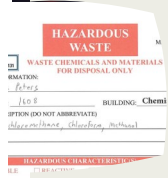




▶ LESSONS LEARNED..... 4

ISSUE 9 ○



▶ NEW WASTE LABELS ... 5



▶ UPENN EXPLOSION .... 6

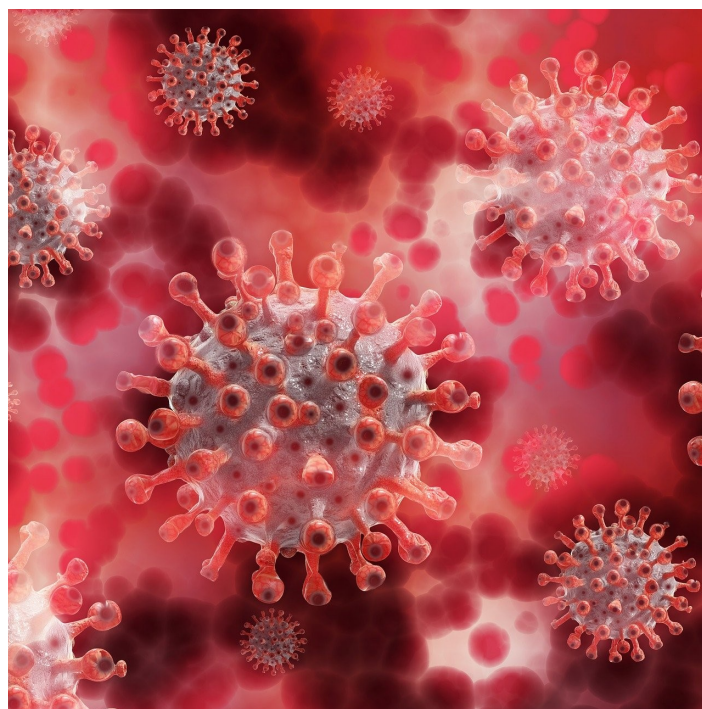
# Safety *first*

BRINGING A SAFETY WORKPLACE TO ALL MEMBERS OF THE CHEMISTRY BUILDING

## COVID On Campus

The current COVID-19 pandemic has added a lot of new challenges to all aspects of life and has drastically changed how we work in our research labs.

The pandemic and the University's response to it has created a dynamic situation where procedures and rules are regularly changing. Please watch your inbox for emails from President Schlissel or Ann Curzan with COVID updates. You can also look at current UM COVID-19 data including cases on campus by going to the UM COVID-19 Dashboard at: <https://campusblueprint.umich.edu/dashboard/>



## Mask Requirements

As of October 2020 everyone on campus is required to wear a mask at all times when in public spaces or in labs. If you see anyone not wearing a mask in the building please fill out the form on the link below so the University can track the concerns:

<https://lsa.umich.edu/lsa/health-and-safety-compliance.html>

For immediate assistance contact Chris Peters (763-4527) and Tracy Stevenson (647-8932).

