2018 Annual Safety Training for Art

Kevin Crowley | EH&S | 15 September 2018

Portland Community College

Introduction

Agenda:

- EH&S Overview
- Requesting Assistance
- PCC Accident / Incident Review
- Hazardous Materials Requirements
- MSDSonline
- Hazardous Waste Requirements
- Other Regulated Wastes
- Small Spill Response
- Fire Extinguisher Use
- Equipment Specific Training
- Questions

Note: Topics falling within the purview of Public Safety or Risk Services will **not** be covered

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EH&S Overview – EH&S Website

Elements:

- Safety Procedures, Guides & Forms
- Environmental Compliance
- Chemical Management & Waste
- Training
- Safety Compliance
- Resources
- AEDs & First Aid Kits
- Drinking Water Testing
- Contacting EH&S

EH&S Overview – Program Review

- **Health & Safety Manual:**
  - General Safety Policies & Responsibilities
  - Accident/Incident Investigation
  - Safety Committees Charter
  - Bloodborne Pathogens Plan
  - Confined Space Entry
  - Electrical Safety
  - *Emergency Response Action Plan*
  - Hazard Communication
  - Chemical Hygiene Plan
  - Control of Hazardous Energy
  - Noise & Hearing Conservation
  - Personal Protective Equipment
  - *Asbestos Removal & Maintenance Programs*
  - Forklift & Industrial Vehicles
  - *Mechanical Hazards – Controls & Facility Safety*
  - Welding Safety
  - Respirator Protection Plan
  - Contractor Notification
  - *Industrial Hygiene Program & Air Monitoring Results*
  - *Fall Protection*
  - *Regulated Wastes*

Under construction / updates in progress

EH&S Overview - Staff

- Cheryl Arpan:
  EH&S Manager

- Jeff Edwards:
  OSHA Compliance

- Kevin Crowley:
  Industrial Hygiene, Training

- Evelyn Prater:
  DEQ Compliance, MSDSonline

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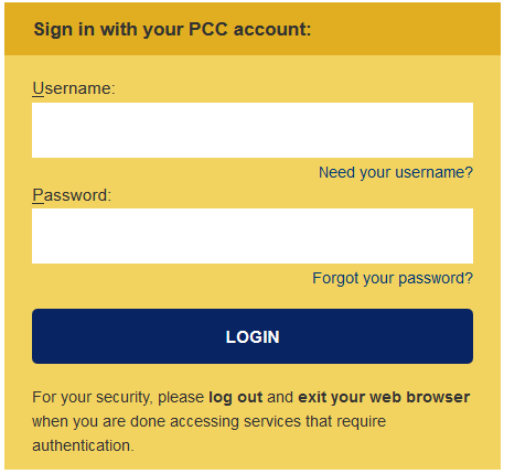
Requesting Assistance - Routine

- **Contact the Service Request Center (SRC)**
  - (971) 722-4800 or x4800 from a PCC phone
    - Pros: Interaction with an operator
    - Cons: Very limited time for each call
  - src@pcc.edu
    - Pros: All the benefits of email
    - Cons: No guidance or human interaction

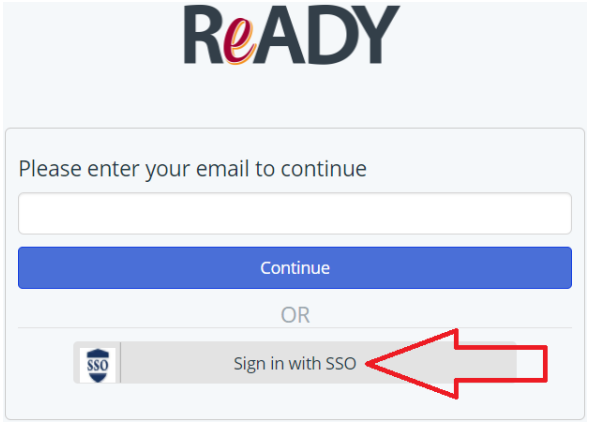
- **Use ReADY:**
  - Access via MyPCC>Employee>Intranet>Staff Resources>Facilities Management Services>Make a Request
  - Preferred Option

Requesting Assistance - Routine

- **Logging In:**



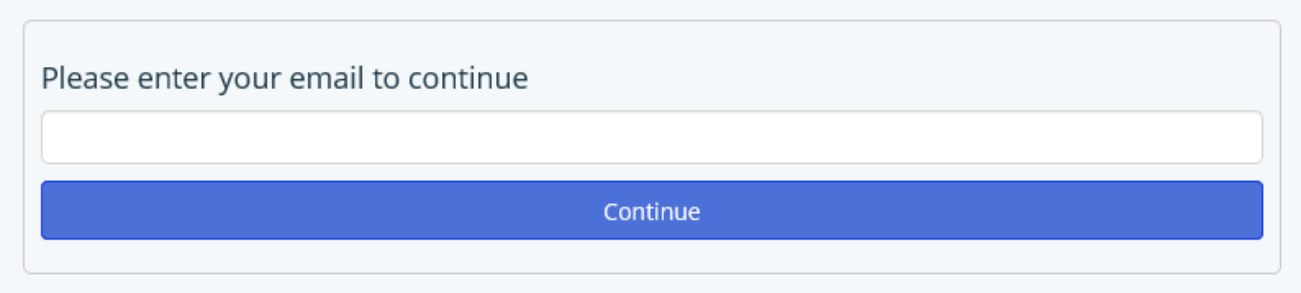
myPCC login screen



Alternate login screen

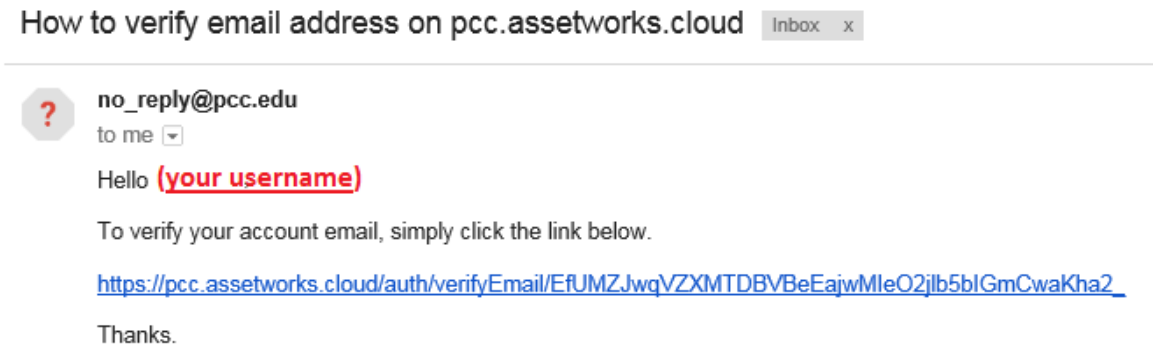
Requesting Assistance - Routine

- **If this is your first time logging into ReADY, you will be asked to enter your email address:**



Requesting Assistance - Routine

- **You will receive an email from ReADY asking to verify your email; Click on the provided link to verify your email**


How to verify email address on pcc.assetworks.cloud Inbox x

no_reply@pcc.edu

to me

Hello (your username)

