

# 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.

## Hazardous Waste

**PLEASE!!!** Avoid over-filling hazardous waste containers. The waste technicians have had problems recently with jerry-cans, in particular. It's dangerous and could cause a spill or an exposure to someone moving the container.

**DON'T FILL ABOVE THE LINE  
AS NOTED ON THE CAN**



**DON'T FILL ABOVE THE SHOULDER**



## Unattended/Abandoned Activities

Over winter break, rather late one evening, I received a call from a sharp-eyed custodian who noticed a burner left on in a lab. We discussed the situation and since he didn't have any training to work in a laboratory, I came over to investigate and turn off the burner. Someone had indeed left a burner on—for how long, I have no idea. In the dark, with the lights out in the lab, the flame was obvious. In daylight, the flame would have been almost invisible.

It's incredibly important to be mindful of what you are doing in the lab and to **NOT LEAVE OPEN FLAMES BURNING UNATTENDED!** Even if you have to leave for just a minute, **TURN OFF THE BURNER!**

Simon's Cat: visit <https://www.youtube.com/user/simonscat> to waste an enormous amount of time watching animated cat videos.

## Self/Peer-Inspections

Inspections in the Department are moving right along. Training records are in good shape and overall, labs are doing well with labeling, chemical storage, and hazardous waste management.

This year, labs will need to transition from the old Chemical Hygiene Plan template to the new [Laboratory Safety Plan](#) template. Our goal is to have this transition accomplished before EH&S begins their inspections mid-year.

## Document Updates

Over the next few weeks, our department safety documents will be reviewed and updated. The Medical Waste Management Plan has been updated. The Injury and Illness Prevention Program (IIPP) and Emergency Action Plan (EAP) will follow soon. I'll let you know once the new versions have been posted.

Once the new versions have been posted, please be sure everyone in the workplace has training on the new versions. You don't have to print out hard copy—pointing to the website is fine.

## FR Gloves—A Heads' Up

We're under a new Cal/OSHA mandate to implement their requirement for flame resistant gloves when using pyrophoric materials. In the next few weeks, Karen Gagnon, our new EH&S Liaison, will be contacting those of you who use pyrophoric materials (and answered in the affirmative on your LHAT) to fit each lab member in the new glove ensemble. UCOP is funding distribution of the glove ensemble. An FAQ will be available soon.

## And speaking of Karen ...

I'm pleased to introduce Karen Gagnon to you. She has a Bachelors from Mount Allison University and a PhD in chemistry from the University of Western Ontario in organic chemistry—developing polymer-supported radiopharmaceutical precursors. She began a post-doc position at UC Davis in Biomedical Engineering with the Sutcliffe lab and most recently, in the Ferrara lab. For the past 4 years, she's been the safety manager for the Ferrara lab. She's been shadowing me and Julia on our inspections and you'll see her mid-year, when she starts her EH&S reviews.



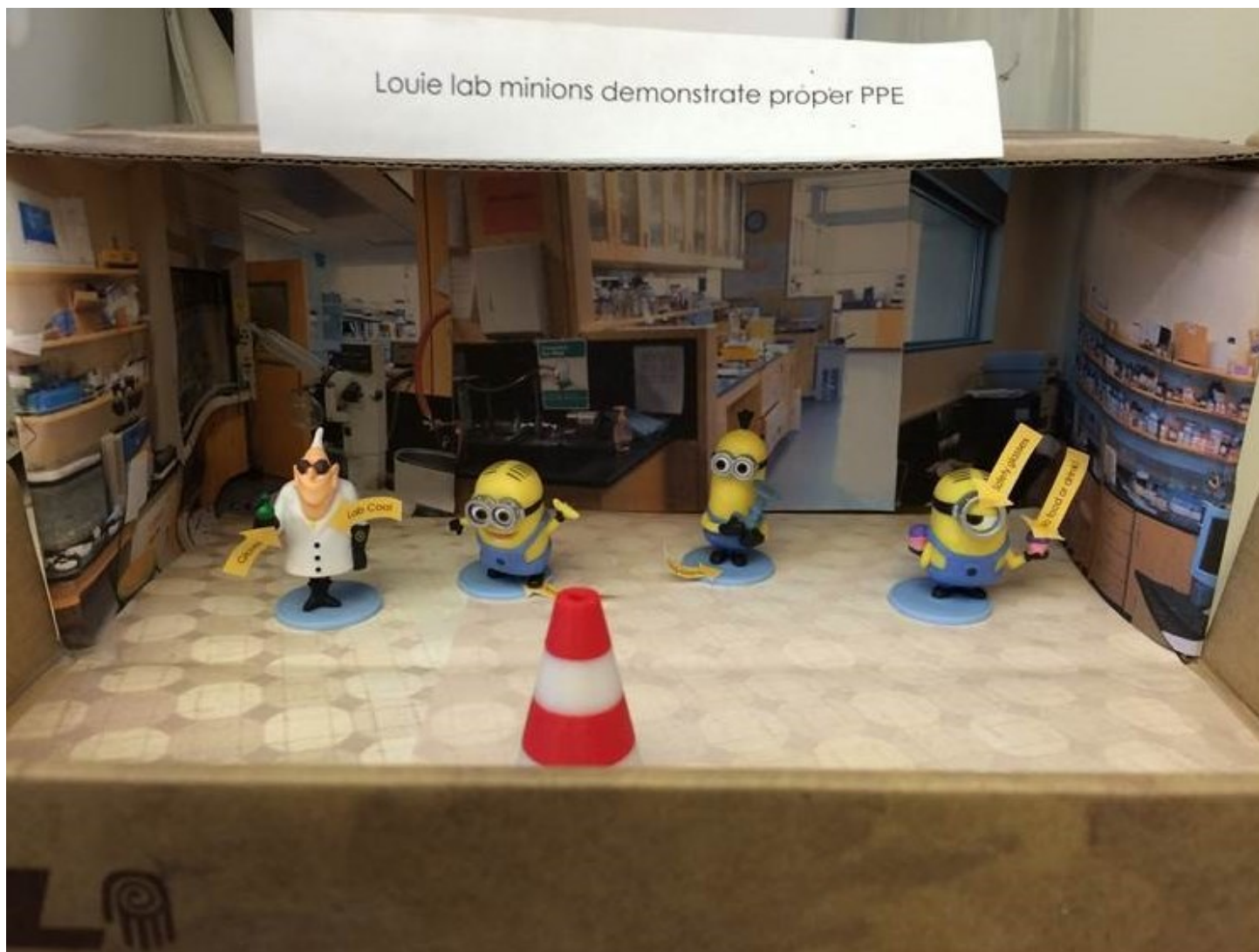
## REMINDER: Hydrogen/Oxygen Balloons must not be demonstrated in- doors.

