

Sealed radioactive source disposal

When the Environmental Authorisations (Scotland) Regulations (EASR 2018) were introduced, there was a subtle but important change to legislation permitting dustbin disposal of sealed radioactive sources with activities of 200 kBq or below. Dustbin disposal was still permitted, provided that waste went directly to landfill. One reason for this is that a lot of waste is now processed to make refuse-derived fuel (RDF). Black bag waste is shredded and electromagnetic induction is used to remove metal waste for recycling. The rest is burned in power plants. Scotland's environmental agency, SEPA, does not want radioactive material ending up in the scrap metal chain. With many councils adopting a 'zero waste to landfill policy', what should a school do if it wishes to dispose of a source?

Firstly, no school should dispose of anything radioactive without consulting SSERC via rpa@sserc.scot. If you want to dispose of your source because you don't want to have radioactive sources any longer, we'll try to talk you round. Perhaps you have a misconception regarding safety or the difficulty of procedures such as leak testing [1]. If we really can't talk you into keeping a resource that supports the teaching of a fascinating topic and that would cost hundreds of pounds to replace, we'll work with you to either dispose of the source if possible, or to rehome it to another school. The worst-case scenario is that you will have to pay for a 'direct to landfill' uplift from your usual waste contractor, or to pay for an uplift from a specialist company which could be very expensive. We are engaging with legislators and have tried to work with the trade to make this easier. To be candid, the whole business of disposal has been a game of 'whack-a-mole' for around a decade. Just when one policy or piece of legislation that is a barrier to disposal is modified, another pops up.

Fortunately, the vast majority of schools see the value in keeping their sources. Our courses [2], some of them free of charge, bust the myths about the risks and

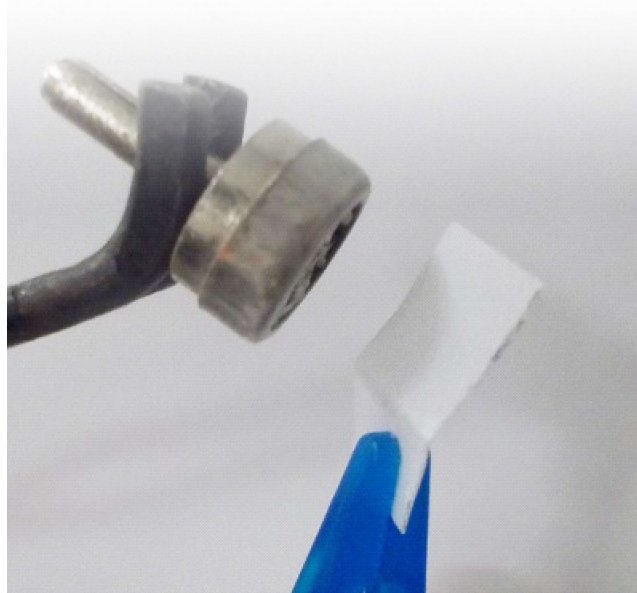


Figure 1 - A source undergoing a leak test.

difficulties. There is, however, one sealed source that even the most enthusiastic schools want to get rid of. This is the cobalt-60 gamma source, though they only wish to dispose of it if it is 25 years old or more. This is because the half life of cobalt-60 is only 5 years. A source with an initial activity of 180 kBq will have an activity of 90 kBq 5 years after purchase, 45 kBq after 10 years and so on. Many cobalt-60 sources in schools are effectively spent. They are no use for experiments. Or are they? Whilst we would be happy to assist a school in disposing of an old cobalt-60 source, if this proved to be expensive we are happy that you are justified in keeping it to demonstrate how a once-active source can have an activity barely above background level after a few years. Keeping the source is subject to it continuing to pass its annual leak test. In the last decade, no sources like the one in Figure 1 have failed a leak test in Scotland.

If you don't have any sources just now and would be prepared to adopt one from another school, please let us know. <<

References

- [1] https://www.sserc.org.uk/wp-content/uploads/Publications/Bulletins/263/SSERC-bulletin-263p11_13.pdf.
- [2] <https://www.sserc.org.uk/professional-learning/secondary-clpl/health-safety-clpl/online-radiation-protection-refresher/>.