

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

PROTOKOL 002



STANDARD OPERATING PROCEDURES		
Merk: Gerhardt	Type:	Date:
Title: How to use a Vacuum Oven		Created by: Irawan W. Kusuma
		Files:

1. OBJECTIVE

Provide instructions for using vacuum instruments correctly, effectively and efficiently

2. PRINCIPLE

A vacuum oven is a tool used to remove solvent from samples until they dry properly by minimizing damage to the extract because it does not use high temperatures.

3. REQUIRED EQUIPMENT

Lab coat, mask.

4. PROCEDURE

4.1. TOOL SETTINGS

- 4.1.1 Make sure the vacuum oven is connected to the vacuum pump;
- 4.1.2 Opening the vacuum oven door panel can only be done when the pressure shows zero.

4.2. IMPLEMENTATION OF SAMPLE DRYING

- 4.2.1 Before opening the door panel, release the pressure in the oven vacuum by turning the pressure release knob to the left until the pressure gauge shows zero;
- 4.2.2 Open the oven vacuum door panel by moving the lever
- 4.2.3 Place the sample bottle, covered with aluminum foil with small holes, on the rack inside the vacuum oven;
- 4.2.4 If the sample is in an oil or partially liquid form, place the sample bottle inside another container to prevent tipping;
- 4.2.5 Close the vacuum oven door panel and move the locking lever until the door is tightly sealed and airtight;
- 4.2.6 Open the air valve connecting the vacuum oven hose to the pump hose;
- 4.2.7 Turn on the vacuum pump by moving the on/off switch;
- 4.2.8 Close the valve/air tap when the pressure gauge shows 600-800 bar;
- 4.2.9 Turn off the pump by switching the on/off switch;
- 4.2.10 If necessary, low temperature can be activated by adjusting the temperature control knob;
- 4.2.11 Using a vacuum oven generally requires 24 hours or more;
- 4.2.12 Remove the sample from the vacuum oven once it is adequately dried.

4.3. ENDING THE USE OF ROTARY EVAPORATORS

- 4.3.1 When not in use, release the pressure in the vacuum oven and disconnect its power cable,
- 4.3.2 Clean the workspace and sample racks if no further drying activities are planned. Perform regular weekly cleanings to remove any remaining extracts and other debris.

4.4. ATTENTION

- 4.4.1 Certain types of samples are susceptible to damage if exposed for long periods. Remove the sample from the vacuum once drying is complete to minimize the risk of extract degradation;
- 4.4.2 Low-temperature settings in the vacuum oven should only be used if the extract being dried contains water or other solvents that are difficult to evaporate;
- 4.4.3 Prolonged use of high temperatures (> 40°C) may lead to extract degradation.

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Validated by :