

## Radiation protection news

### Disposal

In Bulletin 248 we reported on an anomaly in disposal regulations for radioactive sources. It was legal to put all currently recommended sources in the dustbin, apart from the protactinium generator and 370 kBq caesium sealed source and for them to be disposed of to landfill. Unfortunately, it was not legal for the bin lorry to transport the waste. This has now been rectified, although the restrictions on the protactinium generator and caesium source remain. Note that in the case of the caesium source, if schools keep it for a not-untypical 30 years, it will be able to be dustbin-disposed at that time if current legislation is not changed. Please contact SSERC if you want to dispose of a source.

### Always ask SSERC...

- If you want to buy a new source;
- If you want to dispose of a source;
- If you want to transport a source.

You will not find guidance about disposal and transportation on our website (other than "contact SSERC") because these are areas we always want to be involved in. With source purchase, you have no option - we must be involved.

### Case study

An on-the-ball technician at one of our recent Radiation Protection courses realised that his school owned a source that should not have been bought. The school had not sought permission from the Scottish Government to buy the source, something done via SSERC, and the supplier failed to ask for a permission letter. The item in question was a 370 kBq caesium/barium eluting source. Unlike the 33 kBq model, this is not on the list of those recommended by SSERC and would have required an expensive permit to keep and use. At the time of writing, it looks as if the situation has been resolved with the help of SEPA. This could, however, have proved to be very costly for the school. ◀

## Explosions in school

It is reasonable to assume that if the words explosion and school appear in the same sentence, then something has probably gone badly wrong. Such events are thankfully rare but not unknown. The HSE has recently prosecuted a school in Bristol after a technician was badly injured in an explosion.

The technician who was injured was preparing Armstrong's mixture, a highly sensitive explosive mixture of red phosphorus and potassium chlorate. Mixtures such as this can only legally be prepared by someone with an explosives license but even with one we would strongly recommend that this particular mixture (along with quite a few others) is simply not suitable for schools. The preparation of anything explosive in a school is an activity that should be approached with the greatest caution and only if there is a clear educational benefit that outweighs the risks. If you are in any doubt as to whether something is suitable to prepare or use in schools, contact SSERC.

Another cause of occasional fracturing of containers that can verge on explosions, though not so common

these days, is organic waste bottles. If these get topped up piecemeal, there is always the possibility of something inappropriate being poured in which can lead to heating, vapourisation and subsequent shattering of the bottle.

We recommend that schools avoid having a standing organic waste bottle of this sort. The more things that are added to a mixture, the more chance there is of something unexpected happening.

If you have left over solvents, the best thing is to evaporate them in a (ducted) fume cupboard as soon as is convenient. If you do not have a ducted fume cupboard then they can be evaporated in a secure area outside in a shallow tray. If this is not possible then after each procedure, collect up the waste, put it in a bottle, labelled with the contents and the date, seal it and put it somewhere safe until the next chemical uplift. It is also sensible in this case to re-think the experiments that are carried out to see if there is a possibility of reducing the waste at source. ◀