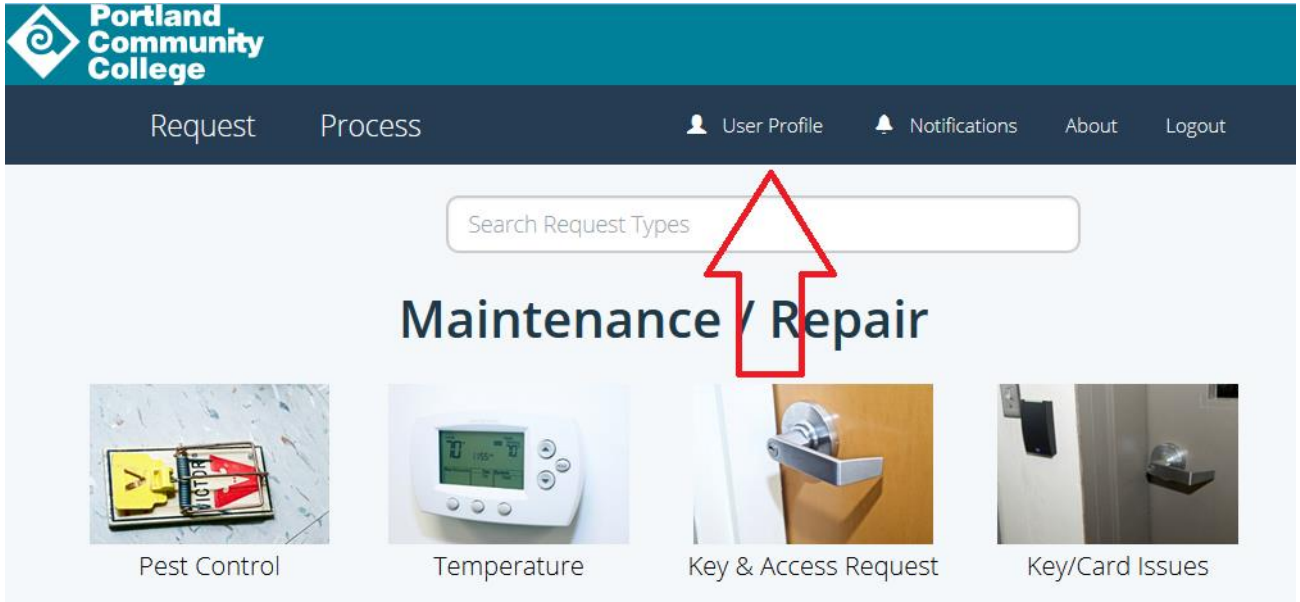
To verify your account email, simply click the link below.

https://pcc.assetworks.cloud/auth/verifyEmail/EfUMZJwqVZXMTDBVBeEajwMIeO2jlb5bIGmCwaKha2_

Thanks.

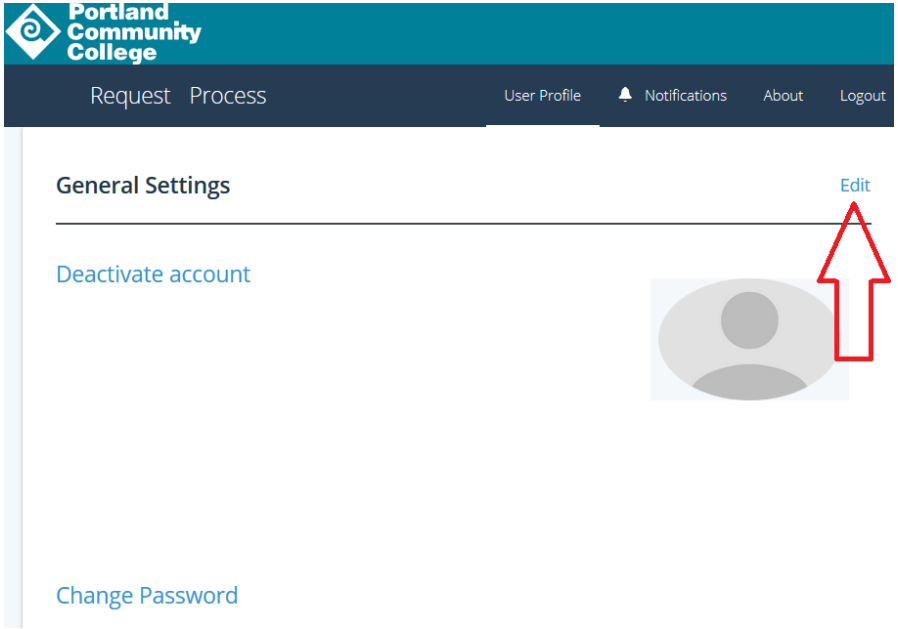
Requesting Assistance - Routine

- **Home screen - Click on User Profile link to set up User Profile**



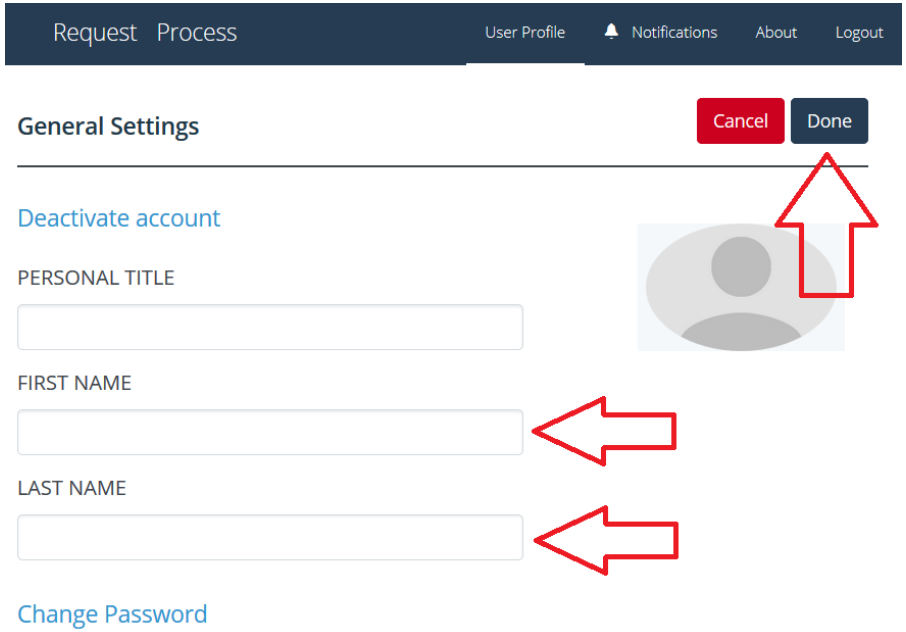
Requesting Assistance - Routine

- **User Profile Screen: Click Edit button (upper right side)**



Requesting Assistance - Routine

- **User Profile Screen: Fill out your first/last name fields and click Done**



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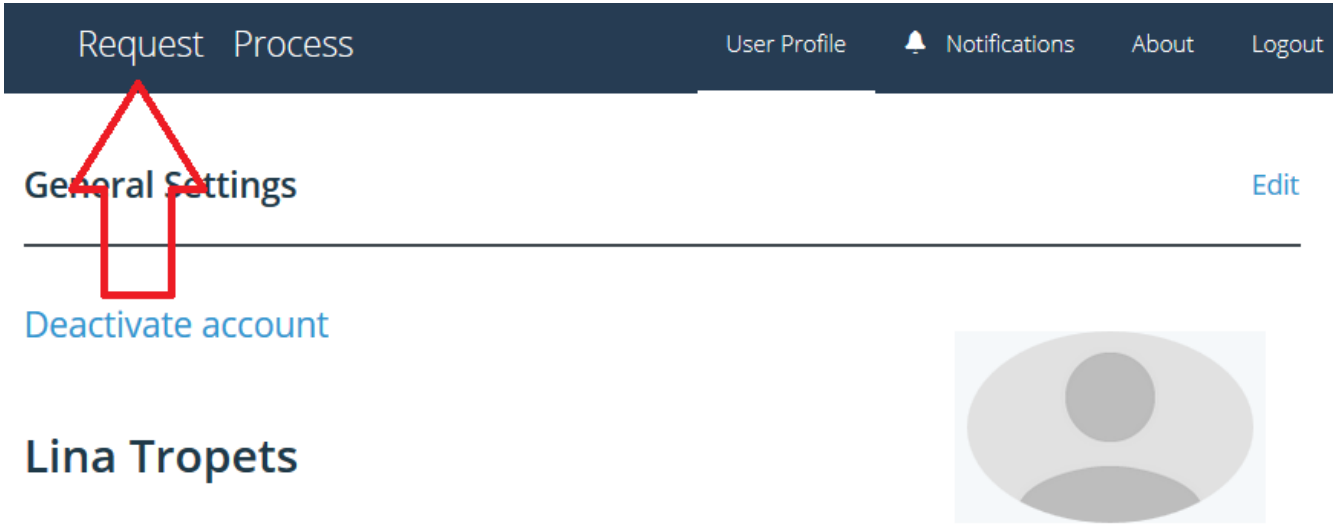
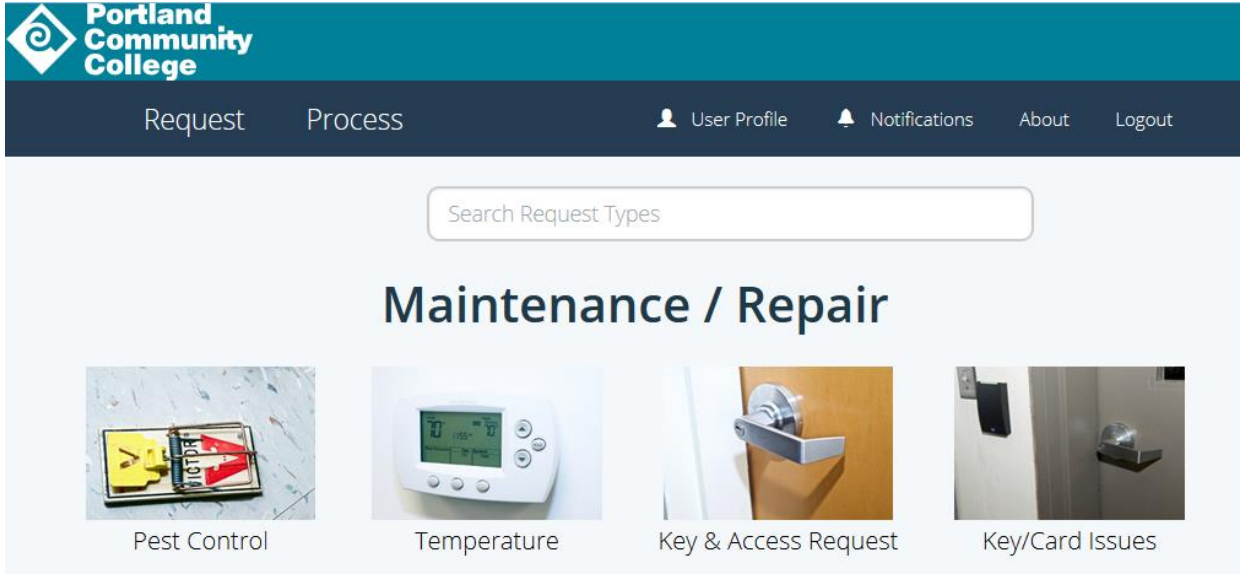
Requesting Assistance - Routine