# Lessons Learned

## Palladium on Carbon Fire

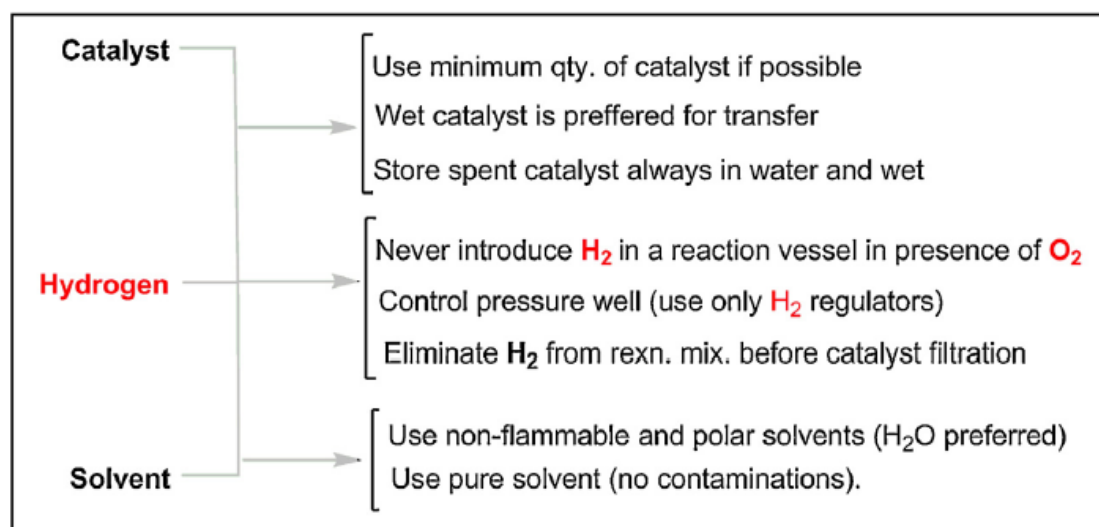
A small fire was caused in a fume hood while using palladium on carbon. After filtration a small amount (approximately 1mg) of dry palladium on carbon sparked and started a small fire (on the funnel). The fire was immediately extinguished with sand. DPSS was contacted immediately and investigated the scene.

Hydrogenation reactions, especially those using palladium on carbon as the catalyst can be extremely dangerous and must always be done with caution. Please remember to keep a container of sand and/or Lith-X powder nearby when doing these types of reactions.

The Journal of Chemical Health and Safety has a good article on hazards and safety related to hydrogenation reactions in the lab. You can read this journal article at the following link:

<https://pubs.acs.org/doi/10.1021/acs.chas.8b23407>

An excellent best practices table for performing hydrogenation reactions is below.



**Figure 10. Best practices for catalyst, hydrogen and solvent handling.**

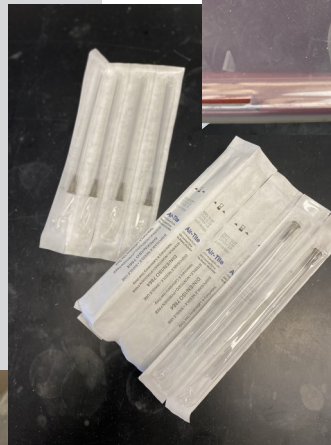


# Lessons Learned

## Needlestick

A graduate student was putting away a needle when they accidentally bumped it and the needle pierced the skin on the back of their thumb. Luckily the needle was being used to vent headspace and was no chemical in the needle or syringe.

This shows the importance of not reusing or recapping needles. Not only does this create possible contamination in your experiments this also drastically increases the risk of needle stick injuries. When you are done with using a needle the safest thing to do is to immediately dispose of it in a sharps container.



## Sparking Cotton Rod

An incident occurred in one of our graduate labs that caused a spark at one of the hood outlets. The notification said that the spark was caused by a "cotton rod". Upon investigation it was found that the "cotton rod" was actually a bent coat hanger the was being used to push cotton down columns. The rod was being kept on a hook directly in front of the hood outlets. When a heat gun was plugged into the outlet the rod got between the plug and the outlet causing an arc and short circuited the system. The incident did not cause any injuries or permanent damage.

Please remember to keep outlet areas clear of items. No items, especially not those that are made of metal should be placed near or in front of power outlets. Doing so poses the risk of interfering or catching during the insertion or removal of plugs like what happened in this instance.

# Safety Tips

## Waste Label Refresher 2020 – Chemistry Building

In an effort to comply with state and federal regulations I need everyone to go through this quick refresher training on how to properly fill out a hazardous waste label.

Waste containers can be found throughout the building in waste closets and cabinets. There are several varieties available in these areas so please remember to only use waste containers that are compatible with your chemical waste (ie. No hydrofluoric acid in glass bottles or liquids in pails).

