

FACT SHEET

Dosimetry

External Dosimetry *TLD Ring, Whole Body/Neutron Badge*

What is a dosimeter?

A dosimeter is a passive monitor assigned to an individual to evaluate exposure to radiation for a specific wear period. The dosimeter may be a TLD ring for extremity monitoring or a badge for whole-body monitoring.

How do I wear the dosimeter?

The **TLD ring** should be worn on the hand that is most likely to receive the highest exposure. The label should be facing the radiation source when the ring is worn. The **whole body badge** should be worn below the neck, and above the elbows and knees. A good place to wear the dosimeter is on a shirt pocket or belt loop. The dosimeter should be worn so that the label is facing the source of radiation.

How should I store my dosimeter?

When not being worn, store your dosimeters so that they won't get exposed to radiation sources other than background radiation. If your group has a designated dosimeter storage spot, please use that. The top drawer of your desk is also a good location. Please let your lab contact know where your dosimeter is stored so it can be easily located if you are not available for the exchange.

When is external dosimetry required?

Dosimetry is required if in the course of your work you may exceed 10% of the occupational dose limits as set by NRC and Cal DHS regulations. Dosimetry is often issued at lower projected dose values as a good ALARA practice. Dosimeter requirements are also indicated on the RUA.

When is dosimetry due for exchange?

Dosimetry is typically exchanged on a four-month frequency. If dosimetry is issued to minors, declared pregnant workers, or for special situations, the exchange frequency may be on a monthly basis.

How does the dosimetry exchange work?

Dosimetry is typically exchanged by the lab contact designated on the RUA. Dosimeters will be delivered at the beginning of the exchange cycle with approximately 10 working days for return.

Did I receive a dose from the work I performed?

Typically the dose registered by external dosimeters on campus is below the reportable threshold the processing vendor applies to the dosimeter. If unusual radiation exposure is found, you will be contacted promptly.

How Can I Get My Dosimeter Results?

If at any time you would like a summary of your exposure you may submit a written, signed request to EH&S Radiation Safety. Annual summary reports will be provided if you have received a dose.

What about radiation work involving minors?

Dosimetry will generally be issued to minors if they are working with sources of radiation. A final determination will be made by the RSO.

What about radiation work during pregnancy?

Dosimetry will generally be issued to women who have chosen to declare their pregnancy and who may work in areas where radiation is present. Additional information regarding prenatal radiation exposure can be found in NUREG 8.13, Instruction Concerning Prenatal Radiation Exposure, on the EH&S website.

FACT SHEET

Dosimetry

Internal Dosimetry *Urinalysis, Thyroid/Whole Body Scan*

What is bioassay/internal dosimetry?

Bioassays are performed to determine the kinds, quantities, and, in some cases the locations of radioactive material in the human body. The procedure may involve direct measurement of the body (e.g. thyroid or whole-body counts) or analysis of samples from the body (e.g. urinalysis).

What types of bioassays are commonly used at UC Berkeley?

Urinalysis – evaluation of radioactive uptake by analysis of urine sample

Thyroid Scan – Count using a detector positioned near thyroid (for radioiodine users)

Whole Body Scan – A scan of the body for total uptake of radioactive material. A whole-body scan can also be focused on particular organs.

What is a baseline bioassay?

A baseline bioassay is used to establish a pre-exposure condition, either for a new employee or as a result of a new work assignment.

When are bioassays required?

A bioassay is required when an individual may have an uptake that would result in a dose exceeding 10% of allowed limits or at lower exposures as a good ALARA practice. Bioassay requirements shall be listed on the RUA and may be required by the RSO at any time there is a known or suspected uptake of any radioactive material.

Responsibilities *of users participating in the UC Berkeley Dosimetry Program*

1. Never intentionally expose your dosimeter to indicate a result that is not reflective of your occupational radiation exposure.
2. Always wear your dosimeter when working with sources of radiation.
3. Never share your dosimeter with other individuals. Never use your dosimeter at locations other than those specified on the RUA, especially at non-UC Berkeley facilities.
4. Immediately notify EH&S Radiation Safety if you lose your dosimeter so an evaluation can be performed and a replacement issued.
5. Be aware that there may be a charge for dosimetry that is returned late or lost.
6. If you are working with radiation that requires monitoring at an institution other than UC Berkeley, notify the UC Berkeley dosimetry coordinator so that your dosimetry results can be requested.
7. Ensure you set up an appointment for a baseline bioassay prior to starting work or new projects that may require participation in the bioassay program.
8. Ensure you return your dosimeter or schedule bioassay at the frequency required. If completing a bioassay kit, return at the frequency indicated on the kit instruction sheet.
9. Notify EH&S Radiation Safety of any medical procedure (such as a nuclear medicine procedure) or travel that may cause an exposure to your dosimetry or affect bioassay results.
10. Notify EH&S Radiation Safety of any change in work involving radiation so that an evaluation can be performed to determine whether dosimetry is needed or not.