

Radiation Safety Instructions (SSU)

§1 Validity

Valid for the **Department of Mineralogy and Crystallography (IfMK)** at the Faculty of Earth Sciences, Geography and Astronomy (FGGA) of the University of Vienna, in addition to the general laboratory and workshop regulations of the University of Vienna and the general and specific laboratory safety instructions (ASLS) of the IfMK in the respective current version.

§2 Legal Basis

In the respective current versions:

§29 Strahlenschutzgesetz (StrSchG)

§16 Allgemeine Strahlenschutzverordnung (AllgStrSchV)

§11 Natürliche Strahlenquellen-Verordnung (NatStrV)

§3 Downloads

www.univie.ac.at/Mineralogie Research Safety regulations

Radiation protection (SSU)

http://www.univie.ac.at/Mineralogie/docs/IfMK_Unterweisung_SSU_e.pdf

Specific laboratory and workshop instructions of the IfMK (ASLS)

http://www.univie.ac.at/Mineralogie/docs/IfMK_Unterweisung_ASLS_e.pdf

General laboratory and workshop regulations of the University of Vienna (German version)

http://anchem.univie.ac.at/fileadmin/user_upload/anchem/allgemeines/Laborordnung_Mitteilungsblatt.pdf

§4 Contact Persons

Function	Name	Office	Phone number
Radiation Safety Officer	Christian L. Lengauer	2B3 48	+43 1 4277 53243 +43 60277 53243 (M)
Radiation Safety Deputy	Wolfgang Zirbs	2A2 44	+43 1 4277 53277
Safety Officer	Wolfgang Zirbs	2A2 44	+43 1 4277 53277
Persons in charge	Ronald Miletich	2C3 76	+43 1 4277 53265
	Herta Effenberger	2B2 51	+43 1 4277 53241
	Martin Ende	2B2 44	+43 1 4277 53244
	Gerald Giester	2A2 46	+43 1 4277 53235 +43 664 221 0681 (M)
	Christian L. Lengauer	2B3 48	+43 1 4277 53243 +43 60277 53243 (M)

A complete listing of the current laboratory managers (= Laborbereichsleiter) and persons in charge of laboratories (= Laborverantwortliche), of equipment (= Geräteverantwortliche) and official IfMK representatives (= IfMK Beauftragte) can be found on:

http://www.univie.ac.at/Mineralogie/docs/IfMK_Laborverantwortliche.pdf

http://www.univie.ac.at/Mineralogie/docs/IfMK_Geräteverantwortliche.pdf

§5 Equipment directory

Lab	Equipment	Protection type	Person in charge
2A172	Huber 5042	Controlled area	Ronald Miletich
2A173	STOE StadiVari	Full protection	Martin Ende
	BRUKER X8-Apex	Full protection	Gerald Giester
2A175	ENRAF NONIUS Kappa-CCD	Full protection	Gerald Giester
	STOE AED-2	Full protection	Herta Effenberger
2B342	BRUKER D8-Advance	Full protection	Christian L. Lengauer
	BRUKER D8-Eco	Full protection	Christian L. Lengauer
	Philips X'Pert MPD	Full protection	Christian L. Lengauer
2B344	Siemens K710 Messplatz	Full protection	Christian L. Lengauer
	Philips X'Pert	Full protection	Christian L. Lengauer
2A247	BRUKER Tracer IV-SD	Controlled area	Gerald Giester
2B269	Radioactive storage room	Controlled area	Christian L. Lengauer

§6 General instructions

The relevant IfMK radiation safety facilities at the Geocenter, UZA-2, include full protected X-ray equipment, an X-ray equipment with controlled area (2A172), a portable X-ray fluorescence analyzer (2A247) and a storage room for natural radioactive substances (2B269).

In compliance with the directions of user manuals and instructions an exceeding of the effective accumulated annual (12 month) dose limit of 6 mSv for normal user operations is ruled out. The average annual dose over the past six years is < 1 mSv for operating the listed facilities of the institute. Thus and in line with §11 AllgStrSchV, all persons associated to the institute are classified as **Type B** occupationally exposed persons. Medical screening and recurring check-ups (§31 StrSchG) are therefore not required.

The observance of these radiation safety regulations and specific laboratory directions by the users and guests are part of the responsibilities of the respective laboratory managers and supervisors and project managers, in case of existing staff-student ratios.