- **Clicking on ReADY Request link (upper left side) – will take you back to the main request home page**



Requesting Assistance - Routine

Home Screen: Now you are ready to turn in SRC requests; Click on a tile/image and answer the questions



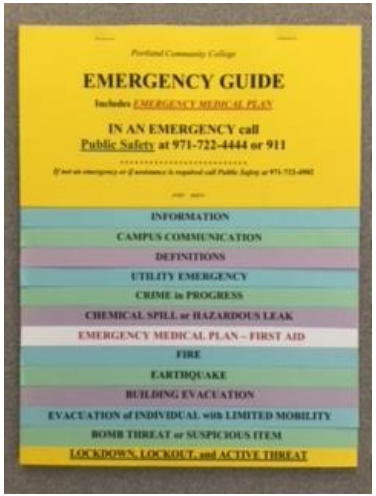
Requesting Assistance - Routine

Use ReADY or SRC to report:

- Slip hazards
  - Liquids on floor
  - Slick / slippery walking surfaces
  - Leaking equipment
- Trip hazards
  - Cords on floor
  - Projections into aisles
  - Uneven walking surfaces
- Fall hazards
  - Unguarded edges
  - Stairwell issues
- Other equipment issues or hazards

Requesting Assistance - Emergencies

- **Public Safety Dispatch**
  - (971) 722-4444



- Crime in Progress
- Fire
- Medical Emergency
- Utility Emergency
- Earthquake
- Chemical or Hazardous Leak/Spill
- Building Evacuation
- Bomb Threat or Suspicious/ Abandoned Item
- Active Shooter

Contact Public Safety for training & additional information

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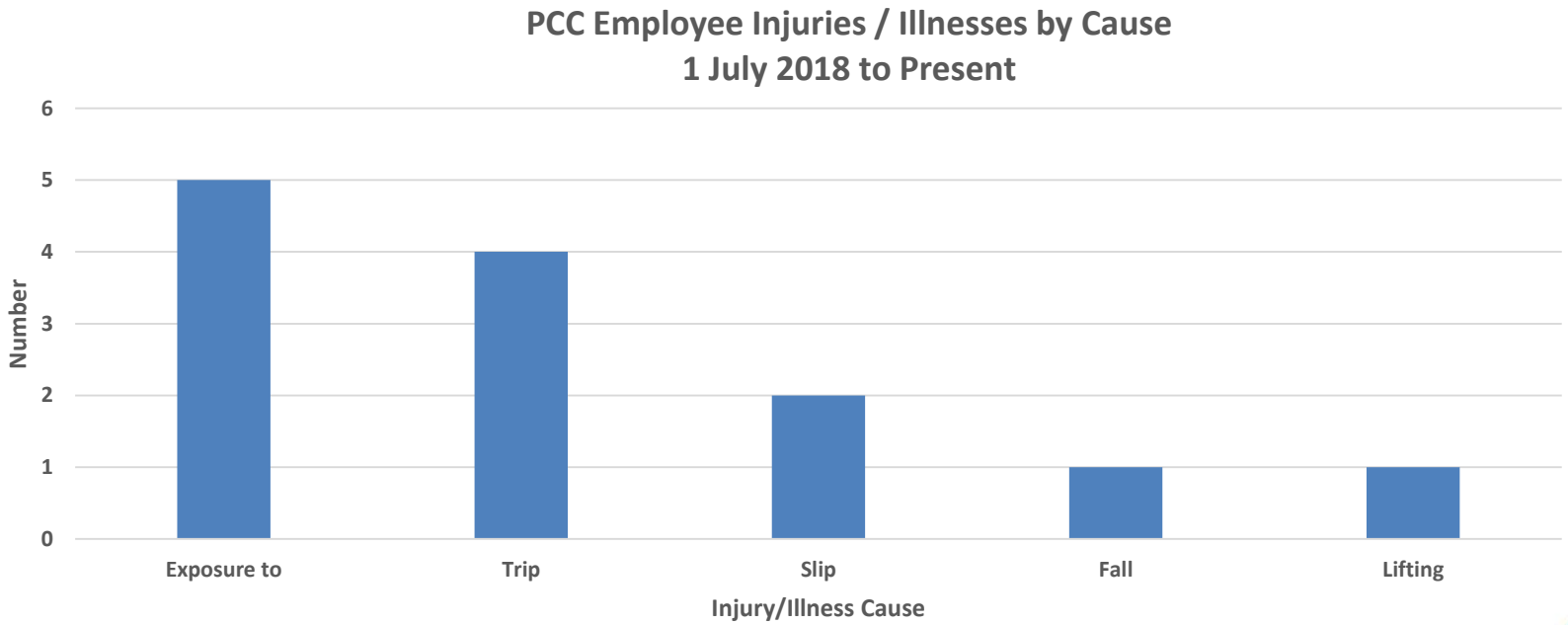
PCC Accident /Incident Review



