

SSI FS 1995:2

The Swedish Radiation Protection Institute's Regulations on the Use of Equipment in Industry containing Sealed Sources or X-Ray Tubes;

issued on October 13, 1995.

On the basis of § 7 of the Swedish Radiation Protection Ordinance (1988:293) the Swedish Radiation Protection Institute has issued regulations as follow.

§ 1 These regulations apply to practices with stationary and portable equipment containing sealed sources or x-ray tubes used for level measurements or quality checks or analysis and for which a licence, according to § 20 of the Radiation Protection Act (1988:220) is required. The regulations shall not apply to equipment for radiography (imaging techniques).

Definitions

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

Sealed source: a radioactive substance firmly connected to a non radioactive solid or sealed in a non radioactive capsule strong enough to prevent, at normal use, the spreading of the radioactive substance,

dose rate: ambient dose equivalent rate, (The unit most often overestimates the effective dose equivalent rate.)

stationary equipment: equipment that is permanently installed at the place for use,

portable equipment: equipment intended to be moved among different places of use.

General

§ 3 The licence holder shall ensure that the work with the equipment is performed in an acceptable way from a radiation protection stand-point and inform the personnel about the radiation protection organisation. The radiation protection work shall be part of the internal audit of the working environment.

§ 4 The licence holder shall appoint a person having the task to co-ordinate the radiation protection work and be the contact person with the Swedish Radiation Protection Institute. The Swedish Radiation Protection Institute shall be informed of the name of the contact person.

§ 5 The licence holder shall keep a file on the equipment containing sealed sources or x-ray tubes. The files shall contain information on

1. the licence number, the localisation and the date of acquisition of the equipment,
2. the manufacturer and the type designation,
3. the activity of the source at a specified date and the designation of the nuclide, or the maximum performance characteristics of an x-ray tube expressed in kilovolts and milliamperes,
4. performed measures of significance from a radiation protection point of view, as for instance change of the radiation source and the date of the change,
5. the name of the person whose task is to ensure that the radiation protection outfit is intact.

Marking

§ 6 The equipment shall be provided with a visible and permanent marking that contains

1. the warning symbol for ionising radiation,¹
2. the type designation,
3. information on the nuclide and the activity or the information that the equipment contains an x-ray tube.

If the equipment contains a sealed source, the marking shall as well contain the text "Innehåller radioaktiv strålkälla. Får tas isär endast av strålskyddsutbildad person. Strålkällan skall omhändertas som radioaktivt avfall vid skrotning."*

Stationary equipment

§ 7 In the vicinity of an equipment there shall be a label containing

1. the warning symbol for ionising radiation,
2. the text "Joniserande strålning. Följ strålskyddsföreskrifterna",**
3. the contact person's name.

§ 8 In the vicinity of a manhole giving access to the primary radiation field there shall be a label containing

1. the warning symbol for ionising radiation,
2. the text "Avskärma strålningen innan du går in här".***

Use

§ 9 The radiation protection outfit shall be checked regarding its function. The checks shall be performed at least once a year and, in addition, if there are special reasons. The outfits shall be kept intact.

§ 10 A sealed source must not be stressed by abnormal chemical or mechanical influence.

¹ The design of the warning symbol is given by the Swedish Standard SIS 03 12 10.

* Contains a radioactive source. May be dismantled by an authorised person only. The source shall be taken care of as radioactive waste at scrapping.

** Ionising radiation. Obey the radiation protection regulations.

*** Attenuate the radiation before entrance.

§ 11 Mishaps of significance from a radiation protection point of view shall be reported to the Swedish Radiation Protection Institute as soon as possible.

Stationary equipment

§ 12 Where anybody is situated long-term, the dose rate from the equipment must not exceed 2.5 microsieverts per hour ($\mu\text{Sv/h}$).²

§ 13 If the primary radiation field may be accessible, for instance during service or similar operations, the shutter (regarding the primary field) shall be closed and locked.

Portable equipment

§ 14 Anyone who uses the equipment shall have a sufficient knowledge on radiation protection and be well familiar with the function of the equipment.

§ 15 The aperture of the equipment shall be directed towards the object of measurement when the shutter is open

§ 16 When the equipment is not used, the shutter shall be closed and locked up.

Service and checks

§ 17 Anyone who performs mounting or dismounting of a stationary equipment, or performs checks according to the sections 18 or 19, or perform service on the part of the equipment where the sealed source or the x-ray tube is situated shall

1. be sufficiently educated on radiation protection,
2. be familiar with the design of the equipment and
3. have available an appropriate measuring instrument for ionising radiation.

Portable equipment with a sealed source and a thin protection foil at the aperture

§ 18 The radiation source shall be checked regarding leakage of the radioactive substance. The checks shall be performed at least once a year and, in addition, if there are special reasons. The check shall be recorded, the following to be noted

1. the day of check
2. findings and measures, if any and
3. how the check was done and who did it.

§ 19 An equipment shall immediately be taken out of service if the foil is damaged. The radiation source shall be investigated regarding leakage of the radioactive substance. The equipment may be used again if the radiation source is undamaged and the foil is replaced.

Storage and transport

20 § The place of storage of equipment containing a sealed source shall be

1. locked,
2. safe in case of a fire and
3. marked with the symbol for ionising radiation, a text telling that radioactive substances are stored and the contact person's name.

² The dose rate is always less than 2.5 $\mu\text{Sv/h}$ at 2 metres distance from an approved equipment. The dose rate, i.e. for laboratory use, is often much lower.

§ 21 Equipment containing a sealed source shall be stored so that the dose rate does not exceed 7.5 µSv/h where anybody may be placed or 2.5 µSv/h where anybody is situated long term.

§ 22 A portable equipment shall be stored in a way that is safe from stealing. The equipment must not be kept in an unguarded car or be left out of supervision even in short pauses in the work.

§ 23 Rules for transport of radioactive substances by car or rail-road are given by ADR/ADR-S and RID/RID-S respectively.

Ceasing practice

§ 24 Equipment containing a radioactive source that will not be used anymore, shall within 6 months be sent to be handled as radioactive waste.

§ 25 A scrapped or replaced radioactive source shall be taken care of by a company that is approved by the Swedish Radiation Protection Institute. The radioactive source shall be taken care of as radioactive waste. A scrapped x-ray tube shall be made unusable.

§ 26 If the practice ceases, the licence holder shall report this to the Swedish Radiation Protection Institute. Also change of name, address or telephone number shall be reported. For transfer of equipment, a special licence from the Swedish Radiation Protection Institute is required.

Exceptions

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

These regulations enter into force on January 1st, 1996.

On behalf of the Board of the Swedish Radiation Protection Institute

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