Chemical waste and septic systems

Posted by Anonymous on Fri, 2018-10-26 16:08

Chemical waste and septic systems: I have been working in the education department for the last eight years, and have recently started working one day a week in a small school.

They have a very old septic system with no known chemical pit.

The school is in a pristine environment and I'm concerned about what I shouldnt be putting down the sink, even with the very small volumes used.

Is there a known resource available for this situation?

Voting:
No votes yet

Laboratory Technicians:
Laboratory Technicians

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Submitted by sat on 26 October 2018

Answer reviewed 2 March 2023

You are correct that septic systems require special considerations when considering the discharge from school science areas. We are not aware of any resource that specifically addresses this situation. However, we can provide some links to general resources and waste minimisation strategies.

Septic systems use anerobic microbes and a physical settling process to clarify the wastewater. The addition of excessive water or very acidic or alkaline solutions can dilute or destroy the microbes. Many laboratory chemicals are hazardous to the environment. Anything chemical that is toxic or hazardous to the environment such as those classified as a Dangerous Goods Classes 6 or 9, should definitely not be disposed of down the sink.

Science ASSIST recommends that no chemical waste should be disposed of into a septic system as it has the potential to disrupt the bacterial processes within the system and harm the environment. It would be acceptable for the rinsing of glassware of most water-soluble chemicals to be disposed of in the septic system as it would involve only trace amounts of chemicals. Very small quantities of acids/bases could be diluted and neutralised, but the total volume of liquid should not be excessive. It would be wise to place caution notices advising of this above the sinks in the laboratories.

The best approach is to minimise the amount of waste produced and arrange for all hazardous waste to be collected by a chemical waste contractor. As far as practicable, we suggest conducting activities on a microscale to reduce the quantity of chemical waste produced.

General information regarding septic tanks

The following documents are generally written to address requirement for households and may contain state specific requirements. They explain how septic systems work and may have some general comments regarding waste that is unsuitable for septic systems that could be applied to schools.

- Government of Western Australia Department of Health. 2011. *Understanding Septic Tank Systems* , Shire of Esperance website, https://www.esperance.wa.gov.au/sites/default/files/publication/files/un...
- SA Department of Health. 2008. *Maintenance of septic tank systems. Wastewater fact sheet*, SA Health website, http://www.sahealth.sa.gov.au/wps/wcm/connect/91200f04-89a8-4aaa-87d9-55...
- ‘Septic Tank Regulations’, A&A Worm Farm website, https://www.wormfarm.com.au/septic-tank-regulations/ (Accessed March 2023)
- NSW Department of Local Government. 2000. *The Easy Septic Guide*, NSW Office of Local Government website, https://www.olg.nsw.gov.au/wp-content/uploads/Easy-septic-guide.pdf (Accessed March2023)

Waste Minimisation strategies

These documents contain ways of minimising and handling hazardous waste in school science laboratories:

- American Chemical Society. 2002*. Less is Better: Guide to minimizing waste in laboratories*. American Chemical Society website, https://www.acs.org/content/dam/acsorg/about/governance/committees/chemi...
- Flinn Scientific. 2017. *Reducing Chemical Waste.* Flinn Scientific website, https://www.flinnsci.ca/api/library/Download/92969b10341a4a75a893ea32fc2...
- Morrison, Kendra A. 2006. *Hazardous Waste Management for School Laboratories and Classrooms* . US EPA website, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100JR1S.PDF?Dockey=P100JR1S.PDF
- National Research Council (US) Committee on Prudent Practices in the Laboratory. *Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards: Updated Version.* Washington (DC): National Academies Press (US); 2011. 8, Management of Waste. Available from: https://www.ncbi.nlm.nih.gov/books/NBK55885/
- Science ASSIST. 2016. Q&A: Hazardous Waste Disposal. Science ASSIST website, https://assist.asta.edu.au/question/3903/hazardous-waste-disposal?search-id=2a1a7c6
- Science ASSIST. 2015. Q&A: Hazardous Waste. Science ASSIST website, https://assist.asta.edu.au/question/3243/hazardous-waste?search-id=2a1a7c6

- Washington State Department of Ecology. 2003. *Step-by-Step Guide to Better Laboratory Management Practices*. Montana Tech website, https://www.mtech.edu/env-health-safety/chem_lab/docs/Step_by_step_guide...
- Science ASSIST, 2018, Chemical Management Handbook for Australian Schools – Edition 3, Science ASSIST website, https://assist.asta.edu.au/resource/4193/chemical-management-handbook-australian-schools-edition-3