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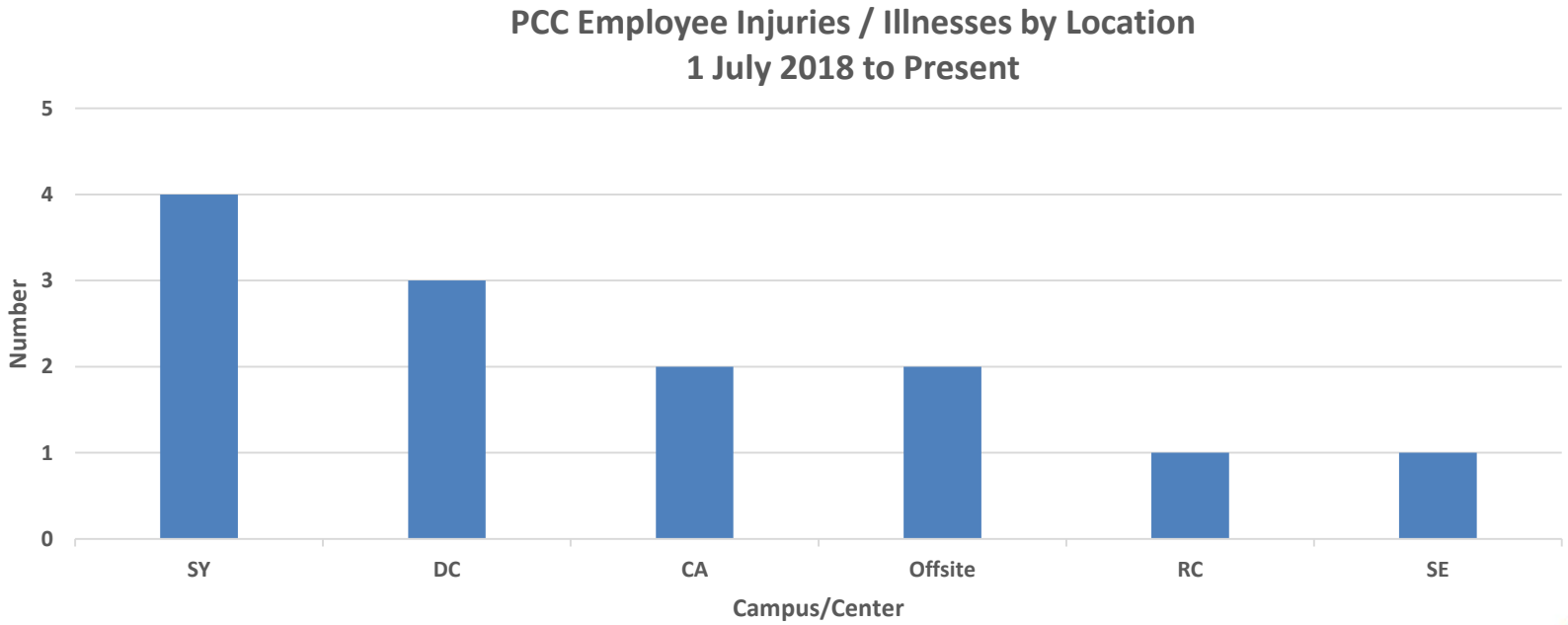
PCC Accident /Incident Review



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Hazardous Materials Requirements

PCC Specific Guidance:

- EH&S Webpage
  - Safety Procedures, Guides & Forms
    - Health & Safety Manual
      - Chapter 8: Hazard Communication
      - Chapter 9: Chemical Hygiene Plan

Hazard Communication Program

OSHA's HazCom standard is now aligned with the UN's *Globally Harmonized System for Chemical Classification and Labeling*, aka GHS

- Changes in labeling requirements
- New physical and health hazard classifications
- Numerical hazard rating systems (lower numbers = greater hazards)
- Use of newly formatted 16-section safety data sheets (SDSs)

Other required elements of HazCom:

- Chemical inventories (by department at PCC)
- Availability of SDSs
- Employee training
- Contractor notification

Hazard Communication Progam - Labels

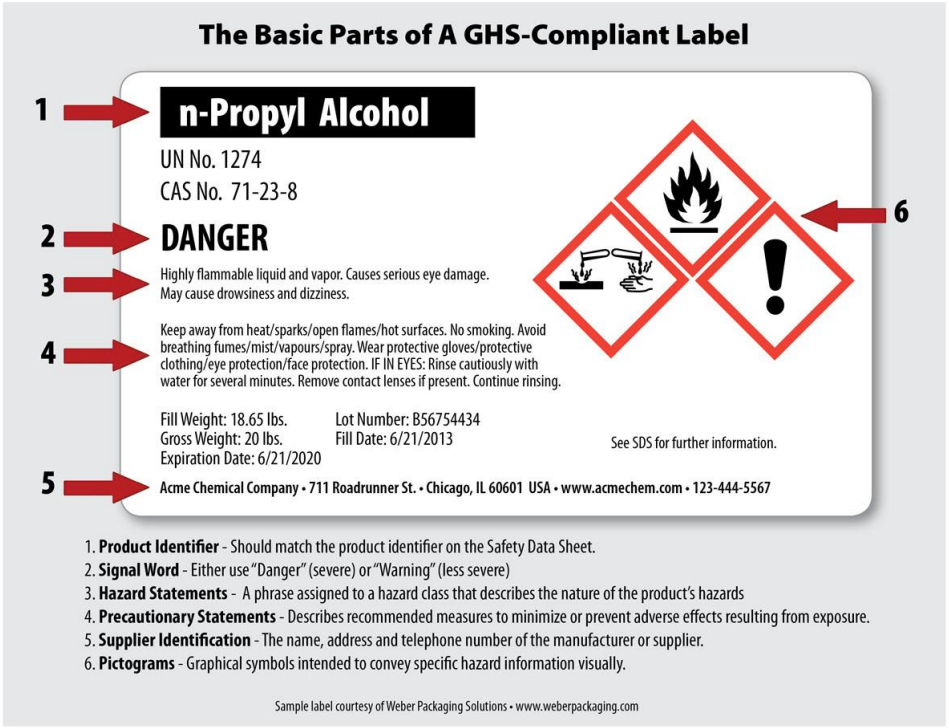
Product Identifier

Signal Word

Hazard Statements

Precautionary Statements

Supplier Identification



Pictograms

Hazard Communication Program - Labels

GHS PICTOGRAMS

Health Hazard Carcinogens, respiratory sensitisers, reproductive toxicity, target organ toxicity, germ cell mutagens 	**Flame** Flammable gases, liquids, & solids; self-reactives; pyrophorics; 	**Exclamation Mark** Irritant, dermal sensitiser, acute toxicity (harmful) 
Gas Cylinder Compressed gases; liquefied gases; dissolved gases 	**Corrosion** Skin corrosion; serious eye damage 	**Exploding Bomb** Explosives, self-reactives, organic peroxides 
Flame Over Circle Oxidisers gases, liquids and solids 	**Environment** Aquatic toxicity 	**Skull & Crossbones** Acute toxicity (severe) 

Hazard Communication Program - Labels

- **Art Studio Container Labeling:**
  - Storage containers in Art Studios must be labeled with:
    - Same information as on original containers
      - All 6 components of a GHS label
  - Secondary containers
    - Product ID + combination of words, pictures, symbols to convey general information on hazards

Hazard Communication Program - SDS

GHS Required Safety Data Sheet (SDS) Elements:

1. Identification
2. Hazard ID
3. Composition
4. First aid
5. Fire fighting
6. Accidental release
7. Handling & storage
8. Exposure Control & PPE
9. Physical & chemical properties
10. Stability & reactivity
11. Toxicology information
12. Ecological information
13. Disposal information
14. Transportation information
15. Regulatory information
16. Other information

Hazard Communication Program - SDS

GHS Safety Data Sheet Requirements:

- Maintain SDSs for each hazardous chemical
- SDSs are to be readily accessible during each shift
- SDSs must be available in English
  - SDSs in other languages OK but English copy must be present
- SDSs may be kept in hard copy or electronic forms
- Employer must maintain a list of chemicals using product identifiers

Chemical Hygiene Plan - Segregation

Organic Chemical Family Storage Model:

- Acids, amino acids, anhydrides, peracids
- Alcohols
- Hydrocarbons, esters, aldehydes oils
- Ethers, ketones, ketenes, halogenated hydrocarbons
- Epoxy compounds, isocyanates
- Peroxides, hydroperoxides, azides
- Sulfides, polysulfides, sulfoxides
- Phenols, cresols
- Dyes, stains, indicators

Chemical Hygiene Plan - Segregation

Inorganic Chemical Family Storage Model:

- Inorganic acids
- Metals, hydrides
- Acetates, halides, iodides, sulfates, sulfites, thiosulfates, phosphates, halogens
- Nitrates, nitrites, azides
- Hydroxides, silicates, carbonates
- Chlorates, perchlorates, bromates, iodates, perchloric acid, peroxides, hydrogen peroxide
- Arsenates, cyanides, cyanates
- Borates, chromates, manganates, permanganates
- Sulfur, phosphorus

Chemical Hygiene Plan – New Chemical Review

Appendix C: Chemical Prior Approval Form:

