

Chemistry Safety Notes

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"Chemistry Safety Notes" is published by the Chemistry Dept. Safety Committee, written & edited by Debbie Decker, Safety Mgr.

Inspection Calendar

This spring has been particularly heavy with inspections so I appreciate your hard work to deal with the increased volume of corrective actions.

Annually:

March: Fire Code Compliance with Fire Marshal's office (with re-inspections into April/May)

May/June/July: EH&S (Karen Gagnon) (with verifications in August/September)

Mid-October/November: Debbie and Kelsey

Every three years, we have an inspection from Yolo County Environmental Health (CUPA). Those typically don't have a re-inspection associated with them, unless there are egregious findings.

It's important to keep working through corrective actions and communicate with me and Kelsey if you have any questions or concerns. Please be sure to let us know when you have completed your corrective actions. This "closes the loop" on inspections and doesn't leave items unresolved.

Lab-made Samples

As we've been clearing labs to get ready for all of the projects in the building, I've come across a fair amount of lab-made samples for disposal. It's a good idea to occasionally go through the lab sample stash and cull those materials which don't have value. But labelling gets tricky.

Please label these materials as "lab-made samples." Check the "toxic" box and offer any other potential hazards the materials might have—corrosive, flammable, etc. More information is better and gives the hazardous waste group better confidence in how these materials need to be segregated and managed at the ultimate destination.



Sharps Waste

With the switch to using the Yolo County landfill, sharps waste has become a bit of an issue.

Uncontaminated glass can be disposed in a hard-walled container labelled for broken glass or in a broken glass box. Only glass should be in these containers. They may be disposed in regular trash. Please don't overfill the glass boxes as the box could fail if it's too heavy.



Other sharps—blades, needles, pipette tips, etc.—need to be collected in a hard-walled container and disposed through the WASTE program, managed by EH&S. You can use one of the sharps boxes as pictured (be sure to deface the biohazard symbol, if the sharps are not bio-hazard) or any hard-walled container, labelled as sharps with a hazardous waste label.



And while we're on the topic ...

Go easy on the tape on haz waste labels. The label just needs to stick—a single piece of tape should do it. Thanks!

CUPA Results

I have responded to the County with our corrective actions and supporting documentation. There were a total of 12 findings, as compared to over 30 during our last County visit. Most of the findings were gaps in training records. And most of those were a missing training record, rather than a generalized lack of training. We are making great progress in our safety program!

Fire Code Results

The Fire Marshal's office has completed their inspection of the Department and overall, found good compliance. A few extension cords and a few expired peroxide formers but not a lot of other items.

The biggest item, though, has been implementation of the Fire Code requirement that flammable gas be plumbed in hose certified to convey flammable gas. Basically, no natural gas plumbed in Tygon. I've been working with the Fire Marshal's office to determine the best solution for our use case. We've tried 5 different hose types but none are flexible enough to be used with Bunsen burners and not tip over the burner. We're still working the problem so stay tuned for more information. Once we settle on a hose type, I'll buy a quantity of it and distribute it to those who need it.



It's Springtime. I present my potted cat.

Glow guns

If you are going to sacrifice your kid's tub toy for science, maybe do it after an evening bath when you can distract him or her with a toy that actually benefits from its brush with biology. Get two or more BioToy squirt guns, and add some clean water—not from the tub—and a set of special tablets.

Soon you'll have a glow-in-the-dark water fight.

The tablets contain luciferin, a molecule that emits light when activated, and a light-activating protein called luciferase. The luciferase is a human-made version of a molecule from a small, bright deep-sea creature called *Gaussia princeps*. The flashy copepod lives at an ocean depth of over 600 meters, so putting a bunch directly in a water pistol would not be very practical.



Instead, Bruce Bryan and other founders of BioToy figured out the gene inside *Gaussia* that makes the glow-making protein. The same science underpins NanoLights technology, a bioluminescence technology used in biological research. It helps scientists view the functions of genes and molecules inside living cells and study drug activity.

As BioToy puts it plainly on its website, “Creating a squirt gun that could emit bioluminescent water required years of research in biochemistry and engineering.”

Never mind the years of research. What the kids hanging around Newscripts want to know is when they can get their hands on the squirt guns and how late they are allowed to stay up shooting them. According to BioToy, the glow lasts for three to four hours.

By Melody Bomgardner, Chemical and Engineering News, March 14, 2018, Newscripts

Photo Credit: BioToy

Editors' Note: About \$25.00 on the BioToys website—I want one!