

# 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.

## Extreme Heat

The extreme heat continues in the Valley over the next week or so. Please be careful—stay hydrated, use sunscreen, and avoid vigorous activity in the hottest part of the day. Knowing the signs and symptoms of [heat illness](#) is also important. Don't forget your fur-friends who can also suffer from heat illness. Make sure they have sufficient water, a place to get out of the sun, and avoid vigorous activity in the hottest part of the day. And NEVER EVER leave your pet in a hot car—even with the windows down.

## New Student Orientation

As we launch into the new school year, new graduate students will be arriving, all excited and enthusiastic to work with you. During rotations, it's important to provide and document orientation training in the laboratory. With thanks to Leslie Nickerson, a short training document for rotating students has been developed. Since all graduate students will have had "Fundamentals of Laboratory Safety" training before rotations begin, and using the new worker orientation training sheet (available on the department website at the Safety tab), you can use the Rotating Student checklist. If you would like the checklist, please email me directly.

## Fall Self-Inspection Schedule—Heads' Up

Starting in October, Brittany Anderson and I will be accomplishing our annual self-inspections. The schedule is as follows:

Mondays—1:30-4:30

Tuesdays—9:00-Noon

Fridays—9:00-4:30

Until we're done.

As we get closer, we'll set up an opportunity for you to schedule your inspection. Or not! It's up to you. Since we've been inspected to death this year, I would expect these self-inspections to be pretty quick and painless.



Expectation

Puhsen.com



Reality

Puhsen.com

## Lithium Aluminum Hydride Incident

### Summary:

A fire involving lithium aluminum hydride ( $\text{LiAlH}_4$ ) developed in the stock container when the researcher was weighing out the material. The material had developed a hard crust, making it difficult to remove from the container. The fire self-extinguished and there were no injuries or property damage.

### Details:

A researcher was weighing out lithium aluminum hydride. The  $\text{LiAlH}_4$  had developed a hard crust and required scraping to loosen it enough to get it out of the bottle. This is a common procedure and several people were using this particular bottle of  $\text{LiAlH}_4$ . The researcher, using a metal spatula to scrape away the hard layer, poured the loosened material onto weigh paper and put the bottle down. When they put the bottle down on the bench, a pop was heard, followed by sparks and flame erupting out of the bottle. Witnesses estimated the flames were about two feet high. The researcher stepped back and called for help. Another researcher quickly arrived with sand but the fire had self-extinguished. Sand was put into the bottle for disposal. No one was injured.

### Causation:

According to literature,  $\text{LiAlH}_4$  when it develops a hard crust can become impact/friction sensitive, to the point of ignition/detonation. By disturbing this layer, the researcher exposed the  $\text{LiAlH}_4$ /reactive oxide to impact/friction when they put it down on the counter.

### Corrective Action:

No metal spatulas should be used with  $\text{LiAlH}_4$  – plastic or Teflon only. If  $\text{LiAlH}_4$  shows evidence of lumps or hard layers, it needs to be immediately disposed through EH&S. Disposable plastic spatulas should be alongside balances throughout the lab suite, with instructions for use of  $\text{LiAlH}_4$  and other similarly (e.g., sodium borohydride) reactive materials.

### Editor's Note:

*The lab responded appropriately to this incident but because the fire was put out, didn't know they needed to call the Fire Department anyway. I have since discovered there are reporting requirements when there's a fire involving hazardous materials. So PLEASE, call me or call the Fire Department when there's a fire in your lab. Even if it's little and it gets put out and you didn't use a fire extinguisher.*

## Incompatible Wastes

An all-too-common waste issue came up in the health and safety community recently. A container was being cleaned to be reused. The liquid residue in the container was assumed to be water but was actually hydrochloric acid. The worker added acetone to rinse and dry the container and it reacted with the HCl residue, causing a violent reaction.

It's important to carefully rinse containers for re-use with water before using an acetone rinse or adding any hazardous waste. It's also important to completely remove the residual acetone, too, before adding hazardous waste.



## Chemical Hygiene—PPE

### *Let's review:*

**One glove, only**, in common areas and outside the lab. Two gloves can spread contamination around public areas, without a bare hand to turn doorknobs, etc. Bad form.

**Remove lab coats** in common areas such as offices and restrooms. Can spread contamination. You may continue to wear a lab coat as you travel between labs.

**Cover feet and ankles** as required by Policy. No skin showing!!!!



## Haz Waste Recharges

From the Office of the Chancellor:

It was declared that the Hazardous Material Removal and Radiation Use Authorization programs would transition from recharge to being centrally funded. This went into effect on July 1, 2017. What this means is that EH&S will no longer recharge for hazardous waste and radioactive waste disposal with this new fiscal year. Hazardous waste disposal requests must still be submitted via WASTE, and user accounts currently still require a recharge account to be associated with it for tracking purposes only. Radioactive waste disposal requests must still be submitted via the Radioactive Waste Request form found [here](#).



## ***American Chemical Society—Safety Initiatives***

**“ACS values safety at the foundational level, through safety’s inclusion as a core strategic value and its position on safety in the chemistry enterprise.”**

*After a several decades of advocacy and hard work by the Division of Chemical Health and Safety and the Committee on Chemical Safety, the American Chemical Society has finally made safety a core value of the Society. Additionally, the Society has made safety a centerpiece of technical programing at National Meetings and developed a cohort of safety resources on the ACS website.*

Go to <http://www.acs.org/safety>, and click through the various tabs. You’ll find there the Safety Ethic:

**“I work safely,  
value safety,  
prevent at-risk behavior,  
promote safety, and  
accept responsibility for safety.”**

*And this policy statement of the Society:*

Devastating incidents in laboratories remind us that safety requires constant, systematic attention.

“Safety is everyone’s responsibility” is a mantra that sets the tone for safety in an organization. It reflects the safety ethic. It is a simple reminder that safety culture is personal, and that everyone has a role ensuring a safe environment for all.

Building positive attitudes toward safety requires leadership and continual reinforcement of safety’s importance.

Strong safety cultures are seen in organizations that:

- Actively lead and manage safety throughout the organization
- Teach basic laboratory and chemical safety
- Embody safety attitudes, safety awareness, and safety ethics
- Learn from incidents
- Collaborate interactively to build a safety culture
- Promote and communicate safety
- Fund safety programs and supplies

ACS is committed to supporting strong safety cultures in organizations throughout the chemistry enterprise.

*This is a safety culture we should aspire to.*