- Acute toxicity – Categories 1 & 2
- Germ cell mutagenicity
  - Category 1A – Known to induce heritable mutations in human germ cells
  - Category 1B – Should be regarded as if they induce heritable mutations in human germ cells
- Reproductive toxicity
  - Category 1 – Known or presumed human reproductive toxin
  - Category 2 – Suspected human reproductive toxin and effects on/via lactation
- Carcinogenicty
  - Category 1 – Known or presumed human carcinogen (includes 1A & 1B)
  - Category 2 – Suspected human carcinogens

Chemical Hygiene Plan – New Chemical Review

Appendix C: Chemical Prior Approvals:

- Bisphenol A glycerolate dimethacrylate (approved for CH 102 at SY)
- Trypan blue solution (SY Bio)
- Crystal violet (RC Chem)
- Congo red (RC Chem)
- Carnoy's solution (RC Chem)

} Requestor(s) notified of process requirements; approvals are pending review

There have been no Chemical Prior Approvals for Art

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MSDSonline

- MSDSonline is an intranet subscription database that allows PCC to manage its SDSs
- PCC has >5510 chemicals
- MSDSonline helps us avoid

- Employees can view SDSs and print labels

MSDSonline - Access

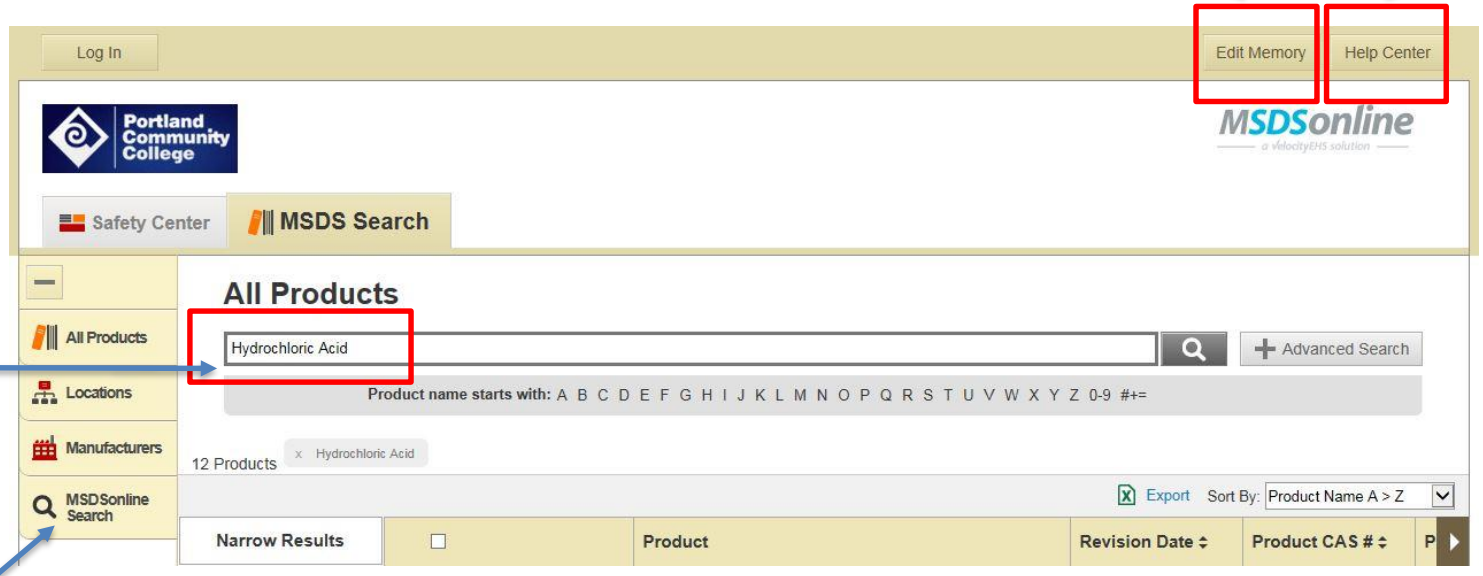
1. Shortcut icon on classroom podiums, PCs, labs
2. Link on the PCC Intranet
3. Designated URL (Web page) – exact web address req'd for access outside of PCC internet; for use with mobile devices:

https://msdsmanagement.msdsonline.com/company/fbaa552b-9486-47db-8dd3-7c5b26b499f5/

