

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

PROTOKOL 003



STANDARD OPERATING PROCEDURE		
Merk: Eyla	Type:	Date:
Title: How to use a Rotary Evaporator		Created by: Irawan W. Kusuma
		Files:

1. OBJECTIVE

To provide instructions for the correct, effective, and efficient use of the rotary evaporator instrument.

2. PRINCIPLE

A rotary evaporator is a device used to separate solvents from samples efficiently and gradually through the use of a vacuum suction, heating bath, and rotating rotor.

3. REQUIRED EQUIPMENT

Laboratory coat, safety glasses, clean cloth/tissue.

4. WORK INSTRUCTIONS

4.1. TOOL SETTINGS

- 4.1.1 Connect the cables from the *water bath*, aspirator and *cool ace water circulator* to a power source;
- 4.1.2 Press the on/off switch on the Cool Ace water circulator to turn it on. Set the water temperature to 10°C by pressing the set button and arrow buttons on the front panel;
- 4.1.3 Open the water flow tap located at the top of the *cool ace water circulator*;
- 4.1.4 Turn on the aspirator by moving the on/off lever on the top;
- 4.1.5 Turn on the water bath by pressing the on/off switch and set the water temperature according to the type of solvent to be evaporated (refer to the solvent type, temperature, and pressure list on the side of the rotary evaporator);
- 4.1.6 Turn on the rotary evaporator by pressing the on/off switch. Ensure that the solvent reservoir tube is properly installed and that water is flowing from the Cool Ace water circulator.

4.2. SAMPLE EVAPORATION PROCEDURE

- 4.2.1 Adjust the position of the rotary evaporator arm so that the sample tube is sufficiently above the heating bath;
- 4.2.2 Attach the sample tube to the rotary evaporator arm and secure it with a clamp. Use a bubbling trap flask if necessary;
- 4.2.3 Lower the rotary evaporator arm until the sample tube is halfway submerged in the water bath;
- 4.2.4 Set the rotary speed according to the type and amount of solvent (level 1-10) by adjusting the rotation speed control knob;
- 4.2.5 Adjust the vacuum opening by turning the valve at the end of the condenser according to the type of solvent being used;
- 4.2.6 When evaporation is complete, open the vacuum valve until the pressure reads zero, stop the rotary rotation, and raise the rotary arm until the sample tube is above the water level in the bath;
- 4.2.7 Detach the sample tube from the rotary arm.

4.3. ENDING THE USE OF ROTARY EVAPORATORS

- 4.3.1 When not in use, turn off the aspirator, *rotary evaporator*, *water bath* and *cool ace water circulator* and disconnect the cables from the power source;
- 4.3.2 Clean the work area, aspirator, rotary evaporator, water bath, and Cool Ace to remove any residual solvents, samples, and other debris.

4.4. ATTENTION

- 4.4.1 Some types of samples and solvents are prone to bubbling (over-pressurization), so ensure that the equipment settings are appropriate for the type of sample and solvent;
- 4.4.2 Rotary evaporation should not be conducted without supervision;
- 4.4.3 The work area and rotary evaporator should always be kept clean before and after use.

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Validated by :