

# 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.

## EH&S Inspections Completed

Thanks for your hard work! Please review this list and make it a goal to not have repeat findings next year!

### Some statistics may be helpful:

- ◆ 34 Inspections accomplished
- ◆ 134 Lab spaces visited
- ◆ 289 Findings were found
- ◆ 50 Days—Average time to complete inspection

### Top Ten Findings for 2018:

1. Hazard assessment not up to date or reviewed
2. SOPs unavailable
3. Chemical storage containers not in good condition
4. Chemical containers not clearly labelled
5. Spill response training is not documented
6. Chemical inventory not completed or updated within the past 12 months
7. Training on the Campus CHP not documented
8. Haz waste not properly labeled
9. Incompatible chemicals stored together
10. Training on the EAP or IIPP is not documented

### Top Ten Findings Since 2015

1. Hazard assessment not up to date or reviewed
2. Chemical containers not clearly labeled
3. SOPs unavailable
4. Chemical inventory not completed or updated within the past 12 months
5. Chemical containers are not in good condition
6. Hazardous waste not in secondary containment
7. Incompatible chemicals stored together
8. Haz waste not properly labeled
9. Lab personnel have not completed lab safety fundamentals training
10. Compressed gas cylinders not adequately secured.

## Lazy Costume Ideas



A leaf



A burrito



A treat



A pie



A people

Pusheen.com

## Pusheen's guide to Pumpkins



See a pumpkin



Taste a pumpkin



Carve a pumpkin



Be a pumpkin

## Cooling Water—a cool idea

One-pass cooling water is not responsible behavior in our continuing drought and not safe due to risk of flooding. In my travels, I discovered an elegant and cheap way to accomplish cooling without these risks.

Using a simple aquarium-type pump and some Tupperware®, the Shaw lab created a narrow profile recirculating cooling water apparatus. A very clever solution. The whole assembly tucks behind the “monkey bars” in the fume hood and connects from the pump to the condenser (or similar) for cooling. If additional cooling is needed, ice can be added to the water.

Materials available on Amazon for less than \$25.00.



## The Invisible Gorilla

The Invisible Gorilla [video](http://www.theinvisiblegorilla.com/gorilla_experiment.html) shows when we're focused on a particular activity, many of us will overlook other significant events. The extension to lab safety is if you are overly focused on particular problems (for example, safety goggles or waste), you may miss other obvious threats. Visit [http://www.theinvisiblegorilla.com/gorilla\\_experiment.html](http://www.theinvisiblegorilla.com/gorilla_experiment.html) for the video.

The authors write: “This experiment reveals two things: we are missing a lot of what goes on around us, and we have no idea we are missing so much. ... And it got us thinking many other intuitive beliefs we have about our own minds might be just as wrong. We wrote *The Invisible Gorilla* to explore the limits of human intuition and what they mean for ourselves and our world.”



## Construction Update

**Chemistry Sprinkler Project:** *A little ahead of scheduled completion 31December2018*

**Chemistry Annex Sprinkler Project:** *Will start as soon as Chemistry Sprinkler project is substantially completed, with scheduled completion 30June2019*

**PSE Library Seismic Retrofit & QMAP Renovations:** *While this project isn't part of the overall Chemistry complex planning, this construction does affect us due to its proximity to the Annex, in particular.*

**Chemistry Seismic Corrections:** *Will provide structural corrections to the foundations, exterior wall and interior columns (4th & 5th floors) getting underway very soon*

**Chemistry Addition & Phase 1 Renovation:** *Will provide renovation of a portion of 1st floor Chemistry, 25K sf addition and improvements to building exhaust and electrical systems. Construction start Spring 2019.*

Good eeeeevening.



I am Count Fluffula.

