



UMEÅ UNIVERSITY

General instructions for working with open radioactive substances at Umeå University

Radioactive work classes in respect of risk

The risks in respect of radiation protection when working with open radioactive sources are dependent primarily on the risk of internal contamination, i.e. the radioactive substance entering the body. Therefore, work with radioactive substances is classified with respect to the risk of the radioactive substance being spread to the air, work surfaces, etc. while work is in progress. Therefore, working with radioactive substances is divided into three classes.

Class I. Work with radioactive material in powder form with high specific activity (>500 kBq/g), processing of radioactive material where there is a dust hazard, and work where there is a major risk of the radioactive material being spread to the air, e.g. working with radioactive material in a gaseous state.

Class II. Work with solutions, preparations, manufacturing of preparations, chemical analyses, animal trials, etc., i.e. wet operations with no dust hazard.

Class III. Very simple wet work, e.g. extraction from stock solutions, and work in closed systems where there is a minimal risk of spillage and any airborne activity is passed out via a connection to a separate ventilation duct, possibly via filters. The system must normally be located in a fume cupboard or glove box.

Storage

- Radioactive substances must be kept under lock and key in such a manner that their storage is satisfactory in respect of fire safety.
- When stored, radioactive substances must be shielded so that the dose rate in areas where people may sometimes be present does not exceed $20\mu\text{Sv/h}$. The dose rate must not exceed $7.5\mu\text{Sv/h}$ in areas where people are always present.
- Signs must be put up which clearly indicate where radioactive substances are stored.

Work

- Work must be planned and carried out in such a manner as to ensure that all unnecessary exposure to radiation is avoided. The people taking part in the work should receive an effective dose not exceeding 1 mSv/week.
- Work must be planned and carried out in such a manner as to prevent accidental spreading of radioactive substances to air, liquids or surfaces.
- Staff taking part in work must be provided with dossiers if necessary, and also use the necessary protective equipment.
- Contamination checks must be carried out regularly and if there is reason to suspect contamination.



UMEÅ UNIVERSITY

- If there are any mishaps during radiological work, the university's radiation protection expert must be contacted immediately. Then a report of the incident shall be sent to the work environment coordinator at the Building office.

Logs

- Logs must be kept of purchases and holdings of radioactive substances.
- Logs of personal doses must be kept in certain instances.
- Measurement results or observations of significance to radiation protection must also be logged.

Transport

Applicable regulations for the mode of transport in question must be followed when transporting radioactive substances.

The university's radiation protection expert

Göran Ågren, FOI

Email: goran.agren@umu.se

Phone: 090-10 66 26, 072-570 93 06