Dartmouth College

Essential Information on Uranyl Acetate

Hazard Overview:

Naturally occurring radioisotopes such as uranium and thorium are not only **radioactive** but toxic by inhalation, ingestion or absorption as well. Uranium salts are corrosive and irritating to skin, eyes and mucous membranes. Uranyl nitrate and thorium nitrate are powerful explosives and oxidizers. Uranium compounds are used in staining techniques for electron microscopy; they provide the contrast needed to differentiate the cellular features in the biological samples. *Uranyl acetate* is the most commonly used compound. **The use of Thorium nitrate and Uranyl nitrate is forbidden. If anyone is using these two compounds or has them in their inventory, please contact EHS.**

Use

- The personal protective equipment required when using uranyl acetate is – at a minimum - nitrile gloves, lab coat and safety glasses.

- All work must be performed in a fume hood since inhalation is the most serious route of entry. This includes making stock solutions and staining operations. Label the fume hood with a "caution radioactive material" sticker.

- All work must be performed on yellow trays (provided by EHS). The tray must be labeled with a "caution radioactive material" sticker.

- Any spills must be carefully cleaned up. For the initial survey, the area must be monitored with a Ludlum Geiger counter equipped with a pancake probe. To ensure completeness of the clean-up process, swab tests must be done with filter paper swipes and analyzed in a liquid scintillation counter. Contact the Radiation Safety Officer if you need assistance.

Storage

- All stocks of uranyl acetate must be kept in a secure location. A lockable cabinet will be adequate.

- A "caution radioactive material" sticker must be affixed to the container.

- All containers must be stored in secondary containment such as a tray, plastic bag or other container to prevent the spread of contamination.

Waste Disposal

- All contaminated solid (dry) waste such as paper towels, pipettes, gloves and other plastic ware must be collected in a plastic bag and labeled with a radioactive waste tag. Dispose to EHS.

- All aqueous liquid must be collected, labeled with a radioactive waste tag and disposed to EHS. If mixing uranyl acetate with methanol, the percentage of methanol must be below 10%. If you use other solvents with uranyl acetate, contact EHS immediately.

- All unwanted stocks must be disposed to EHS.

For more information on working with "particularly hazardous substances" please consult the *Chemical Hygiene Plan*.

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