Purchasing X-ray equipment, equipment with a radioactive source or particle accelerators (including electron microscopes): a Step-by-step guide

VU VRIJE UNIVERSITEIT AMSTERDAM

If you have any questions or doubts, contact the Faculty of Science's coordinating radiation expert.

1

Does the equipment you wish to purchase contain a radioactive source or a particle accelerator (e.g. an electron microscope) or is it X-ray equipment?
Read the information below before you begin.

Yes? → You require an internal permit. Go to step 2

No? → Enquire with the workshop (Mechanical Instrumentation and Engineering or Electronic Engineering) whether the equipment meets the applicable VU requirements.

When do you require an internal permit?

Even X-ray equipment or particle accelerators that would normally fall outside the control system must first be assessed by the coordinating radiation expert. Remember that most suppliers neglect to check whether the use of their equipment is permitted at VU Amsterdam.

Particle accelerators – e.g. electron microscopes or specific mass spectrometers – may (un)intentionally emit X-rays when large potential difference are used. For the joint complex permit of VU Amsterdam, Cyclotron and VU University Medical Center, all equipment and sealed sources that (potentially) generate X-rays must be added up and included in the complex permit.

You must therefore first acquire an internal permit before you order the equipment, have it sent to VU Amsterdam and register it in Lab Servant.
You can apply for this internal permit together with the Faculty of Science's coordinating radiation expert.

Tip
Avoid delays or problems down the line by acquiring the internal permit first!

2

Prepare the internal permit together with the coordinating radiation expert

To do so, contact the coordinating radiation expert. Together, you assess the technical requirements, the potentially suitable workspaces and the supervisory structure that is in place. You may be able to acquire some information yourself ahead of time.

2A. Assess the technical requirements of the equipment that emits ionising radiation.

You may be able to find the information you need by reaching out to the supplier or checking the specifications of the equipment in question.

- Does the equipment in question have (at minimum) a CE marking?
- Are any special facilities required in order to use the equipment safely? Think of e.g. power current, a high outlet rating or a gas connection. This can be assessed and realised together with FMI.
- What is the maximum potential difference or the tube voltage (in kV or keV)?
- Or what is the sealed source's activity measured in Becquerel (Bq)?

2B. Identify the potentially suitable workspaces

- Do you already have a workspace that the coordinating specialist has designated as a safe environment for working with X-ray equipment or equipment with sealed sources?
- If not: assess any potentially suitable workspaces:
  - Does the door of the room have a lock?
  - Are measures in place/required to lower the ambient dose rate of the equipment outside the room or space where the equipment is used and operated?
  - Does the room contain facilities designed to minimise employees' exposure to ionising radiation?

  If the aforementioned requirements cannot be met in a structural manner, additional organisational measures must be taken. The coordinating radiation expert can help you with this.

2C. Assess the supervisory structure that is in place for working with equipment with an electron accelerator, a built-in radioactive source or an X-ray source.

- Does your department have a supervising radiation protection officer with a certificate from an approved institute?
- Is there someone in your department who could obtain such a certificate?

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Have you obtained the internal permit? Order and register the equipment in Lab Servant.

Tip
Keep the financial code (WBS number) at hand.
If necessary, check the frequently asked questions about Lab Servant.

Good luck with your research!