Each waste container comes with a hazardous waste label already on it. It is very important that this label be filled out immediately when the container starts being used. The label must have all the following information clearly labeled:

*Name (A)* – This should be the name of user not the group name

*Room Number (B)* - This should be the room number where the waste is generated

*Accumulation Start Date (C)* – This should be the date when the container begins being filled.

To prevent old waste from lying around for extended periods of time all waste should be given to the Waste Coordinator within 60 days of when it begins being filled even if there is only a small amount of waste in the container.

*Chemical Description (D)* – This area should contain a list of all hazardous materials. Be specific with chemical names, general terms such as organic solvents or metal salt as well as abbreviations or drawings are NOT acceptable.

*Hazardous Characteristics (E)* – This area just needs a check mark in the box next to ALL applicable hazardous characteristics for the waste.

**IMPORTANT NOTE: All waste containers must be kept closed at all times except when adding waste.**

Once the container is filled or it is at the 60 day limit place the waste container in secondary containment inside of your labs designated accumulation area (usually a waste closet). The Hazardous Waste Coordinator then picks up the waste multiple times a week.

The University of Michigan  
DEPT. OF EHS  
1655 Dean Rd.  
Ann Arbor, MI 48109-2159  
(734) 763-4568

**HAZARDOUS WASTE**

EPA ID No. MIR000001735  
MANIFEST TRACKING # \_\_\_\_\_

**IN CASE OF EMERGENCY CONTACT**  
U-M PUBLIC SAFETY (24 HOURS): (734) 763-1131

**WASTE CHEMICALS AND MATERIALS FOR DISPOSAL ONLY**

GENERATOR INFORMATION:

(A)–Name NAME: Chris Peters

(B)–Room Number ROOM NUMBER: 1608 BUILDING: Chemistry

(D)–Chemical Description CHEMICAL DESCRIPTION (DO NOT ABBREVIATE) Acetone, dichloromethane, Chloroform, Methanol

MI Act 451/  
RCRA Waste Code

(E)–Hazardous Characteristics

**HAZARDOUS CHARACTERISTIC(S)**

IGNITABLE     REACTIVE     CORROSIVE  
 TOXIC         OTHER: \_\_\_\_\_

Accumulation Start Date 10/14/2020

(C)–Accumulation Start Date

Rev 7/20

# Vacuum Pump Explosion at University of Pennsylvania

In August a Chemistry graduate student was working in a lab at the University of Pennsylvania was attempting to evaporate a solution of ethyl acetate and hexane using a Buchi Rotovapor connected to a rotary-vane roughing pump. When the student turned on the power to the pump the vacuum gauge indicated that the pump was not providing vacuum so the student toggled the switch off and then back on. Upon turning the switch back on a loud bang was heard and the doors to the cabinet burst open with the vacuum pump on fire and filling the room with smoke. The student pulled the fire alarm when leaving the area and the fire department arrived and put the fire out with water.

Luckily the student was not standing in front of the cabinet at the time of the incident and no one else was in the room at the time so no one was injured from this incident.



Picture Courtesy of University of Pennsylvania EHRS

After investigating, the UPenn EHRS department determined the most likely cause of the explosion was the ignition of high concentration of diethyl ether which had been evaporated by the rotovap earlier in the day. They believe that the diethyl ether may have been pulled into the vacuum pump and then exhausted into the cabinet. When the switch was turned on both the pump and a cooling fan were energized and one caused a spark which ignited the diethyl ether.

## How to Prevent a Similar Incident Here

- One of the most important things you can do in your lab is to make sure you have the correct temperature and pressure for the solvent you are using.
- Since Buchi is the most common rotovap we use in the building please see the links below for Solvent Recommendations and Proper Use.
  - [Buchi Solvent Evaporation Recommendations](#)
  - [Buchi Rotovapor Optimal Use Guidelines](#)
- Maintain your vacuum pump regularly and keep records of all maintenance for each of your pumps.
- Use a cold trap between your pump and your experiment. This will minimize the amount of volatiles that reach the pump
- Empty the traps immediately after the experiment is complete. Solvent may evaporate at room temperature and go into the pump when it is turned off.



