Uranyl Acetate/ Nitrate/ Formate Information Sheet

Uranyl acetate, uranyl nitrate, and uranyl formate are water-soluble uranium compounds used as high-contrast stains in electron microscopy. Uranyl stains are both toxic and radioactive. Radiation Safety and Environmental Health and Safety regulate the use of these compounds to maintain compliance with Federal, State, and University regulations.

Reminders:

1. A permit must be acquired before beginning Uranyl staining.

2. Each user must be authorized by Radiation Safety prior to beginning lab work. Additionally, all users must complete annual radiation safety training.

3. Approval from Radiation Safety is required each time uranyl compounds are purchased.

4. Uranyl compounds must be secured so that only trained and authorized users have access (this includes locking all materials in a lockbox).

5. Uranyl compounds may only be used in the locations specified in the permit. All spaces must have 'Caution Radioactive Materials' posted on the door. All equipment and work surfaces where Uranyl compounds are manipulated must be labeled as radioactive.

6. A comprehensive inventory of uranyl compounds must be maintained. Inventory entries must reflect each time a quantity (mass or volume) is removed from the container.

7. Uranyl waste must be disposed of as both toxic and radioactive waste. Uranyl waste may not be mixed with any other waste types.

8. Due to the internal hazards, users must vigilantly maintain lab hygiene.

9. All labs using uranyl compounds will be inspected on a quarterly basis. Any areas of non-compliance must be corrected with 15 days of notice.

To mitigate hazards and reduce waste disposal costs labs are advised to consider alternatives to Uranyl stains. The following list contains high contrast electron microscopy stains that may be used in place of uranyl stains:

1. **URANYLESS / UAR REPLACEMENT STAIN**
2. **PLATINUM BLUE**
3. **OTE STAIN**