

Quarterly Laboratory Safety Update

In This Quarterly Slick:

Lessons learned in lab safety from the year 2020.

- We will start with a warm up - a light exercise for your brain ;-)
- Can you beat the flash? (a flashfire at Northwestern)
- Working Alone. In the Evening. A Bang! (a vacuum pump explosion in Penn State)
- Chemical Safety Library will help you to identify potentially dangerous experiments
- Drones Shop Talk, Friday, November the 20th!
- Health is back in the game;

You are receiving this quarterly newsletter as a part of the UCSB research community.

Please share and encourage lab fellows to [subscribe](#).

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Training

Click [here](#) for details on upcoming EH&S courses.

And here is a special workout for your brain - Solve the following problem:

What are the numbers for X and Y?

Source: Math club 4th grade.

Can You Beat the Flash?



Did you know that there are different types of fire: pool fire, jet fire, flash fire and fireball? A flash fire is the combustion of a vapor cloud resulting from the escape of a flammable material, which after mixing with the air reaches an ignition source. Once ignition occurs, the burning velocity travels from the point of ignition toward the release point, potentially igniting the source as well. Since this ignites the entire volume of the vapor mixture, the volume of the flame is large and

the majority of damage is due to flame impingement (American Institute of Chemical Engineers, Center for Chemical Process Safety. 2003). Large-scale flash fires are particularly dangerous as they can cover a large area and, once ignited, occur quickly and have the potential to ignite the flammable release source. When premixed flammable mixtures are confined to smaller scales, flash fires may become more violent, and even escalate to an explosion (Multiscale Modeling for Process Safety Applications 2016, Pages 5-110).

Understanding how flash fires start, taking steps to avoid these types of situations, and realizing how rapidly a flash fire can spread are all important factors in fire prevention education.

Flash fire incidents are not a rare occurrence. A simple google search will navigate you to many examples of flash fires as a cause for injuries and property damage.

A month ago, [Northwestern](#) published an

incident involving a flash fire. A heat gun used to heat 200 ml Acetone. The incident resulted in serious burns and hospitalization. The photograph is from the fume hood where the experiment was performed. Please take few minutes to read [Northwestern's recommendations](#) on safe work with heat guns.

Vacuum Pump Explosion in Penn University



As usual incidents in the lab have the tendency to happen in the evening, with a researcher working alone, as it happened on August 14th in a chemistry lab, Penn University. A vacuum pump exploded and luckily this time no one was injured.

The **lesson learned** from the incident is priceless:

All vacuum exhaust must be properly vented and include sufficient condensing capacity prior to the pump. The exhaust ports of pumps stored in vacuum pump cabinets must be connected directly to the vent port inside the cabinet. The pump may not vent into the cabinet interior. See photo on the right for example of proper setup.



For the complete Penn University's incident post click [here](#).

Chemical Safety Library

When designing experiment involving hazardous chemicals we can find ourselves in a situation where safety is uncertain. The American Chemical Society is supporting increasing safety in the labs and provides a free Chemical Safety Library (CSL). A quick search can alert you to potential dangerous experiments:

<https://safescience.cas.org/>

Drones Shop Talk Tomorrow!

Join the UC Center of Excellence Brandon Stark on November 20th, 2pm-5pm for a virtual informal afternoon to talk drone tech, drone research, drone laws, drones in pop culture, counter drones and anything else drone related. Plus free *virtual* pizza! (yum! and 0 calories ;-)
A rough timeline:

- 2pm - Drone tech and safety – What's the new tech that's coming out? What are some tips & tricks to flying safely?
- 3pm - Drone research – How are we using drones? Where can I get help with research?
- 4pm - Drone laws – What are the laws now? What will the laws be next year?

Come with questions or just ideas of something you want to hear more about. Or come to share your expertise. We'll all be around to answer questions and just talk drones. And don't forget to fill out our short survey - we're interested to learn how our drone users feel about the current state of drones in the UC system!

[Join Zoom Meeting](#)

Meeting ID: 849 9621 1152

Passcode: 799405

Health is Back in the Game!



We as a Health and Safety department would like to bring the word Health back in the game! We encourage you to take steps to pay extra attention to your physical and mental wellbeing.

You know the drill already - be careful what you put in your body, how you use your body and don't forget your mind as well, because everything is connected. With the holidays fast approaching it is a good reminder for all of us. Put your health first. Eat just enough but not too much and stay away from annoying relatives. Stay away in general is strongly recommended during the Pandemic! To eat healthy doesn't have to be expensive or difficult. We would like to share an easy recipe ([Banana Bites](#)) for a

healthy snack (healthier choice than a granola bar). The recipe will allow you to use those overripe bananas lingering on your counter. Smash them, add a bit of honey (not as much as the recipe calls for), add some quick oats, nut butter and anything else you like - nuts, dried fruits, cocoa powder, etc. From the mixture form a bite size balls and enjoy! Store in the fridge for up to a week.

EH&S staff found out that if you substitute the oatmeal for crumbled pancakes (leftovers from breakfast) and dip the bites in a melted chocolates you will end up with a healthish version of cake pops that are simply delicious!