The following rules apply:

- (1) All X-ray equipment must be used after enrolment, or under supervision of the respective person in charge or the instrument operator.
- (2) Persons, unaffiliated with the institute, and persons under the age of eighteen do not gain unattended access to laboratories with X-ray equipment.
- (3) Unattended use of the X-ray equipment by users must be approved by supervisor, the respective person in charge, or the laboratory manager.
- (4) In the case of uncertainty users must apply the directions of user manuals and instructions, or contact the supervisor, the respective person in charge or the responsible instrument operator.
- (5) Maintenance, repair and reconstruction operations on the X-ray equipment must be carried out by qualified personnel or service technicians and must be recorded in the respective logbook.
- (6) Activities involving possible radiation exposure (e.g. alignments procedures) must be monitored by wearing a dosimeter.
- (7) Users must not bypass or override safety-related installations of X-ray equipment.
- (8) Users must access laboratories with X-ray equipment via the double door systems 2A174 (for 2A172/73/75) and 2B343 (for 2B342/44).

The storage room 2B269 for natural radioactive materials is subject to specific regulations (see §11 SSU).

§7 Restrictions in case of pregnancy

Due to the high rate of cell proliferation embryonic tissue is particularly sensitive to ionizing radiation. Accordingly, the risks during pregnancy are herewith explicitly pointed out to the users.

Therefore, the following rules apply:

- (1) Female users must immediately inform the radiation safety officer about existence of their pregnancy.
- (2) Pregnant users must not access the controlled areas in laboratories 2A172 (HUBER 5042) and 2A247 (Bruker Tracer IV) during measurement operation of the X-ray equipment.

§8 Emergency instructions

- (1) In the case of a relevant, safety-related event users must **(i)** immediately inform the radiation safety officer and / or the respective person in charge. If users are not sure about the issue **(ii)** users must stop the measurement operation and **(iii)** shut down the X-ray equipment in compliance with directions of user manuals and instructions.
- (2) In the case of an emergency situation users must **(i)** switch off the X-ray equipment via the emergency stop button of the equipment and **(ii)** immediately exit from the laboratory. Without delay users must **(iii)** inform the radiation safety officer and / or the respective person in charge.

§9 Instruction for full protection equipment

It applies for the full protection X-ray equipment located in the laboratories of the IfMK, that in compliance with directions of user manuals and instructions any radiation exposure to the users is ruled out. All safety-related malfunctions or operating errors cause an automatic shutdown of the X-ray source or equipment.

Therefore, the following rule applies:

- (1) Users must not override any safety-related installations during normal measurement operation.

§10 Instructions for controlled area equipment

In laboratory **2A172** X-ray equipment is hosted within a controlled area, which is designated by radiation warning signs and labels. In these areas increased exposure to ionizing radiation can only occur by **(i)** misconduct and / or **(ii)** unauthorised access of users.

Therefore, the following rule applies:

- (1) During measurement operation in laboratory 2A172 (Huber 5042) users must **(i)** lock the access of the protective enclosure and **(ii)** visually indicate the active operation status with the provided warning sign.

§11 Instructions for storage room 2B269

In the storage room **2B269** for natural radioactive substances exists a exposure to radioactive nuclides of uranium, thorium and radon. After 40 hours the dose within the storage room exceeds the limit value of 1 mSv.

Therefore, the following rules apply:

- (1) User must access the storage room under the supervision of the radiation safety officer or the radiation safety deputy.
- (2) Pregnant women must not enter the storage room.
- (3) Nursing women must not enter the storage room because of incorporation risks for their infants.
- (4) All users must monitor and document their activities and presence within the storage room using their individual dosimeters and keep the record in the available log book.

§12 Instructions for air conditioning in X-ray laboratories

In laboratories **2A172/73/75** and **2B342/44** an appropriate indoor climate, which prevents harmful water condensation especially during the humid summer quarter, is mandatory.

Therefore, the following rules apply:

- (1) The users must not open the outside window shade and the laboratory windows.
- (2) The users make sure that laboratory accesses of the double door systems 2A174 und 2B343 are always closed.
- (3) The users must not close the doors between laboratories 2A172/2A173 and 2A173/2A175.
- (4) The settings for all air conditioning devices may only be changed by authorized persons. For technical problems the head of the workshop, radiation safety officer or radiation safety deputy must be informed.

Wien, October 1st 2017

Radiation safety officer

Christian L. Lengauer e.h.

Radiation safety deputy

Wolfgang Zirbs e.h.