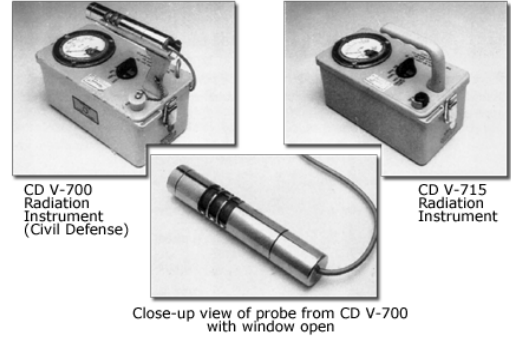


How to Detect Radiation Using A Radiation Survey Meter (model CDV-715)

Radiation cannot be detected by human senses. A variety of instruments are available for detecting and measuring radiation.

Here are a few examples of radiation survey meters:



Using the Radiation Survey Meter (model CDV-715)

1. Get the survey meter and batteries from storage; prepare the instrument for use.
 - a. Preparing the Meter:
 - I. Position the meter away from you. Locate and open the battery compartment.
 - II. Put the batteries in the meter using proper orientation (positive to positive, negative to negative).
 - III. Close and latch the battery compartment.
 - IV. Check the batteries using the "circuit check" switch. The meter needle should move to area on scale marked "circuit check", indicating the battery is good. If the batteries are not good, find a flashlight or other source of D-cells and put them in the meter -- check these batteries also.
 - V. Turn the switch to "Zero".
 - VI. Using the "Zero" knob on the lower left move the needle so that the needle is on zero.
2. Turn the "audio" switch to "ON" - if so equipped
3. Measuring the Background Radiation:
4. Check that the "F/S" switch is on "S" (Slow).
5. Move the range switch to the most sensitive position.
6. Remove the probe cover if one is in place.
7. Measure the background radiation for 60 seconds: write down the reading. Since background radiation varies with time, it may be desirable to make several counts and average the results. Record the reading.
8. Expect a reading of 40-100 counts/min or a reading of approximately 0.02 mR/hr (i.e. 0.2 on the 0.1 range setting), or 0.2 micro Sv/hr.
9. Record background reading.

How to Survey Using the instrument: (CD-V-700)

1. Move the "F/S" switch to "F" (Fast response).
2. Set the instrument selector switch to the most sensitive range of the instrument.
3. Holding the probe approximately ½ to 1 inch from the person's skin, systematically survey the entire body from head to toe on all sides.
 4. -- Move the probe slowly (about 1 inch per second).
 5. -- Do not let the probe touch anything.
 6. -- Try to maintain a constant distance.
 7. -- Pay particular attention to hands, face and feet.
8. -- Note that some GM instruments cannot detect alpha radiation and some low-energy beta radiation. Because alpha radiation is non-penetrating, it cannot be detected through even a thin film of water, blood, dirt, clothing, or through probe cover.
9. An increase in count rate or exposure rate above background indicates the presence of radiation.
10. -- Locate the point that produces the most clicks. (Turn the "F/S" switch to "S" to take a reading at this location. Remember to reset it to "F" before continuing survey.)
11. -- When necessary, adjust the range of the instrument by moving the range selector switch.
12. -- Document time and radiation measurements.
13. -- In general, areas that register more than twice the previously determined background level are considered contaminated. For accidents involving alpha emitters, if the reading is less than twice the background radiation level, the person is not contaminated to a medically significant degree. If the accident circumstances indicate that an alpha emitter (such as plutonium) or low energy beta emitter could be a contaminant, a health physicist should always be consulted.

Ending the radiation survey:

1. Switch off the meter.
2. Replace the cap on the meter probe.
3. Take the batteries out.
4. Put the Geiger counter back in its case.

The following procedures are recommended for personnel monitoring:

1. Have the person stand on a clean pad.
2. Instruct the person to stand straight, feet spread slightly, arms extended with palms up and fingers straight out.
3. Monitor both hands and arms; then repeat with hands and arms turned over.
4. Starting at the top of the head, cover the entire body, monitoring carefully the forehead, nose, mouth, neckline, torso, knees, and ankles.
5. Have the subject turn around, and repeat the survey on the back of the body.
6. Monitor the soles of the feet.