

Monthly Wipe Test Procedure

1. A series of wipe tests need to be performed once every month to check for possible contaminations at different locations in the radioactive tracer lab in Bard B 28.
2. The results of the wipe tests are recorded on a Laboratory Survey Report (LSR).
3. Round spherical filter papers (diameter 1 inch) are used as a wipe. Such filters can be bought, for example, from Fisher Scientific.
4. The area that needs to be wiped is shown in a separate sheet that depicts the tracer lab arrangement. This sheet is denoted as "Instrument of Wipe Survey (IWS)"
5. Both the LSR and the IWS need be filled out and have to be filed in the appropriate folder.
6. The document IWS contains letters and numbers associated with particular areas of the tracer lab. Letters denote areas where a wipe test needs to be performed. Numbers denote areas where a GM meter reading must be taken.
7. Each time take 10 wipes and name them as "A", "B", "C", "D", "E", "F", "G", "H", "Cold Trash" and "Sink". Wipe out an area of 10 cm² corresponding to each letter. Remember that letters denote specific areas of the lab as shown in the document IWS.
8. In our lab, we can only measure the γ -radiation coming from each wipe. To do that, the wipes are placed one by one in the sample chamber of the gamma counter. To start the counting, one needs to press the reset button and wait for 200 seconds (if the time setting is as it should be). The resulting reading is the number of counts per 200 seconds.
9. Record the reading and write it down on the back side of the document IWS. A look at previously recorded documents is helpful to produce a proper record.
10. The counts per 200 seconds need to be converted to counts per minute. This gives the CPM of the wipe. Conversion of CPM to DPM is done using the formula
$$\text{DPM} = (\text{Wipe CPM} - \text{Background CPM}) / (\text{efficiency})$$

The efficiency for our instrument is 0.3
11. To determine the background CPM one needs to repeat Step 8 with no wipe in the chamber. The reading, converted to CPM, is the background CPM.
12. Perform Step 8 also by using the Calibration Standard (a source with Co-60), which can be found the cabinet. Record the reading on the rear side of the document IWS.
13. A GM meter survey needs to be performed in all the areas marked by numbers. The readings need to be recorded on a separate sheet of paper.
14. Once all the readings are collected, the wipes must be put into an envelope and sent to Wayne Westmiller, EH&S, for β -ray counting. The attached sheet should be helpful to understand the documentation.

15. Once the results of the β -counting are received from Wayne Westmiller, they must be recorded in the appropriate column on the document LSR as shown in the attached sheet. If there should be any questions with regard to the β -counting result one needs to contact Wayne Westmiller.
16. Each complete monthly wipe test report must contain the forms LSR, IWS and the report from Wayne Westmiller. Once the entire report is complete, it needs to be signed by Prof. Dieckmann and to be kept inside the red binder where all previous reports are kept.