MSDSonline- Help

Select default language & location

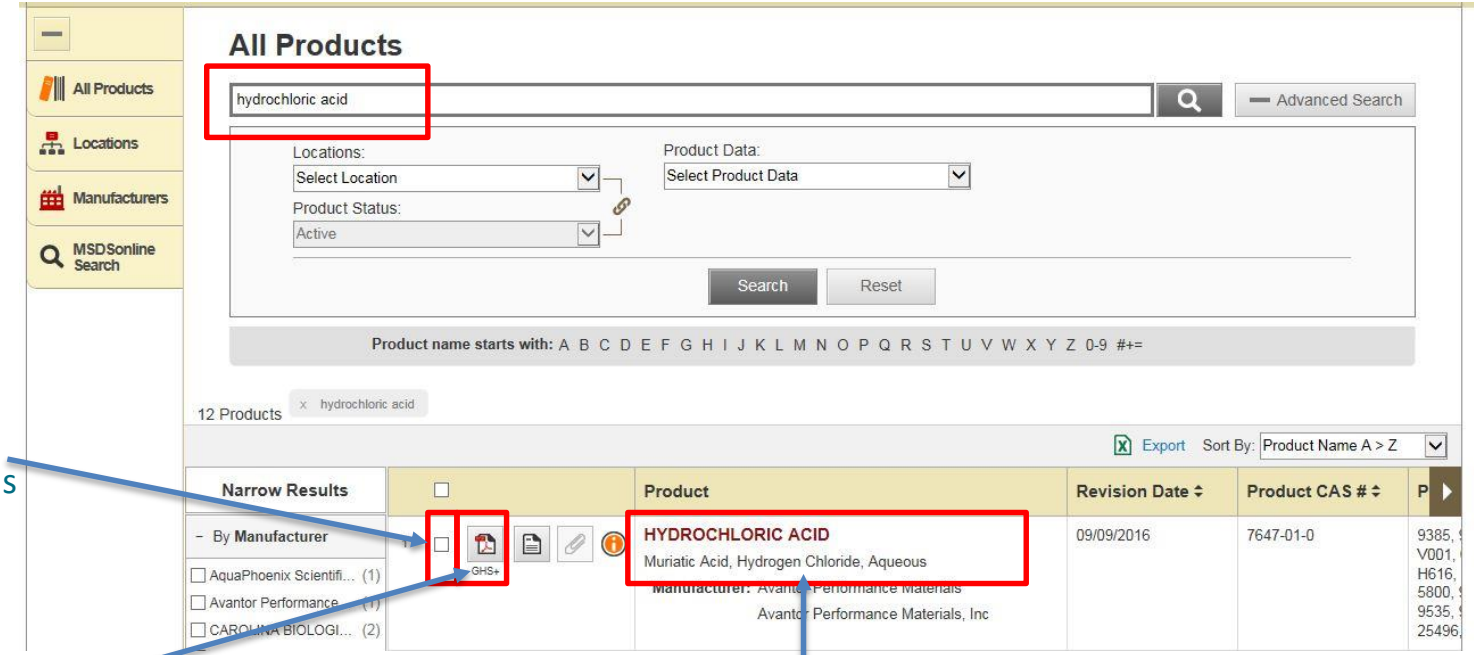
PCC & MSDSonline resources



PCC eBinder Search Bar

MSDSonline Search includes 6+ million SDSs

MSDSonline - Search



Click on box to print labels

Click icon to view SDS

Click here to view summary sheet

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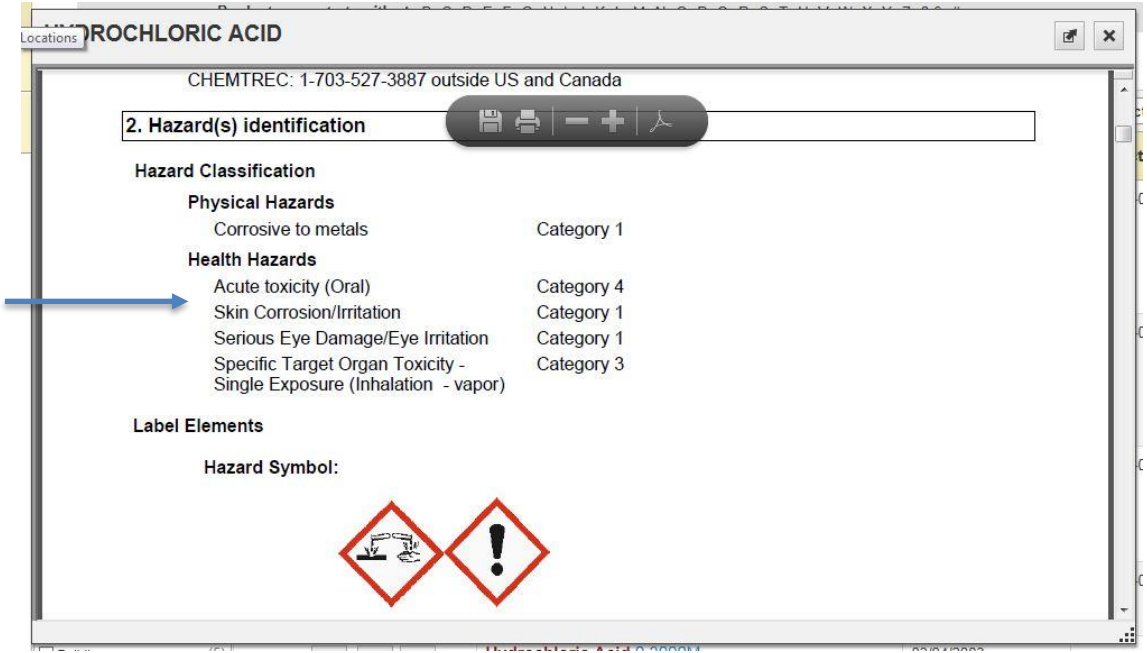
MSDSonline – Viewing an SDS

Section 2 of SDS contains hazard classifications & ratings (not shown on labels)



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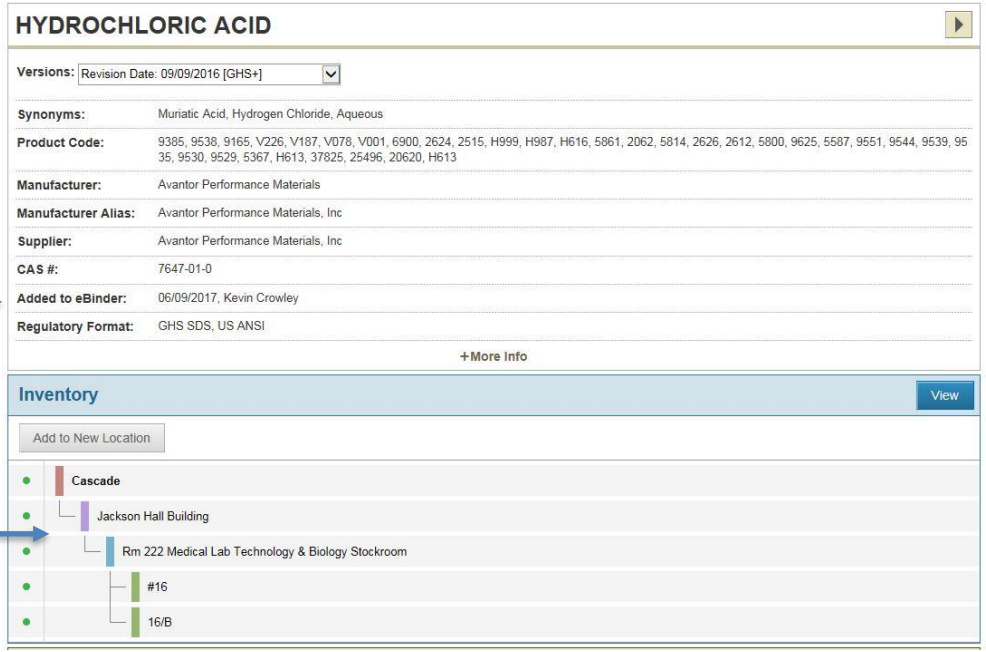
MSDSonline – Summary Sheet

PCC Approval information

PCC Approved locations



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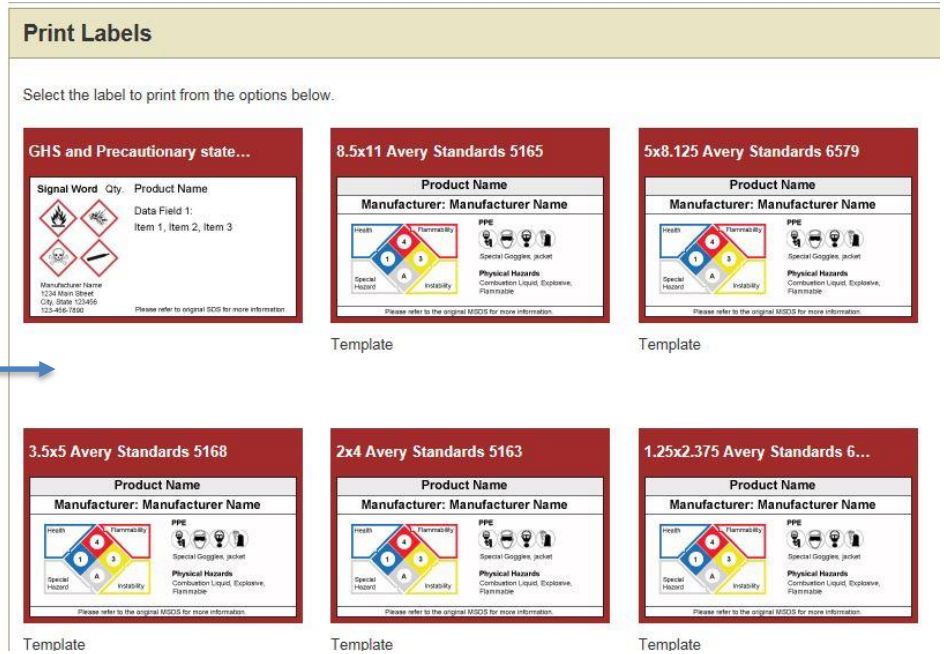
MSDSonline – Printing Labels

1. Click box on search results
2. Click print labels
3. Select label type
4. Select single label vs. sheet
5. Select font size
6. Verify info on lablel
7. Click generate label



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MSDSonline – Printing Labels

HYDROCHLORIC ACID

Danger

May be corrosive to metals - Causes severe skin burns and eye damage - May cause respiratory irritation; or; May cause drowsiness or dizziness - Harmful if swallowed

Precautionary Statements

Wear protective gloves/protective clothing/eye protection/face protection. - Use only outdoors or in a well- ventilated area. - Do not eat, drink or smoke when using this product. - Wash thoroughly after handling. - Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations. - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - Do not breathe dust/fume/gas/mist/vapours/spray. - Store in corrosive resistant container with a resistant inner liner. - Keep only in original container. - Store locked up. - Store in a well-ventilated place. Keep container tightly closed. - Absorb spillage to prevent material damage. - Wash contaminated clothing before reuse. - Immediately call a POISON CENTER or doctor/physician. - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Note: User's choice of label & font size may result in incomplete label

MSDSonline – Access Issues Resolved

- MSDSonline was previously behind a firewall or loaded on PCC machines
- The transition to EH&S resulted in MSDSonline being publically accessible to anyone on PCC's webpages
- MSDSonline restricted access to system until contractual issues were resolved ~Feb 2018
- Access transitioned to IP ranges within PCC
- Errors in IP ranges resulted in an inability to search for SDSs outside of PCC

- PCC IP ranges are now correct allowing PCC employees to utilize full search functionality

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Hazardous Waste

Examples of hazardous wastes at PCC:

- Discontinued chemicals & cleaners
- Aerosol cans
- Compressed gas cylinders
- Wastes from Art studios
- Any chemical waste that is:
  - Ignitable: Flash point <140°F
  - Corrosive: pH<2 or pH ≥12.5
  - Reactive: Complex definition
  - Toxic: Fails TCLP test
- Spill clean up wastes (certain spills)

This label is affixed to HW containers leaving PCC

Hazardous Waste - Labeling

- Label must state "Hazardous Waste"

- Label to include:
  - Department name
  - Description of waste
  - Date
  - Hazard Class

