



## Radiation safety instructions for the handling of radioactive materials in the institute

The handling of the radioactive sources is regulated by the relevant provisions of the German law on radiation safety (Strahlenschutzverordnung) in the revised version of 2001 and subject to the conditions of the permit to handle radioactive materials by the Bavarian State Office for Environmental Protection (Bayerisches Landesamt für Umweltschutz; since 2005 Bayerisches Landesamt für Umwelt), AZ 6/2 – 353 – 65 from January 4th, 1999.

To ensure safety and compliance with the legal provisions the following rules need to be observed:

1. Our radioactive sources are stored in the designated storage room. The sources are handed out by the Radiation Safety Officer as necessary.
2. New sources may only be ordered after consulting the Radiation Safety Officer. The sum-rule for the upper limits of allowed activities, which have been authorized by the State Department of Environmental Protection, has to be respected.
3. Radioactive sources will only be handed out to physicists and employees with basic knowledge in nuclear physics and radiation safety.
4. The borrower signs for receiving the source in the book of radioactive sources and is handed out a copy of these instructions together with the source. He/She is also briefed on the relevant statements in the German law on radiation safety (Strahlenschutzverordnung) and the notice of approval of the Bavarian State Office for Environmental Protection. These two documents are available on demand from the Radiation Safety Officer and the Security Engineer (room 125).  
With his/her signature the borrower promises to comply with the instructions issued for radiation safety and with the rules and regulations of the law on radiation safety and with the conditions of the permit to handle radioactive materials.
5. A transfer of borrowed samples to third persons without the explicit permission of the Radiation Safety Officer is prohibited.
6. The borrower is responsible for the source until it is returned and he/she has to ensure that all necessary precautions are taken such that nobody is at risk or harmed by radiation – even if unexpected incidents occur (damage of the source, fire, etc.). If necessary, appropriate shielding for the source needs to be provided. Equipment for local dose measurements can be obtained from the Radiation Safety Officer.

7. Personal dosimeters can be obtained from the Radiation Safety Officer. The exchange of films in film dosimeters is done by the Radiation Safety Officer. The borrower has to inform the Radiation Safety Officer if the presence of other persons in the controlled areas (see Item 9) is required. The borrower shall ensure that the issued dosimeters are worn.
8. The handling of radioactive sources is only permitted in rooms marked with warning signs. The borrower has to mark the location of the source or the apparatus into which it is fitted with warning signs. Suitable signs can be obtained from the Radiation Safety Officer.
9. Should the dose rate at a distance of more than 0.5 m from the source exceed  $3 \mu\text{Sv/h}$  the area in question has to be treated as controlled area. The area has to be labeled as such and provisions to avoid accidental or unauthorized entry have to be installed. The limit is raised to  $10 \mu\text{Sv/h}$  if it is ensured that the duration of stay in this or any other radiation area does not exceed 3 months per year and provided that the effective personal dose of 6 mSv per calendar year is not reached.
10. The borrower shall ensure that the source is protected from damage and not modified in any way. Open and quasi-open sources may only be used or placed into an apparatus in such a way that prohibits direct contact and accidental damage. Manipulations on open sources are not permitted.
11. Eating, drinking, smoking and the use of cosmetics during the handling of radioactive materials is prohibited.
12. Unless it poses an undue burden, radioactive sources shall be placed in their shielded containers or in the vaults of the main users upon pausing or interrupting the experiment.
13. In case of an incident or loss of the source the Radiation Safety Officer or his deputy must be informed. Should for example a damaged source cause contamination in the experimental area, one must leave the radiation area immediately and seal it. It is important to ensure that no radioactive substances such as from contaminated clothing leave the area.
14. The radioactive sources and dosimeters have to be returned directly after the end of the experiments. The Radiation Safety Officer signs in the book of radioactive sources to confirm receipt, and then takes responsibility for the proper storage of the source.

Radiation Safety Officer of the institute:

Herr Jürgen Hose, Zi. 125, Tel. 224, Mobil 0179 322 0786

Deputies:

Dr. Sven Menke, room: 209, phone: 410, mobile: 0175 225 0211,

Dr. Oliver Schulz, room: 113, phone: 521.

The responsible state agency for radiation protection and monitoring is the Bavarian State Office for the Environment (Bayerisches Landesamt für Umwelt), Bürgermeister-Ulrich-Str. 160, 86179 Augsburg, Phone: 0821-9071-0.

Munich, 12<sup>th</sup> February 2015