

**LABORATORY OF FOREST PRODUCT CHEMISTRY
AND RENEWABLE ENERGY
FORESTRY FACULTY MULAWARMAN UNIVERSITY**

PROTOKOL 004



STANDARD OPERATING PROCEDURES

Merk:

Type:

Date:

Title: How to Use an Autoclave

Created by:

Files:

1. OBJECTIVE

To provide clear instructions for the correct, effective, and efficient use of an autoclave.

2. PRINCIPLE

An autoclave is a device used to sterilize tools (glassware, metal) from microbial contamination using hot steam.

3. REQUIRED EQUIPMENT

Laboratory coat, clean cloth/tissue, gloves.

4. PROCEDURE

4.1. EQUIPMENT SETUP

- 4.1.1 Fill water to the designated level;
- 4.1.2 Close and lock the autoclave lid;

4.2. USE OF AN AUTOCLAVE

- 4.2.1 Connect the autoclave cable to a power source;
- 4.2.2 Set the temperature by adjusting the temperature control knob;
- 4.2.3 Turn on the power;
- 4.2.4 Wait until steam appears, indicating that the autoclave has heated up/started boiling;
- 4.2.5 Close the steam release valve and allow the pressure to increase until reaching 121°C;
- 4.2.6 Maintain a temperature of 121°C for 15 minutes;
- 4.2.7 Turn the temperature control knob to zero and turn off the autoclave;
- 4.2.8 Open the steam release valve and wait until the pressure decreases.

4.3. END THE USE OF AUTOCLAVES

- 4.3.1 Disconnect the power source once sterilization is complete;
- 4.3.2 Unlock and open the autoclave lid;

4.4. ATTENTION

- 4.4.1 **Be cautious of the hot steam when opening the autoclave and avoid standing too close;**
- 4.4.2 **Ensure the water level is maintained at the designated level and does not run dry;**
- 4.4.3 **Use tongs or hand protection when removing sterilized items.**

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Validated by :