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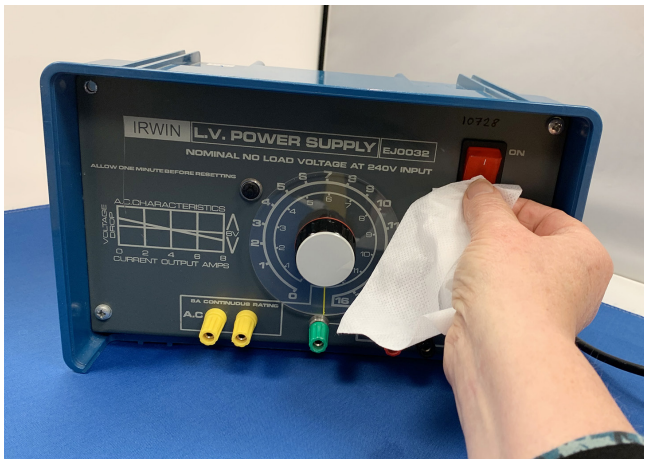
Bulletin 272 Health & Safety

Coronavirus and the cleaning of equipment

From the beginning of the coronavirus outbreak, quite an emphasis was placed on the cleaning/sanitising of hands and surfaces. This was for perfectly good reasons: more familiar viruses, especially flu, are definitely transmitted this way and some early research in April [1] showed that the virus could last for some considerable time on surfaces. As a result, looking at this and other advice from the Scottish Government, we suggested that shared science equipment should be either disinfected between uses or, where that wasn't possible, left for 72 hours or longer to quarantine.

But science changes, particularly when dealing with something new. In July, a paper in The Lancet Infectious Diseases [2] suggested that the previous research overstated the case as it had involved 'infecting' the surfaces with quantities of virus that were far larger than would be likely to occur in real-life situations. They did say, however, that no actual tests had been done to see if this was in fact the case. Recently though, such a study has indeed been carried out and published in the same journal [3]. The researchers conclude that:

> "Our findings suggest that environmental contamination leading to SARS-CoV-2 transmission is unlikely to occur in real-life conditions, provided that standard cleaning procedures and precautions are enforced."



As a result of this, and other, research, the Scottish Government has changed some of its advice in the latest update to its guidance for schools. It says:

> Careful hand washing with soap and warm water/use of alcohol-based hand sanitiser before and after handling text books, jotters (or other pieces of equipment) mitigates the need for quarantine for 72 hours before, and 72 hours after.

SSERC's interpretation is that this can also be applied to equipment used in science and technology. It is important to note that this does NOT mean a return to >>

Other topics

normality. The virus is still here and all possible measures should still be taken to prevent its spread. In health and safety matters, we often use the concept of 'so far as is reasonably practicable'. This means that when we consider a safety measure, we weigh the possible gains against the costs, not just financial but also in terms of time and convenience and indeed the possible impact on learning. Given the increasing evidence that with good hand hygiene, the risk of picking up coronavirus from touching a surface is low, we think that in normal conditions there may not be an absolute requirement to disinfect/quarantine equipment between classes – provided that:

a) Disinfecting/quarantining of the equipment is difficult or time-consuming to the point where practical activities are reduced or not taking place and learners' education is affected. For example, whilst it is practicable to wipe down the rotary control on a physics power supply every time it is used, sanitising or quarantining connecting leads and small components is far less so.

b) An effective system is in place for careful hand sanitising with soap and warm water/use of alcohol-based hand sanitiser before and after handling items.

c) Users of such equipment, teachers as well as learners, should avoid touching their faces. If they do so then they should re-clean their hands before touching the equipment.

d) If there is an event that could potentially lead to greater contamination – such as someone coughing or sneezing on equipment then the item should be cleaned or quarantined before another user touches it. (The chances of this being an issue are greatly lessened in situations where the user is wearing a face covering).

e) Items that might come into direct contact with the face, such as microscope/spectroscope eyepieces should still be wiped with an antiseptic between users.

PPE such as eye protection should still continue to be disinfected in the same way as before as it is in direct contact with the face.

Note that this is between classes – sharing of equipment between individuals in the same class should still be kept to an absolute minimum. In the same way that evidence suggests surface transmission is less important, it is also suggesting that transmission by droplets and aerosols is more important. The sharing of equipment at the same time in a group will inevitably mean they are in close proximity and maximising distance is thus an important factor in minimising the spread of the virus. <<

References
[1] https://doi.org/10.1016/S2666-5247(20)30003-3
[2] https://doi.org/10.1016/S1473-3099(20)30561-2
[3] https://doi.org/10.1016/S1473-3099(20)30561-2

Update of chemistry risk assessments

Any chemistry teacher will no doubt be aware that all of the many chemistry activities listed on our website come with their own model risk assessment that you can customise for your own use.

Over the past few weeks all of these have been reviewed, updated to take account of any changes in procedure and classification since they were last reviewed and converted to an updated format.

All the links on the pages for the chemistry activities have been updated to point to the revised versions and anyone who wishes to download all of them in a single zip file can do so here:

https://www.sserc.org.uk/wp-content/uploads/2020/12/01-Chemistry-Risk-Assessments-2020.zip

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 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.

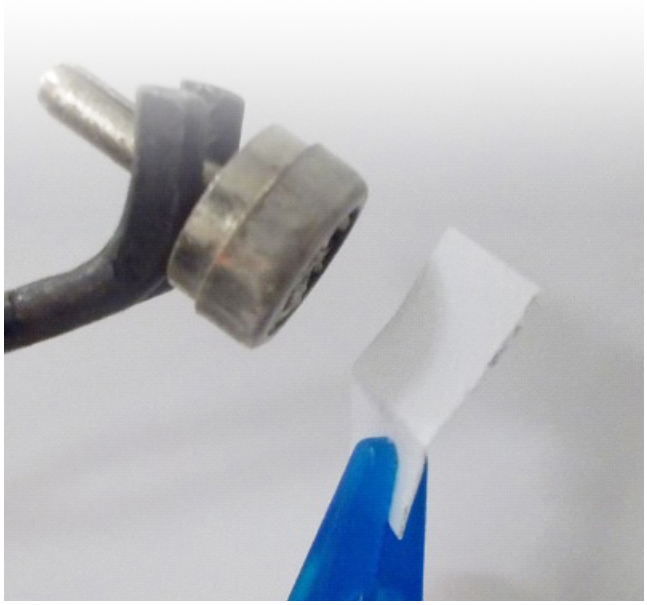


Figure 1 - A source undergoing a leak test.

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/.

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