

Hello Everyone,

I would like to share with you two safety incidents that occurred in the last few days, which were reported to me yesterday. Some other near misses were also reported this academic year, such as broken glass vessels, damaged laboratory equipment, uncapped needles found in the lab, etc. The general recommendations at the end of the document has relevant information to prevent these near misses from happening again.

1. October 18, 2019: Schlenk Line Round Bottom Flask Explosion in Fume Hood

Description: Three undergraduate researchers were performing three freeze-pump-thaw cycles on a styrene polymerization reaction mixture using a Schlenk line round bottom flask. During the first thaw cycle the evacuated round bottom flask imploded, shattering the surrounding water beaker and sending broken glass throughout the fume hood. The majority of the glass pieces remained in the fume hood, as the sash was lowered during the procedure. However, a few small glass pieces went under the sash and resulted in a small cut through the safety glove on one of the student researcher's hand. Some contaminated water was also splashed through the open space under the sash, and reached another student's face. The student was wearing safety glasses, which prevented the water from affecting the student's eyes.

As a note: the students were trained on performing this procedure and were wearing all recommended personal protective equipment at the time of the incident. Other graduate researchers were also present in the lab at the time of the incident.

Action: The first researcher washed their hands thoroughly and after inspecting the minor cut on their hand for any eventual glass shards, they applied a bandage. The other researcher used the emergency eyewash station in the lab and rinsed their face for 15 minutes. No additional medical attention was needed for none of the students involved.

Recommendations: The group was reminded of the importance of thoroughly inspecting the glassware for any cracks and markings before using them for this procedure. The group was also reminded of the importance of performing the procedure with the fume hood sash lowered to a position as low as possible to avoid potential injuries in case of glassware failure such this one. The SOP for this procedure will be updated to include visuals to help identify potential defects in glassware.

2. October 21, 2019: Puncture by contaminated needle

Description: A researcher was preparing a slurry for making an electrode, using a syringe to add the necessary solvent (1-methyl-2-pyrrolidone). When the researcher tried to put aside the syringe, the attached (contaminated) needle accidentally punctured their left thumb.

Action: The researcher removed the chemical resistant safety glove and flushed the puncture site vigorously for 10-15 minutes. The researcher then sought medical attention at the urgent care facility, as it was after hours. No additional action was needed and the researcher was recommended to resume normal activities and can return to work.

Recommendations: Pay close attention when working with exposed needles and avoid any contact with the contaminated needles. Wear puncture resistant gloves when using/handling needles to prevent this type of incident from happening. Do not recap needles; carefully dispose of them in designated rigid containers, labeled accordingly.

Some lessons learned and general recommendations:

1. Undergraduate students should be supervised at all times when working in the lab and only be allowed to perform a task without supervision when the mentor graduate student is sure they are trained and confident in performing the task safely.
2. Always wear the recommended PPE when working in the lab. Make sure the PPE used provides adequate protection from hazards and the necessary dexterity to avoid safety incidents.

3. Never work alone in the lab. It is recommended that at least two people be present in the lab when experiments are performed.
4. Always follow the standard operating procedures and pay close attention to details.
5. Never leave uncapped needles on the bench top or in the fume hood. Dispose of sharps, including razor blades and needles, following Purdue's waste disposal procedures.
6. Always inspect devices, including Swagelok fittings and pieces with threads, to make sure they are mechanically sound and can be used safely for your particular application. Do not use defective/compromised pieces for your experimental setups.
7. Ensure students, including undergraduate researchers, know and follow the incident report protocol.
8. Report any safety incidents or near misses to the group safety officer and to the safety committee chair, and discuss them in your group meetings. Sharing this type of information is key in increasing safety awareness.

Incidents and near misses are great tools to learn from previous situations/events. Please continue to report any safety incidents and near misses that occur in your work area; sharing them with everyone in our School will raise the safety awareness and prevent similar situations from happening.

Sincerely,

Gabriela

On behalf of the ChE Safety Committee