HW Label POC is Evelyn Prater

SY CHEMISTRY WASTE				
Storeroom Waste			Container #	1 of 1
Reagent(s)	Concentration	Amount (g)	Waste Generation Date	10/12/2017
Ferric Chloride	pure solid	540g	pH of entire waste	n/a
			Comments	
			Toxic	

Hazardous Waste – Waste Log

PCC [Campus Location]__ Waste Log for Pick Up__[Your Name] ext:1234									
Item, Number, or Name	Description / Name of Chemical(s)	Molarity, or g/mL, or % Sol.	Waste Generation Date (mmddyy)	Class and or Project Name	Waste Container Size (gal or L)	Amount of waste added to container (gal or L)	pH (of entire waste)	Hazard Class (Clean Harbors)	Comments

Hazardous Waste – Submittal Process

1. Discard HW into local labeled, dated containers
   - Container must be compatible with wastes
   - Container must remain closed except when adding/removing wastes
2. Complete HW Log (available on EH&S webpage under Handling Waste
3. Submit an SRC request through FMS for pickup
   - Include the HW Log with the SRC request
4. EH&S will move wastes from local areas to campus storage location
   - Incomplete paperwork may result in delays
5. Vendor will remove wastes from PCC and transport them to treatment, storage or disposal locations

Hazardous Waste – Container Closure

Unacceptable Container Closures:

- Open containers within Chemical Fume Hood
- Funnel within bung hole or bottle neck
- Parafilm covers
- Zip-lock bags
- Open bung caps
- Open drum rings
- Cracked/decomposed lids
- Carboys with open spigots
- Open process tanks (degreasers, cleaners, sandblast units, etc.)
- Any container closure device that cannot withstand the rigors of transport

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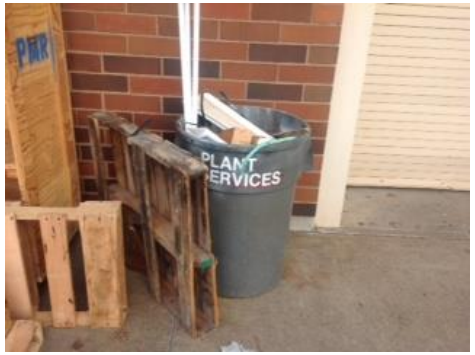
Other Regulated Wastes

You need to know:

- How to identify wastes that have restrictions for disposal
- Prohibited disposal methods
- How to properly dispose of hazardous items



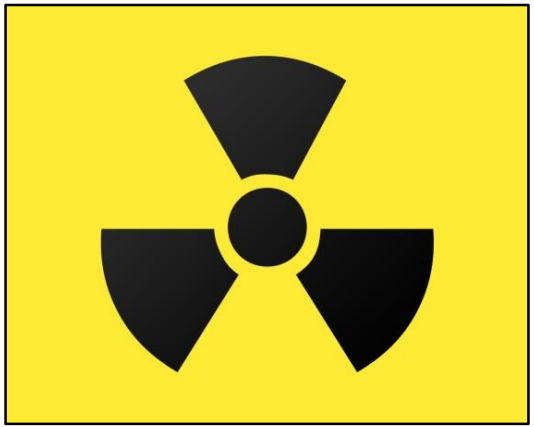
What's wrong here?

Protect our waterways

Protect our sewer system

Other Regulated Wastes

- Light bulbs & tubes
- Waste batteries



- Radioactive sources used in Science labs
- Equipment containing radioactive materials

- Red bags with blood contaminated soft waste
- Sharps containers

Other Regulated Wastes

- Scrap and recovered metals-lead, silver,
- Lead acid batteries - UPS
- Tires
- Light ballasts

Waste vehicle and equipment fluids

- Oil
- Oil filters
- Antifreeze
- Brake fluid

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Small Spill Response

Clean up incidental chemical spills within Art when these 5 criteria are met:

1. You can identify the material … and,
2. You are familiar with the material's hazards … and,
3. You have the necessary tools and supplies … and,
4. You are physically able to clean up the spill … and,
5. There is no health or safety risk to you

Do you know where your spill kit is located?

Do you know what's in it?

Small Spill Response

Spill Response Equipment:

- PPE:
  - Gloves
  - Chemical splash goggles
  - Apron
  - Respirator (if in Respiratory Protection program)
- Drain blockers
- Loose absorbents, e.g., kitty litter, vermiculite
- Absorbent pads, pillows, socks, booms
- Scoops, scrapers, mini-brooms/dust pan
- Container for waste or polyethylene bag

Small Spill Response

Things to remember:

- Alert others in area, if necessary
- Isolate the area, if necessary
- Get assistance from staff or Public Safety, if necessary
- Assist injured or contaminated people, if necessary
- Get spill clean-up equipment
- Put on personal protective equipment
- Contain the spill
- Clean up spill; decontaminate area and equipment, if necessary
- Make required notifications, if necessary (Public Safety)

Blood & body fluid cleanup is addressed via the Custodial department

Small Spill Response

Call Public Safety (x4444) when there is/are:

- ✓ Injured people
- ✓ Property damage
- ✓ A spill over 1 liter in volume
- ✓ Possibility the spill will spread to other areas
- ✓ Possibility of impacting a drain, storm drain, bio swale, drywell (UIC)
- ✓ Dangerous situation requiring an evacuation
  - Fire and explosion risk
  - Vapors in the air that are a risk to people
- ✓ An unknown material that has spilled
- ✓ You are unable to say “yes” to even one of the five previous criteria

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Fire Extinguisher Use

Remember P.A.S.S.

P. Pull the pin

A. Aim the nozzle at the base of the fire

S. Squeeze the operating lever

S. Sweep the nozzle or hose from side to side until the fire is out

Fire Extinguisher Use

Only fight a fire if:

- The fire is small and is contained
- If you are safe from toxic smoke
- If you have a means of escape
- If your instincts tell you that it's OK

Fire Extinguisher Use

There are different types of fire extinguishers for different types of fires

A		Ordinary Combustibles	Wood, Paper, Cloth, Etc.
B		Flammable Liquids	Grease, Oil, Paint, Solvents
C		Live Electrical Equipment	Electrical Panel, Motor, Wiring, Etc.
D		Combustible Metal	Magnesium, Aluminum, Etc.
K		Commercial Cooking Equipment	Cooking Oils, Animal Fats, Vegetable Oils

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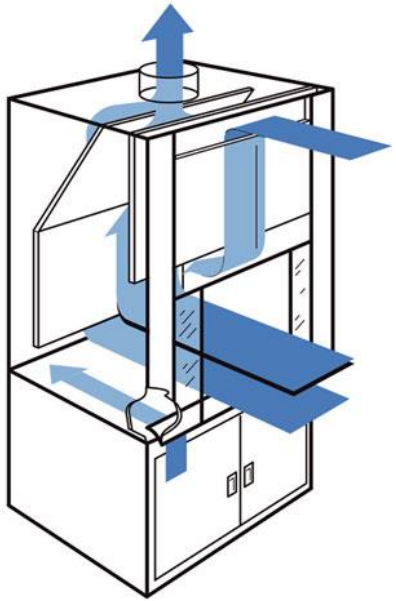
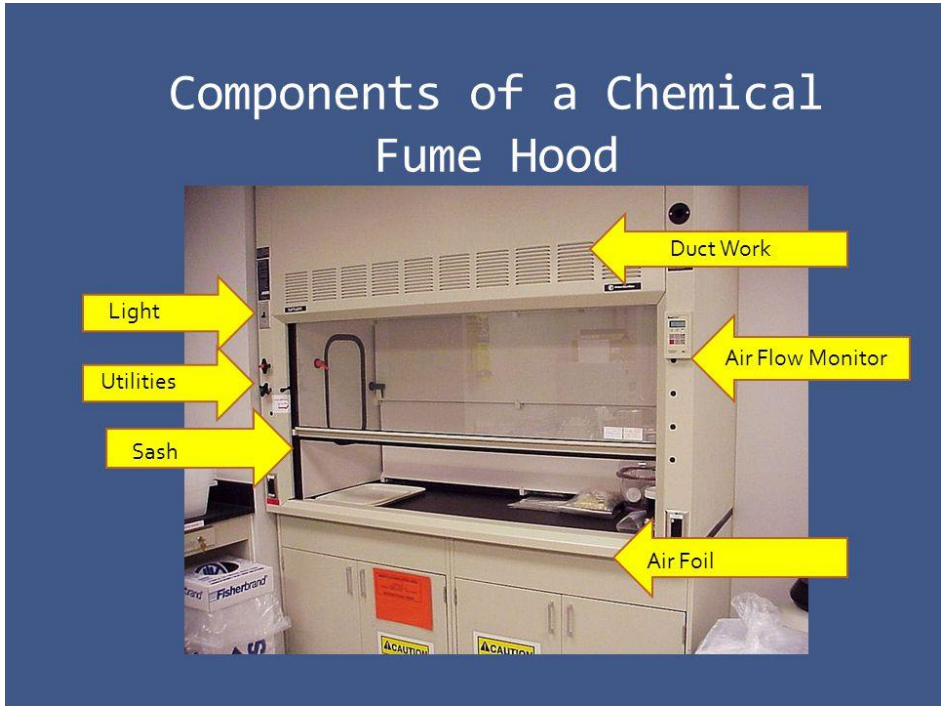
Equipment Specific Training
Chemical Fume Hoods - General

