USTUR 640: DECONTAMINATION PROCEDURE

Purpose	Decontamination of Ultra™ detectors	**Method Number**	USTUR 640
Original Date	10/10/95	**Author**	USTUR Radiochemistry Staff
Revision Number	2	**Approved By**	Jim Elliston
Effective Date	10/1/99	**Approval Date**	1/31/01

WARNING: Decontaminated chambers must be evacuated for 30 minutes before bias is applied. The entire alpha spectroscopy system shall not be operated during this time.

1. Principle of Method

1.1. EG&G Ortec Ultra™ detectors and their associated chambers which have been deemed contaminated are cleaned to acceptable levels.

2. Supplies

2.1. Cotton swabs

2.2. Methanol

2.3. Acetone

2.4. Acetone-proof gloves

2.5. Kimwipes EX-L

2.6. Prepurified compressed nitrogen gas

2.7. A container to hold organic waste

2.8. Protective plastic caps for the detectors

3. Procedure

3.1. All acquisitions shall be stopped for the duration of the decontamination procedure for **ALL** detectors.

3.2. Turn the detector bias off using MAESTRO.

3.3. Vent the chambers to be decontaminated to the atmosphere.

Note: From this point on one should wear clean gloves; change gloves frequently.

3.4. Remove the shelf and place on a clean Kimwipe, noting which chamber it came from.

3.5. Place a clean protective plastic cap on the detector, and carefully remove it from the chamber. Place it on a clean Kimwipe, again noting its chamber of origin.

CAUTION: Be careful not to touch the detector face.

3.6. Using the cotton swabs moistened with methanol, swab out the inside of the chamber. Swabbing should start at the top of the chamber and work toward the bottom. All sweeps should be made so that contamination is moved out of the front of the chamber or towards the bottom. Change swabs often.

3.7. Rinse the top and bottom of the shelf with methanol.

Note: Contaminated shelves may also be cleaned with Radiac wash in an ultrasonic bath. See Section 4.

3.8. Using the cotton swabs moistened with methanol, swab off the top of the shelf, paying special attention to the edge of the indentation. Change swabs often.

3.9. Using the cotton swabs moistened with acetone, swab off the face of the detector, paying special attention to the edge.

CAUTION: Apply only gentle pressure to the surface of the detector. Use only clean cotton swabs.

3.10. Blow the inside of the chamber and the detector clean using the nitrogen.

3.11. Replace the protective cap on the detector, and return it to the appropriate chamber. Remove the cap.

3.12. Blow the shelf clean with nitrogen.

3.13. Place the shelf back into the appropriate chamber.

3.14. Begin pumping the decontaminated chambers down.

3.15. After the chamber has been pumping down for 30 minutes, begin running a 75,000-s contamination check.

3.16. If the chamber's background appears normal, run a normal background prior to sample analysis. If the chamber does not appear clean, run another 75,000-s contamination check without the shelf. If some of the remaining contamination is

from the shelf, decontaminate the shelf again using an ultrasonic bath with Radiac Wash. If the contamination persists, discard it in a Radiation Safety Office-approved manner. Repeat steps 1-6 and 8-14. If after three repetitions the chamber is still not clean, replace the detector.

4. References

4.1. OCTETE PC Integrated Alpha-Spectroscopy System Hardware Operating Manual, Part Number 761670, Revision A. Section 5.1.