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Bulletin 280 Health & Safety

Radiation generators and registration: a message to employers

HSE are requiring employers with radiation generators to provide them with more information. Radiation generators are machines that produce ionising radiation, for example x-ray machines in a mail room. Radiation generators are not used in school science departments and are therefore not covered by SSERC.

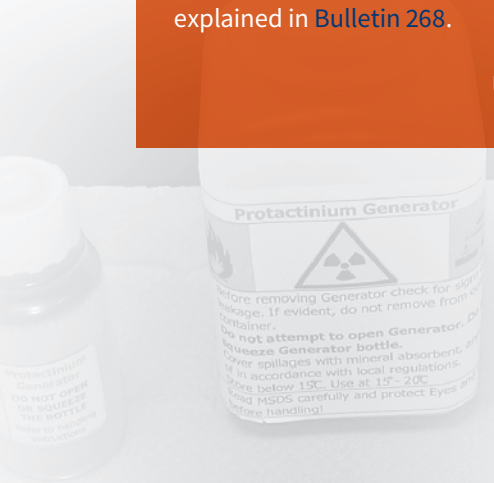
Employers with radiation generators will have to seek advice from a radiation protection adviser who specialises in this area. If an employer has a radiation generator, they will be required to re-register under IRR17. This will also involve informing HSE of school radioactive sources, and we have produced guidance to help. Please note that some schools have a radioactive source called a protactinium generator. Despite the name, this is not a radiation generator though it does emit radiation. <<

On the subject of protactinium generators

No school should have a protactinium generator (Figure 1) that is more than 8 years old. If you have one, please get in touch with us and we will advise you about disposal.

Whilst this will not be cheap, it must be done. Keeping it could turn out to be the falsest of false economies should it leak. The full reasons behind this are explained in Bulletin 268. <<

Figure 1 - Protactinium generator.



Other topics

Ionising radiation

A message to employers

This article is about the information that school science departments working with radioactive materials should pass on to their employers. In state schools the employer is the local authority and in independent schools the employer is the board of governors. In both cases we suggest informing your senior management team, who act on behalf of the employer.

The documents, forms and checklist mentioned in this article can be accessed from the Ionising Radiation pages of our website. You will require to be logged in.

Last year, the Health and Safety Executive (HSE) began inspecting schools to check whether or not their use and storage of radioactive materials complied with the Ionising Radiations Regulations 2017. We have been informed that these inspections are to continue. The inspections highlighted the roles of staff, the employer and SSERC.

- Staff are legally obliged to follow their employer's health and safety guidance.
- SSERC, acting on behalf of the employer, produces guidance on safe, legal work with radioactive materials in schools. A member of staff at SSERC holds the HSE-recognised Radiation Protection Adviser qualification. We will be writing about Radiation Protection Advisers in the near future.
- The employer should ensure that this guidance is being followed.

Since the inspections began, many employers have become more proactive regarding this last point. They may well ask to see everything you have concerning working with ionising radiation and that's their prerogative. The following is what we consider to be the minimum you should pass on to them if you are taking the initiative.

Tell them that you are working with radioactive materials
It is possible that they do not know. It is also possible that, when you tell them, they may be full of misconceptions about the risks and benefits. SSERC has plenty of material about this, including an article about radiation dose in Bulletin 278 that puts things into perspective.

Tell them the name of the supervisory member of staff
This will be someone who has had direct training from SSERC within the last five years (either face-to-face or online). Their role is ensuring that SSERC's guidance on working with ionising radiation is being followed in the school, though the ultimate responsibility is the employer's. Your SMT should be aware that if this member of staff leaves this role needs to be filled.

Pass on your staff training records
All staff who work with radioactive materials should be trained. With the exception of the supervisory person mentioned above, this can be inhouse, though we do love for as many of you as possible to join us on courses. HSE may in the future wish to know how many people work with radioactive sources and giving your employer a copy of training records is a good way to help them to do this.

Pass on your stocklist and tell them the location of your storage cabinet
This information will be required by the member of SMT who liaises with the Fire and Rescue Service. Your stocklist should consist solely of items approved by SSERC. Our document 'Working with radioactive materials in schools' tells you what you can and cannot keep.

Pass on your completed checklist
Download the checklist from our website. You should be able to tick all the relevant boxes and if you can, you and your employer can be content that you are following SSERC's guidance.

Radon
Your employer should have carried out a radon risk assessment at each workplace. It is not the responsibility of the member of staff who supervises work with radioactive material in the science department to do this, nor is it an area covered by SSERC. Having said that, there was a recent case in England where an independent school was prosecuted for ignoring this requirement.

If you work in an independent school in Scotland you might mention the radon situation to your employer to ensure they are aware. SSERC cannot give comprehensive advice, but we can support employers taking the first steps.

Keeping a classroom pet

We are a nation of animal lovers and, over this academic session, SSERC has received several enquiries about keeping a classroom pet. Your wish list has included terrapins, bearded dragons, snakes, leopard geckos and axolotl. Our Code of Practice (CoP), *Materials of Living Origin*, provides support when making the decision to commit to a classroom pet.

The key consideration is that there should always be sound educational reasons for having any animal in school and the animal's wellbeing should be of paramount importance. A member of staff, who has a sound understanding of the biology and natural history of the animal, should be assigned and we would recommend that a policy is drawn up that includes maintenance and procedures for the care of animals throughout the week, weekend and holidays, together with details of an appropriate vet who can support with professional care if required. SSERC can provide a template of such a policy.

Appendix 5 of SSERC's CoP includes a guide for which animals might be suitable as classroom pets. A brief note on this: we receive many enquiries about reptiles; many reptiles, including the crested gecko (Figure 1), would not be an animal SSERC would recommend given their complex care needs. <<

Figure 1 - Crested Gecko: not recommended as a classroom pet

Use of heavy metals in schools

We have had a few enquiries recently asking whether it is permissible for learners to use solutions of lead compounds in Advanced Higher project work; mainly in connection to enzyme inhibition.

The short answer is yes. The main danger from lead is from long-term exposure, even low level, and this mainly comes from ingestion or inhalation. Even preparing the solutions, there should be no danger of inhalation of dust or aerosols and good laboratory hygiene, perhaps enhanced with the wearing of gloves, should ensure that no lead is ingested either directly or, a more likely scenario, via the hands – which should, of course, be watched after carrying out practical work.

As well as lead, we have had queries about Cobalt compounds. The same caveats apply but both of these, and others, do still pose the problem of disposal. Most heavy metals, including copper, are potent, long-lasting environmental toxins and as such anything other than a very low concentration cannot be washed to waste and needs to be kept for uplift. A recent query involved 0.1 mol l-1 cobalt sulphate and this would need to be over 1,000 more dilute than that to be legally disposed down the sink!

It is also perhaps worth raising here one of the key points of Health and Safety law, including COSHH (the Control of Substances Hazardous to Health regulations): if there is a safer way of achieving an end then that is the way you should do it. There are various enzyme inhibition experiments that can be done that do not raise such issues of toxicity for either the individual or the environment so they are to be preferred unless there is no viable alternative. <<

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