ENVIRONMENT, HEALTH & SAFETY
UNIVERSITY OF MICHIGAN

Conducting a Radioactive Contamination Survey Using Swipe Test

Standard Operating Procedure

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A radioactive contamination survey identifies contamination in the laboratory.

Radiation Safety Service's Responsibilities

RSS **must** conduct routine quarterly reviews of U-M laboratories. During the review, RSS will:

- Perform follow-up surveys
- Inspect survey records
- Discuss radiological safety protocols with research personnel

Authorized User's Responsibilities

Authorized users of unsealed radioactive material **must**:

- Conduct routine radioactive contamination surveys
- Document the results
- Maintain current records of the radioactive contamination surveys for NRC and RSS inspections

Swipe Protocol

Each authorized user should design a radioactive contamination survey protocol to include:

- Sketches of the laboratories under their U-M radioactive material authorization in which unsealed radioactive material is used
- Swipe filter paper or cotton swabs
- Appropriate holder to keep swipes or swabs separated (examples, stapled index cards, scintillation vials, gamma counter vials or test tubes, or paper towel)
- Determine and number the areas that are of radiological concern. For example:
  - Work bench areas
  - Exhaust fume hood ledges
  - General lab floor area
  - Door knobs and other forms of handles (refrigerators, freezers, incubators, phones, bench drawers, cabinets)
  - Sinks
  - Doorways
- Number the swipes, swabs, or holders, to correspond with the survey areas of concern using a pencil or black ballpoint ink pen

Counters

Appropriate counters for counting radioactive contamination swipes include:

- Liquid scintillation counter (beta/gamma emitters)
- Gamma counter (gamma emitters only)

Procedure: Conducting a Radioactive Contamination Survey Using the Swipe Test

1. Put on disposable gloves.
2. Using one swipe or swab per designated area, survey a 1.0 m^2 area.
3. Load used swipes in holder, keeping the swipes separated to avoid potential cross-contamination.
4. Prepare a background swipe and a reference standard to ensure counting instrument consistency.
5. Load swipes in appropriate counter.
6. Count swipes or swabs for at least one minute.
7. Allow scintillation fluid and swipe to dark adapt for approximately 15 minutes prior to counting to avoid false-positive results from photoluminescence or chemiluminescence.
8. Evaluate the results of the radioactive contamination survey. If the results are:
   - ≤ 3 times background (statistically insignificant contamination level), no action is required and record as, "**No contamination**."
   - 3 times background, but ≤ 10 times background, confirm the results by resurveying the affected area and recounting.
   - 10 times background, but ≤ 20 times background:
     1. Initiate decontamination effort immediately using hot/warm water, gritty or special decontamination detergent, and paper towel.
     2. Go to step **2**.
   - 20 times background, warn others, restrict access, label, and isolate the affected area. Contact RSS at (734) 764-6200 and refer to the procedure Preventing or Reducing the Dispersal of Radioactive Contamination Following a Spill.
9. File the results of the radioactive contamination survey and background swipes in the Radiation Safety Records binder.