

SOP Wipe Testing for Tritium and Carbon-14

A. Purpose of Wipe Tests

To ensure that education, research, and health-care related activities take place in conditions that are optimally safe and healthy for students, staff, visitors, surrounding community, and general public regular contamination checks are mandatory.

B. Wipe Test Requirements

Any type D workplace authorized to work with tritium and/or carbon-14 must at least document monthly wipe tests using the [Monthly Laboratory Wipe Test Report](#). If storage only, monthly wipe tests must at least be taken of storage area. If no use AND no storage, monthly statement indicating “no radioactive material used or stored for XX month” is required. Send the wipe test report to the local Radiation Safety Officers (RSO).

C. Wipe Test Procedure

Use swabs impregnated with ethanol (70% v/v) to take samples from different areas within the type D workplace. At least one wipe in storage area has to be done. Place samples in separate 4 ml liquid scintillation counter (LSC) vials. Label each vial noting the location of the sample. A blank vial is prepared in the same manner. Fill out the laboratory wipe test report and specify on the laboratory diagram for each sample the approximate area of the wiped surface. The area should not exceed 200 cm².

D. Preparing and Loading the Samples

Add 3 ml of aqueous LSC cocktail to each vial. Close the vials and mix them well. Insert sample vials and the LSC tritium and carbon-14 standards as well as background vial into LSC racks. Load the racks into the beta-counter (TriCarb) and flag the first rack appropriately for counting tritium and carbon-14. Slide the tab located on the rack to the position where the colour is not showing. This tells the LSC that the sample has not been read. When the tab is in the opposite position it signals to the user and LSC that the samples have been read. Start counting your samples by pushing F2.

E. How Do You Know If Results Show Contamination?

Use the laboratory wipe test report form and fill in the blanks with the appropriate information. The CS values will be automatically calculated. CS values <1 indicate no contamination.

F. If Area Is Contaminated

If a wipe test area has minor contamination between 1 and 3 CS, the area must be decontaminated and re-wiped. The results of the re-wipe survey must be documented. Clean up minor surface contaminations with a strong detergent, i.e. SDS (10 %). Wipe from the outside in so not to spread the contamination. If there is a major spill (> 3 CS), secure the area, prevent re-entry and contact the local RSO for assistance.