

Information

Radiation Safety at the D-MATL X-ray platform (XR D-MATL), ETH Zurich

Prior to accessing the instruments, you need to have a training about the correct use of the instruments and about radiation danger. The labs in the E level are controlled zones, which are only allowed to be entered with a personal dosimeter or accompanied by XR D-MATL staff. The labs in the G level are exclusively equipped with fully protected instruments and may be accessed without dosimeter.

What should be done in the case of a suspected radiation accident?

Consult with the person responsible for radiation safety. In an emergency dial 888.

Medical aspects

Ionizing radiation can cause severe injury. Blood forming organs, eyes and gonads are particularly sensitive. For our manipulations, the eyes and hands are especially jeopardized. Radiation damage from radiation with low penetration (our X-rays): inflammation (sun burn) and later broken skin, possibly abscesses, very slow healing with the formation of scars. Our bodies have a repair mechanism: a radiation dosage spread over time is less harmful than the same dosage received all at once.

ADVICE

"Belief is good – control is better". Check carefully that the correct shutter is open or closed, that current and voltage are turned off. Do not depend upon information from colleagues, check yourself.

The simplest and most effective protection is distance. Leave the X-ray area when the necessary manipulations have been completed. The anteroom of the X-ray laboratory can be used for discussions and/or for writing.

Do not assume that every harmful radiation exposure will be registered on the dosimeter. It does not protect you, and, in fact, for our concentrated radiation sources, it is rather ineffective.

In case of doubt regarding the screening effectiveness, check with the hand Geiger counter and/or consult with the person responsible for radiation safety.

At the D-MATL X-ray platform, the following rules apply for work in the X-ray laboratories

- ◆ Access to the X-ray laboratory is allowed only after a briefing from the person responsible for radiation safety has been performed and after this leaflet „[Radiation Safety at the D-MATL X-ray platform, ETH, Zurich](#)“ has been signed.
- ◆ Alignment or adjustment of an instrument with unfiltered radiation is allowed only with the written permission of the person responsible for radiation safety.
- ◆ Work and modification involving any aspect of the safety mechanism of the X-ray instruments (covers, shielding, contact switches, electronics, monochromator equipment, etc., list not exhaustive), are only allowed after prior consultation with and written permission from the person responsible for radiation safety.
- ◆ Pregnant women are only allowed to work with completely shielded equipment (labs in the G level). They are free to refuse to work in the X-ray laboratory.
- ◆ Children have no access to the X-ray laboratory.
- ◆ All chemicals and hazardous waste, including used kimwipes and other ancillary materials, must be collected and safely transported back to your lab for disposal.
- ◆ When wearing gloves to work with hazardous material, take those gloves off before typing at a computer keyboard or operating controls (knobs, buttons) for the instrument.
- ◆ These rules also apply to guests who want to use our X-ray facilities. It is the responsibility of the host to introduce the guest to the person responsible for radiation safety.
- ◆ User fees are charged (for details see www.xray.mat.ethz.ch). Before making use of equipment and services of the X-ray platform one has to ensure that the corresponding budget manager – usually the group head – agrees to cover the costs.

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I have read and understood the radiation safety leaflet, and will follow the internal rules listed above.

Last name, First name.....

Place, Date.....

Signature.....

Signature Instructor.....