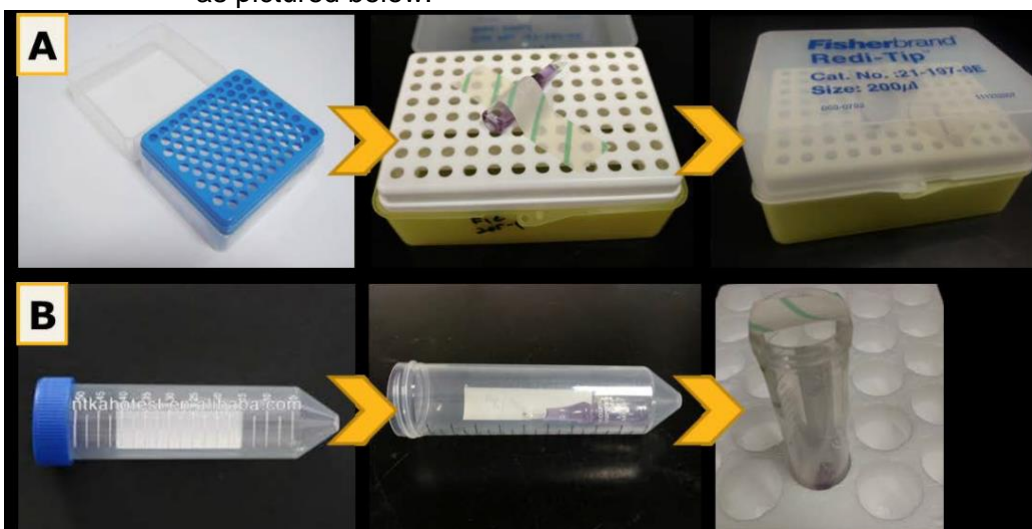
3.1.1. Retrieve two biological indicator tubes from the package.

3.1.2. Label the tubes appropriately.

- One tube will be the **control** and will not be autoclaved.
- One tube will be **tested** and placed into the autoclave.

3.1.3. Perform the following procedures on the **test** tube.

- Place the testing tube on its side inside a pipet tip box or 50 mL conical tube as pictured below.



Option A: Obtain a pipet box -> Place biological indicator and keep in place with autoclave tape -> Close the lid

Option B: Obtain a 50 mL conical tube -> Place biological indicator inside tube -> Place autoclave tape across the top

- b. (Dry Cycle) Place the container with the biological indicator underneath the bag being autoclaved. (For glassware, the container can be placed alongside the other glassware/containers).

OR

- b. (Liquid Cycle) Place the container with the biological indicator alongside other containers that would typically be in this cycle.

3.1.4. Once the cycle has finished and cooled, retrieve the tested tube.

3.1.5. Incubate both the **tested** and **control** tube at 55°C – 60°C for up to 48 hours.

### 3.2. Interpreting Results

If spores have survived the autoclave process then their growth will produce a color change in the media from purple to yellow. Record the results of the test on the autoclave testing log.

3.2.1. After 24 hours

- a. If the media of the **control** tube turns yellow, continue to c. and d. below.
- b. If the media of the **control** tube stays purple = Test Indeterminate. Check the temperature of the incubator, also check the expiration date of the biological indicator. Correct the issue and repeat the test.
- c. If the media of the **tested** tube turns yellow = Test Failed (spores were not killed).
- d. If the media of the **tested** tube stays purple = Presumptive Pass (continue to incubate another 24 hours).

3.2.2. After 48 hours

- a. The media of the **tested** tube is still purple = Test Passed (All spores were killed).
- b. If the media of the **tested** tube turns yellow = Test Failed (spores were not killed).

### 3.3. Failed Tests

3.3.1. Place a sign on the autoclave to prevent others from using it.

3.3.2. Verify the settings of the cycle, check the expiration date of the biological indicator and perform the test again two more times.

- a. If the two tests pass then you can continue to use the autoclave normally.
- b. If one or more of the tests fail then discontinue use of the autoclave and put in a ticket through **Lab Equipment Maintenance**.

Contact [hse@kaust.edu.sa](mailto:hse@kaust.edu.sa) if you have any questions.

## Document History

REV	DATE	PREPARED BY	DESCRIPTION
01	Apr 2019	Lamont Jones	New document
02	Jul 2019	Rodion Gorchakov	Template change. Update in reference of biological indicator type
03	Oct 2020	Lamont Jones	Addition of SAP number. Edit of handling procedure.
04	Oct 2023	Rodion Gorchakov	Update contact email