Picture Courtesy of University of Pennsylvania EHRS

## Mental and Emotional Health

Although it is not thought of often as part of health and safety, your mental and emotional health is also extremely important to your wellbeing.

In these unprecedented times it

is more important than ever before to care of yourself.

To this end the University has many

resources for those that are struggling to cope with everything going on. For Undergraduates and Graduate students we have the Counseling and Psychological Services (CAPS) Department which

provides free counseling (currently both virtual and in person). To make an appointment to talk to someone please contact CAPS at (734) 764-8312 or online at

[caps.umich.edu](http://caps.umich.edu).

For staff members including Postdocs we have a similar group called Faculty and Staff Counseling and Consultation Office (FASCCO)

which can provide counseling. They can be contacted at (734) 936-8660 or by emailing [fascoco@umich.edu](mailto:fascoco@umich.edu).

*To make an appointment to talk to someone please contact CAPS at (734) 764-8312 or online at [caps.umich.edu](http://caps.umich.edu).*

## UPCOMING INSPECTION

Always Be Ready!



The Chemistry Building is due for a MDEQ inspection in the near future. Although MDEQ inspections primarily focus on issues with chemical waste, we also must be prepared for MIOSHA and other regulatory agencies at any time. Please make sure your lab is always in compliance with health and safety regulations.

## Events

Classes begin ..... Aug 31, Mon

Labor Day.....Sept 7, Mon

Thanksgiving Recess.....Nov 21, Sat

Classes Resume..... Nov 30, Mon

Classes End..... Dec 7, Tues

Study Days..... Dec 9 Wed,  
Dec 12-13 Sat-Sun

Examinations ..... Dec 10-11,  
Thur-Fri, Dec 14-18, Mon-Fri

Commencement Activities.....Cancelled

## Dry Ice/LN2

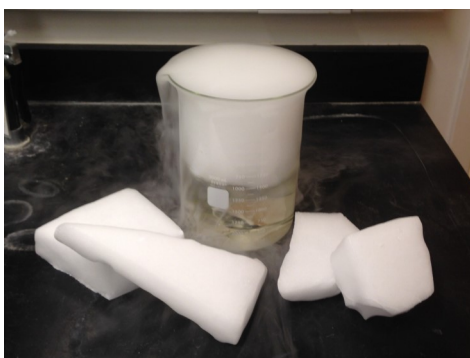
### Dry Ice

Dry ice is available from 10:00am-11:00am and from 2:00pm-3:00pm Monday-Friday in room A601.

### Liquid Nitrogen

Department dewars are accessible 24 hours a day outside of room A602 for small (under 15L) liquid nitrogen quantities.

Large dewars of liquid nitrogen can be ordered by emailing [chrpeter@umich.edu](mailto:chrpeter@umich.edu) by noon one business day before its needed.



## Contact Information

### **Package Shipping**

Christopher Bluteau — [chrisblu@umich.edu](mailto:chrisblu@umich.edu)  
Phone—615-5034

### **Waste Issues**

Laurie MacDonald—[lanald@umich.edu](mailto:lanald@umich.edu)  
Phone 764-7325

### **Safety Issues/Concerns**

Christopher Peters—[chrpeter@umich.edu](mailto:chrpeter@umich.edu)  
Phone—763-4527

Tracy Stevenson—[steventi@umich.edu](mailto:steventi@umich.edu)  
Phone—764-7316

### **Chemical Inventory Questions**

Anson Pesek—[ahpesek@umich.edu](mailto:ahpesek@umich.edu)  
Phone—647-8932

### **Maintenance Requests**

Routine Work Request Form on Chemistry Intranet

Baby Henry Wants You  
To Be Safe

