1. STANDARD OPERATING PROCEDURE

Use this form to document the Health & Safety information associated with the procedure.

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| --- | --- |
| **Procedure Title:** | Rotary Evaporators |
|  |  |
| **Dept:** |  |  | **Bldg/Rm:** |  |  | **Supervisor:** |  |

**Procedure Overview:** (brief description of the project)

 1. To outline safe use of the rotary evaporators

 2. To give guidelines on day to day use and maintenance

**Hazard Control Measures:**

(Lab coat, eye and hand protection, and closed toe/heel shoes must be selected as required by Section D of the ISU Laboratory Safety Manual.)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **[ ]**  | **Latex gloves** | **[ ]**  | **Insulated gloves** | **[ ]**  | **Face Shield** | **[ ]**  | **Respirator** |
| **[x]**  | **Nitrile gloves** | **[x]**  | **Safety glasses** | **[x]**  | **Lab Coat** | **[ ]**  | **Fume hood** |
| **[ ]**  | **Neoprene gloves** | **[ ]**  | **Vented goggles** | **[ ]**  | **Apron** | **[ ]**  | **Biosafety cabinet** |
| **[ ]**  | **Vinyl gloves** | **[ ]**  | **Splash goggles** | **[ ]**  | **Dust mask** | **[ ]**  | **Glove box** |
| **[x]**  | **Closed Toe/Closed Heel Shoes** | **[ ]**  | **Flame Resistant Lab coat** |

**Safe Use:**

1. The rotary evaporators operate under vacuum and should be treated as any other vacuum

glassware.

1. The baths are electrically heated. They should neither be overly full nor allowed to run dry.

Make sure you do not leave them on for extended periods when the machine is not in use.

1. Be sure to use clamps to hold your flasks onto the joints. This will prevent spills in case of loss of vacuum.
2. If using a vacuum pump – ensure that it is appropriate for the task. Ensure that it is adequately ventilated; there should be two hoses attached. Oil-mist filters are NOT a substitute for ventilation – they do not filter out volatiles.
3. If you are using the vacuum pump, be absolutely sure the traps are filled with dry ice/acetone or

liquid nitrogen. Use dry ice/acetone for the condenser.

 5. Minimum safety devices: gloves, safety glasses, lab coat.

**Normal use and maintenance:**

 1. Do not overfill flasks. A *maximum* of half the capacity of the flask is suggested. You should especially use a larger flask with foaming solvents, such as benzene and toluene.

 2. Make sure the cooling water is on or that there is dry ice in the condenser. In the following instructions, substitute “vacuum pump” for aspirator where appropriate.

 3. Attach the flask with the jack lifted so that the flask is out of the bath and adjust the position of the bath.

 4. Turn on the aspirator and close the valve at the top of the condenser.

 5. Lower the flask into the bath. When the solvent has been evaporated, raise the flask, stop its spinning, open the valve, allow most of the vacuum to dissipate, and stop the aspirator...IN THAT ORDER.

 6. When you are finished, turn off the cooling water and the electricity for the bath and the motor.

 7. You MUST dispose of the condensed solvent safely. This means adding it to the organic waste containers.

 8. You MUST leave the roto-vaps clean and ready for use by the next person. Always clean and return the bump traps and check the glass sleeve and condenser. When they are dirty, you must clean them. Remember: the stuff that got up in there is probably your product!

**Using Substances Requiring Special Procedures?** No [x]  Yes [ ]

(If Yes; identify authorized personnel, designate a use area and specify specialized safety precautions here. Refer to Section B in the ISU Laboratory Safety Manual for details.)

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| **Written By:** |  |  | **Date:** |  |
|  |  |  |  |  |
| **Approved By:** |  |  | **Date:** |  |

 (PI or Lab Supervisor)

1. **HAZARD ASSESSMENT**

Use the hierarchy of controls to document the hazards and the

corresponding control measure(s) involved in each step of the procedure.

Consider *elimination or substitution* of hazards, if possible.

*Engineering Control(s):* items used to isolate the hazard from the user (i.e. fume hood, biosafety cabinet).

*Administrative Control(s):* policies/programs to limit the exposure to the hazard (i.e. authorizations, designated areas, time restrictions, training).

*Required PPE*: indicate PPE including specific material requirements if applicable (i.e. flame resistant lab coat, type of respirator or cartridge).

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| --- | --- | --- | --- |
| **Hazard** | **Engineering Control(s)** | **Administrative Control(s)** | **Required PPE**  |
| ***Heat transfer causing burn*** |  | ***Site specific training*** | ***Insulated gloves*** |
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1. **Training Record**

Use the following table to record the training associated with this Standard Operating Procedure.

|  |  |  |
| --- | --- | --- |
| **Print Name** | **Signature** | **Date** |
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**Note: Attach to or file with written materials and methods**