

**The Swedish Radiation Protection Institute's Regulations on
Licence to Schools for the Possession and Use of certain X-ray Equipment and
Sealed Sources for Educational purposes as well as Import, Manufacturing and
Transfer of such Sources;**

issued on November 2nd 1992.

On the basis of section 2 sub-clause 2, section 9 paragraph 4, and section 12 paragraph 3 of the Radiation Protection Ordinance (1988:293), and on section 26 of the Radiation Protection Act (1988:220), the Swedish Radiation Protection Institute has issued regulations as follow.

Limitation of exceptions

§ 1 The exceptions from the regulations in the Radiation Protection Act, stated by the section 2, first clause, paragraph 5 in the Radiation Protection Ordinance, shall not apply to comprehensive schools, continuation schools or other schools on that level.

What is stated in the first clause shall also be valid for import, manufacturing and wholesale trade of x-ray equipment and sealed sources intended for educational purposes according to the section 2.

The extent of the license

§ 2 The Swedish Radiation Protection Institute hereby for comprehensive schools, continuation schools or other schools on that level grants license for educational purposes in Physics, Chemistry or Science to acquire, possess and use x-ray equipment and sealed sources which comply to these regulations.

X-ray equipments and sealed sources possessed in accordance to this license may be transferred to those who have got a license to acquire them.

Definitions

§ 3 In these regulations the following concepts are used with the meanings specified here.

Sealed source: a radioactive substance, firmly bound to a non radioactive solid or sealed within a capsule made of a non radioactive material strong enough to prevent dispersing of the radioactive material at normal use,

accredited test-house: a laboratory having a formal approval of its competence to perform specified tests or calibrations,

notified body: an organisation for tests or certifications within the CE-system having a formally recognised competence according to a certain directive.

Conditions relating to the license

§ 4 The Head of the school shall appoint a teacher of Physics, Chemistry or another teacher of appropriate competence to be responsible for the school's possession and use of x-ray equipment and sealed sources.

The appointed teacher shall

1. keep record of purchases and transfers of the school's x-ray equipment and radioactive sources,
2. prepare the school's rules for the use of x-ray equipment and radioactive sources,
3. inform the persons involved on existing rules and regulations,
4. at least once a year make an inventory and an ocular inspection of the x-ray equipment and radioactive sources,
5. when needed perform radiation protection measurements,
6. ensure that the current regulations on dose limits according to SSI FS 1989:1* is met.

§ 5 X-ray equipment and sealed sources may on the comprehensive school level be used only by a teacher during demonstrations. On continuation school level, pupils may use x-ray equipment and sealed sources, doing laboratory work, under supervision of a teacher.

§ 6 X-ray equipment and sealed sources shall be kept under lock when they are not being used. The sealed sources shall be stored in their protective shielding.

§ 7 X-ray equipment and sealed sources shall be type tested with respect to the regulations given in the sections 9-14 or 15-21 respectively.

Testing

§ 8 Type tests of x-ray equipment and sealed sources shall be made by an accredited laboratory, notified body or, if such bodies are not established, by the Swedish Radiation Protection Institute.

Requirements on x-ray equipment

§ 9 The x-ray tube voltage shall not exceed 70 kilovolt. The x-ray tube power shall not exceed 5 watt.

§ 10 The X-ray equipment shall have a device which automatically and clearly indicates when X-rays are generated.

§ 11 The X-ray equipment shall be shielded in all directions, so that the dose equivalent rate at a distance of 50 mm from the equipment's surface does not exceed 5 microsievert per hour (iSv/h).

§ 12 Any opening in the X-ray equipment's shielding shall be equipped with two independent interlocks which on effect will break the high voltage. The interlocks shall be difficult to put out of order.

* These regulations are replaced by the Swedish Radiation Protection Institute's regulations (SSI FS 1998:4) on Dose Limits at Work with Ionising Radiation

§ 13 The X-ray equipment shall be marked with a warning symbol for ionising radiation and with a clearly visible label, permanently attached and of durable material. The text on the label shall state that the x-ray equipment is type tested and meets the requirements and that the x-ray equipment may not be modified without acceptance from the Swedish Radiation Protection Institute.

§ 14 A manual in Swedish shall be enclosed with each x-ray equipment. The manual shall contain

1. a description of how the x-ray equipment shall be used and how its safety devices work,
2. The text "The interlocks functioning shall be checked at every time the equipment is to be used. Start the x-ray equipment and check that the high voltage is broken when any of the interlocks is affected.",
3. a transcript of these regulations where applicable.

Requirements on sealed sources

§ 15 A sealed source shall be designed according to the Swedish standard (SS-ISO 1677) on sealed radioactive sources.

§ 16 The activity shall be adjusted with respect to the intended use. However it must be limited so

1. for alpha-emitting radio nuclides the total activity is less than exceed 50 kilobecquerels,
2. for beta-emitting radio nuclides the activity shall be limited so that the dose equivalent rate at 100 mm distance of the radioactive source does not exceed 50 μ Sv/h and
3. for gamma-emitting radio nuclides the activity shall be limited so that the dose equivalent rate at 100 mm distance of the radioactive source does not exceed 10 μ Sv /h.

§ 17 The sealed source shall be mounted in a holder designed to prevent direct contact with the source under normal conditions of use.

§ 18 The holder of the source shall be marked with a warning symbol for ionising radiation. Information on the kind of radio nuclide, manufacturing date, activity and an identification mark shall be stated in permanent text.

§ 19 It shall be possible to store the sealed source and its holder in an appropriate radiation shield.

§ 20 The radiation shield shall have a warning symbol for ionising radiation, and a permanent text from which it is evident that the radioactive source is tested and meets the requirements of these regulations. Also the deliverer's name shall be stated.

§ 21 A manual in Swedish shall be enclosed with each source. The manual shall contain

1. a description of the sealed source's construction and use
2. directions on how to check that the sealed source is not damaged.
3. directions on how a discarded or damaged sealed source shall be handled
4. a transcript of these regulations where applicable.

Exception

§ 22 If special grounds exist, the Swedish Radiation Protection Institute may grant exceptions from these regulations.

These regulations enter into force** four weeks after they have been published in the regulatory code of statutes of the Swedish Radiation Protection Institute. At the same date the Swedish Radiation Protection Institute's regulations (SSI FS 1987:1) on licence for schools for educational purposes acquire, possess and use x-ray equipment.

At the same date these regulations also replace the announcement (SSI FS 1978:5) on licence for possession and use of sealed radioactive sources in schools.

On behalf of the Board of the Swedish Radiation Protection Institute

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** March 15, 1993.