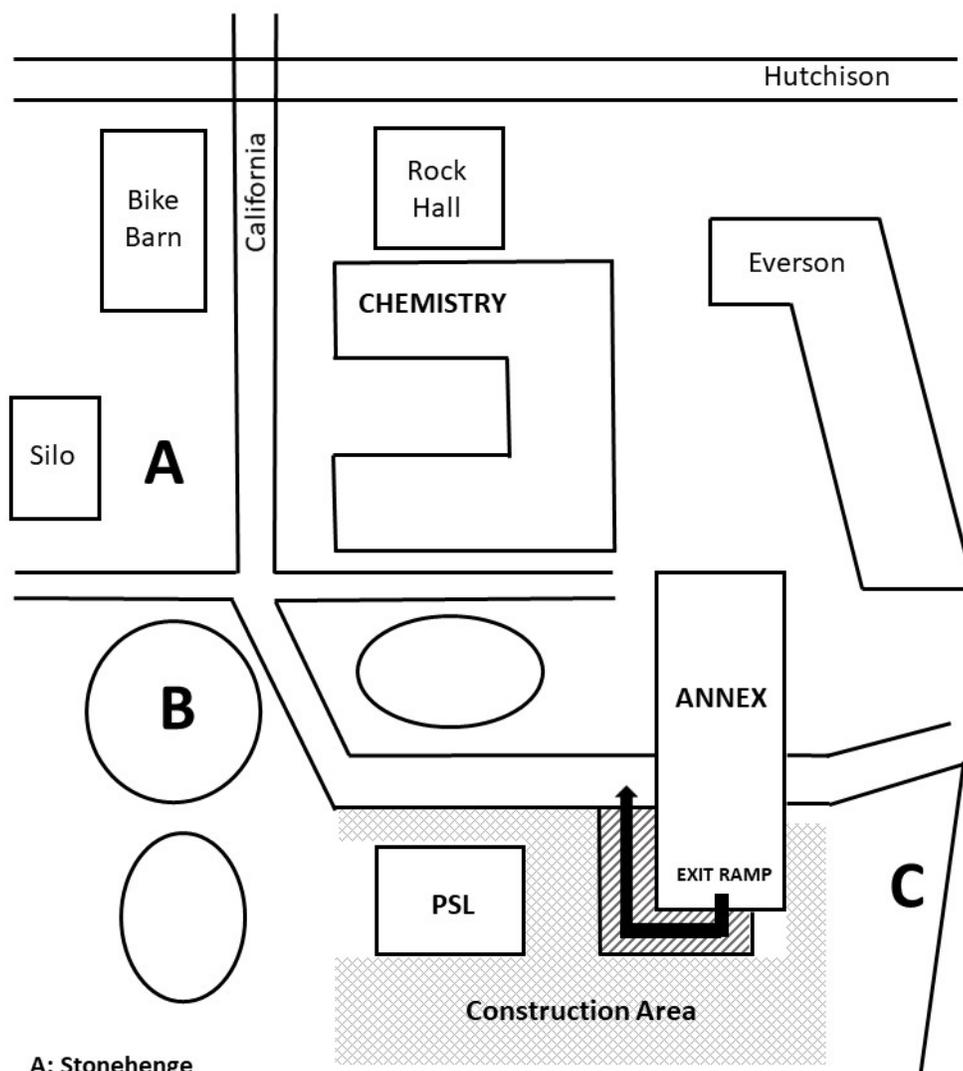
## Evacuation Routes and Gathering Points

With significant construction around the buildings, exiting and evacuation routes have had to be reconfigured. We've also adjusted gathering points.

- A. Stone Poem sculpture (known colloquially as "Stonehenge")
- B. Grassy knoll nearest PSE Library and Roessler Hall
- C. Gingko tree in the grass near Mrak Hall (here's a picture of a [gingko tree](#), if you don't know what they look like)

A new evacuation map has been created (below) and incorporated into the Department's [Emergency Action Plan](#). Please update your records and train everyone on new gathering points, if necessary.

### Department of Chemistry Research Laboratory Evacuation Meeting Points

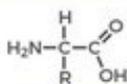


- A: Stonehenge
- B: Grassy Knoll (between Chem, PSL, and Bainer)
- C: East side of Chem Annex near Gingko tree

# THE CHEMISTRY OF VENUS FLYTRAPS

Most plants get nutrients from the soil. But Venus flytraps prey on insects to get what they need. Here, we look at how these carnivorous plants molecularly lure and trap their prey.

## CARNIVOROUS PLANTS



AMINO ACID

When Venus flytraps digest prey, they extract nitrogen from the insects' amino acids to make proteins and extract carbon to fuel respiration.



## LURING PREY

60  
VOLATILE  
ORGANIC  
COMPOUNDS

TERPENES

BENZENOIDS

ALIPHATICS

These plants attract prey with brightly colored traps and by releasing fruity and flowery scents, such as terpenes.

## TRAPPING PREY

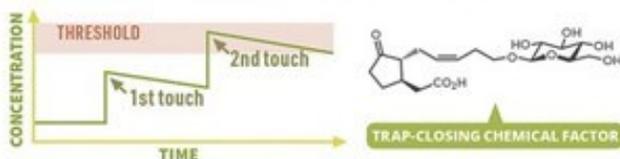


TWO STIMULI IN <30 s

0.1 SECONDS TO CLOSE



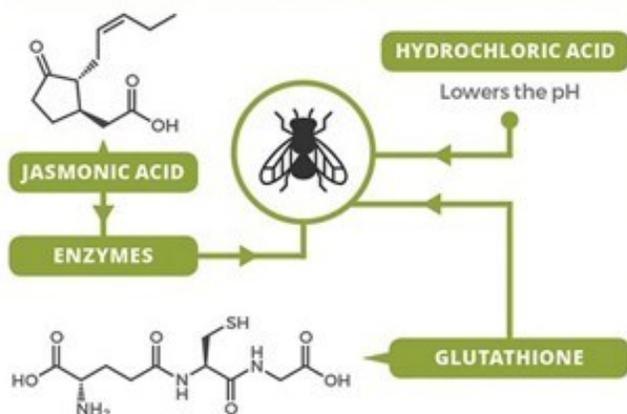
If an insect touches a trigger hair in the trap once, nothing happens. If a second hair is ruffled, the trap snaps closed.



The touches cause accumulation of chemicals, including  $\beta$ -D-glucopyranosyl-12-hydroxyjasmonic acid (above). When their concentrations reach a threshold, the trap closes. More touches start production of the hormone jasmonic acid.

## DIGESTING PREY

Jasmonic acid signals the trap to make digestive enzymes such as proteases. When the trap seals, the pH drops. Glutathione protects the enzymes in the acidic environment. The digestion process takes up to five days.



PERIODIC  
GRAPHICS



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### In case you didn't know:

The campus plant conservatory (near Hoagland Hall), has a greenhouse dedicated to [carnivorous plants](#). It's the largest collection of carnivorous plants in the world! You can go and see the plants, during regular business hours. It's very cool.