- Hoods protect against inhalation of hazardous chemicals in the lab
  - Capture, contain & expel emissions generated from hazardous chemicals
- All potentially harmful chemical work should be conducted inside the fume hoods
  - Fume hoods must function properly to ensure safety
  - Fume hoods must be used properly to ensure safety



Equipment Specific Training

Chemical Fume Hoods - Parts



Equipment Specific Training
Chemical Fume Hoods – Safe Use

Airflow:

- Ensure hood functions properly with good air flow (80-120 fpm)
- Test airflow with a Kimwipe affixed to lower corner
- Alarms should sound when airflow is too high/low
- Do not modify settings: Contact FMS via SRC
- Control reaction rates to minimize generation of gases/vapors or particulates
- Look for valid annual hood certification sticker

Equipment Specific Training
Chemical Fume Hoods – Safe Use

Housekeeping:

- Obstructions inside hood reduce effectiveness of hood
- Minimize storage in the hood; keep ≥ 50% of work area clear
- Always place containers and work ≥ 6” from hood face
- Keep exhaust slots at the back of hood clear
- To minimize disruptions to airflow:
  - Maintain 3” gap along the sides and back of work surface
  - Elevate large pieces of equipment 2-3”
  - Maintain 2-3” gap between equipment

Equipment Specific Training
Chemical Fume Hoods – Safe Use

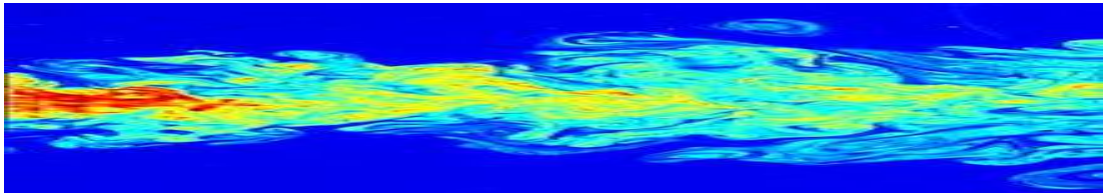
Sash:

- Maintain sash height of 18” or less from the working surface while using the hood
- Keep sash closed when not working in the hood
  - Increases safety
  - Reduces energy consumption
- Max sash height is often marked with a sticker or a stop
  - Do not remove or alter sash stops

Equipment Specific Training
Chemical Fume Hoods – Safe Use

Limit turbulence:

- Keep work ≥ 6” inside of hood
- Elevate large pieces of equipment
- Don’t open doors or windows near hoods
  - Alters airflow balance
  - Disrupts airflow into hood
- Minimize foot traffic or movement in front of hood when working with chemicals
- Avoid walking fast in front of the hood



Turbulence affects containment; containment affects safety

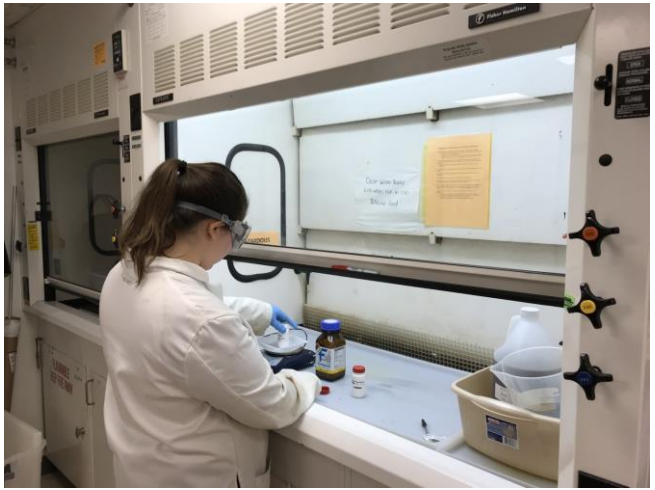
Equipment Specific Training

Chemical Fume Hoods - General

- Do not leave reactions unobserved for more than a few minutes
- Never put your head in the hood
- Ensure there are no sources of ignition or sparks when flammable or explosive chemical are being used
  - Avoid use of extension cords or power strips
- Wear appropriate PPE
- Seal all chemical containers when not in use

Equipment Specific Training
Chemical Fume Hoods - Maintenance

- Clean up spills or chemical residues
- Keep the sash clean
- Do not adjust the hood damper
- Do not attach exhaust ducts or snorkels to hoods
  - May affect airflow
- Contact FMS via the SRC or ReADY for maintenance issues or repairs



Equipment Specific Training
Emergency Washing Equipment

Categories:
- Plumbed
- Self-Contained
- Personal units

Includes:
- Eyewash units
- Showers
- Combination units
- Drench hoses

Location:
- Within 10 sec of hazard

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Equipment Specific Training
Emergency Washing Equipment

Needed where employees/students may be exposed to:

- Corrosives
- Strong irritants
- Toxics
- Chemicals that are absorbed by the skin which could damage
  - Eyes and/or body

Emergency washing equipment doesn't replace the need for PPE

Designed to:

- Provide copious amounts of water to wash contaminants from the eyes and body

Recommended washing time is at least 15 minutes

Equipment Specific Training
Emergency Washing Equipment

General requirements:

- Inspected & tested regularly & IAW manufacturer's specs
- Accessible – No obstructions
- Free from trash & debris
- Free from leaks
- All parts in good condition
- Water flow:
  - Eyewash 0.4 gal/min for 15 min
    - Adequate flow & distribution for both eyes simultaneously
  - Safety shower 20 gal/min for 15 min
- Valves activate with 1 step within in ≤ 1 sec and remain open
- Potable water only
- Tepid water

Equipment Specific Training
Emergency Washing Equipment

Eyewash Use:

- Activate unit & hold both eyelids open with fingers
- Place eyes into water stream
- Roll eyeballs to allow fluid to flow on all surfaces

Shower Use:

- Active unit & place contaminated body parts under stream of water
- Remove contaminated clothing
- Consider:
  - Curtain installation
  - Blanket or oversized clothing stored nearby

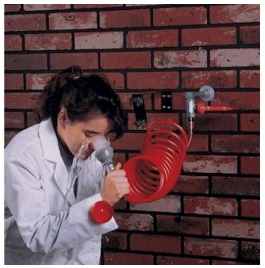
Equipment Specific Training
Emergency Washing Equipment

Portable/Personal Units:

- For use where chemical use is not at / too far from a fixed location
- Stop gap measure until portable or fixed unit can be reached
- Check to ensure cleanliness and expiration date

Drench Hoses:

- Used to supplement eyewash equipment – Not a substitute
- Good for lower extremity exposures



Equipment Specific Training
Emergency Washing Equipment

Final Thoughts:

- If an incident is serious enough to use emergency washing equipment, it's serious enough to call DPS at x4444
- Follow all incident reporting procedures
- You may have to render assistance to a victim
- You may have to recruit the assistance of others to help a victim
- Be familiar with Section 4 of the SDSs in use during your lab
- Remember at least 15 min of irrigation & flushing are required

You can do this. You can make a difference.

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Questions?