You can perform this demo outdoors in the courtyard but we have to inform the Fire Marshal. Please let me know at least 72 hours in advance so I can write the permit. You may continue to

use hydrogen or oxygen balloons indoors, just not mixed. *Thanks!*



**From the Louie Lab in the College of Engineering and part of the Graduate Group in Chemistry.**



Captions are:

*Dr Nefario—Gloves & Lab Coat Dave—Long Pants Tim—Closed Toe Shoes Stuart—Safety Glasses & No Food & Drink*



# newscrip**t**s

## SIT ON YOUR PHONE, PEE IN YOUR SOCKS

Sitting on a smartphone and peeing into a pair of socks isn't on everyone's to-do list. But thanks to scientific developments, people may have a better chance of getting away with doing the first, and—strange as it sounds—doing the second could one day save your life.



When it comes to designing **PHONES THAT PEOPLE CAN SIT ON** and not break, South Korea's Samsung thinks it has the weighty problem covered. The firm's scientists have replaced a standard three-point pressure test with a robot featuring a humanlike bottom. The robotic gluteus maximus weighs in at a robust 100 kg and even wears a pair of jeans. While most people accidentally sit on their phone occasionally, Samsung ensures its robotic bottom sits on its phones several hundred times.

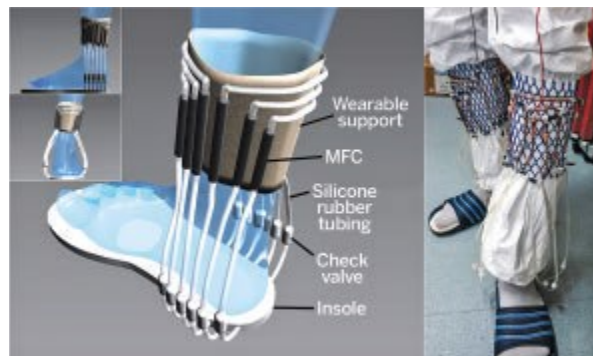
Samsung has used the robotic rear to test its Galaxy Note 4 smartphone. The dummy derriere is “the secret behind the force durability of the Galaxy Note 4,” the firm says. And to withstand being sat upon, the Note 4 was designed by Samsung with a metal frame, a magnesium bracket, and a reinforcing structure parts.

“Leave things in your back pocket long enough and things may bend,” warns Samsung. The firm lists a credit card, wallet, phone, and—bizarrely—a fork as things you may have in your back pocket that can be damaged when you sit on them.

Now that you've sat on your phone, perhaps it's time to pee in your socks. And just as some phones may be stronger than others, not just any socks will suffice.

Ideally, they should only be experimental socks made by University of the West of England professor Ioannis Ieropoulos. Only these feature urine-containing tubes and miniaturized microbial fuel cells (MFCs). When someone takes a pee in the tubes, the **URINE ACTS AS A FUEL** for the MFCs, which generate electricity.

By walking around, the wearer causes silicone tubes with integrated valves to compress under the heel and act as pumps that circulate urine over the MFCs.



The MFCs consist of an anode and cathode separated by a membrane. The microbes, sourced in this case from anaerobic sludge from a wastewater treatment plant, oxidize the urine, generating CO<sub>2</sub>, electrons, and protons—thus producing electricity.

Along with the tubing for the urine, 12 pairs of MFCs are wired into each sock. When Ieropoulos and his team strolled in the socks at 90 steps per minute, they were able to generate 4 V of electricity. This was enough to charge two supercapacitors, which powered a transmission unit that repeatedly sent the message, “world's first wearable MFC.”

“This work opens up the possibility of using waste for powering portable and wearable electronics,” Ieropoulos tells Newscrip**t**s. What's more, the wearable MFC technology could be used to transmit a person's coordinates in an emergency situation, he says.

For those who often sit on and damage their phones, don't mind peeing in their socks, and find themselves in emergency situations, there is now hope.

**ALEX SCOTT** wrote this week's column. Please send comments and suggestions to [newscrip\*\*t\*\*s@acs.org](mailto:newscrip<b>t</b>s@acs.org).

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