

Radiation Monitoring Devices

Description

Radiation survey meters are required in most labs working with radiation. There are several types of survey meters, and care must be taken to select one sensitive to the radiation in use. One common isotope that requires special consideration is Tritium (H-3), which emits a low-energy beta that is not detectable by most handheld survey meters.

Some common types of radiation monitoring devices include:

- **Geiger Muller (GM)**
 - **Best for:** Beta Sources (e.g. P-32, S-35, Tc-99)
- **Ionization Chamber**
 - **Best for:** Medium to high dose rate Gamma/X-Ray measurement
- **Sodium Iodide (NaI)**
 - **Best for:** Gamma sources (e.g. Na-22, Cs-137, I-125)
- **Liquid Scintillation Counter (LSC)/Gamma Counter (GC)**
 - **Best for:** Tritium contamination detection, radiation quantification

Choosing a meter

Meters are typically sold in two parts, a meter and a detector (or probe). Many meters and detectors are interchangeable. For example, one of the most popular meters is the Ludlum Model 3. The Model 3 can be equipped with different detectors based on the needs of the lab, such as the Model 44-9 pancake GM detector which is good for beta sources or the Model 44-3 NaI detector for gamma sources.



Ludlum Model 3



44-9 GM Detector



44-3 NaI Detector

Some common meter vendors/manufacturers include:

- [Ludlum](#)
- [WB Johnson](#)
- [Thermo Scientific](#)
- [Fluke Biomedical](#)

If ordering a new meter, please contact the Radiation Safety Office. Certain meters cannot be calibrated on campus and would need to be serviced by an outside vendor. Additionally, the new meter

will need to be added to the EH&S database.

Radiation meters are required to be calibrated:

- Every nine months for non-human use
- Every six months for human use

EH&S offers calibrations and minor repairs for most meters. Every meter should be labeled with a calibration sticker which will state the due date of the next calibration.

CALIBRATION STICKER

Calibrated on _____ by _____
Return to 212 NSC by _____ for recalibration

Correction factor = _____
Check source reading @ contact _____

Meters are collected from labs as their due date approaches. Please do not use a meter if it is outside of the calibration date. If your meter has become out of calibration, notify the [Radiation Safety Office](#).