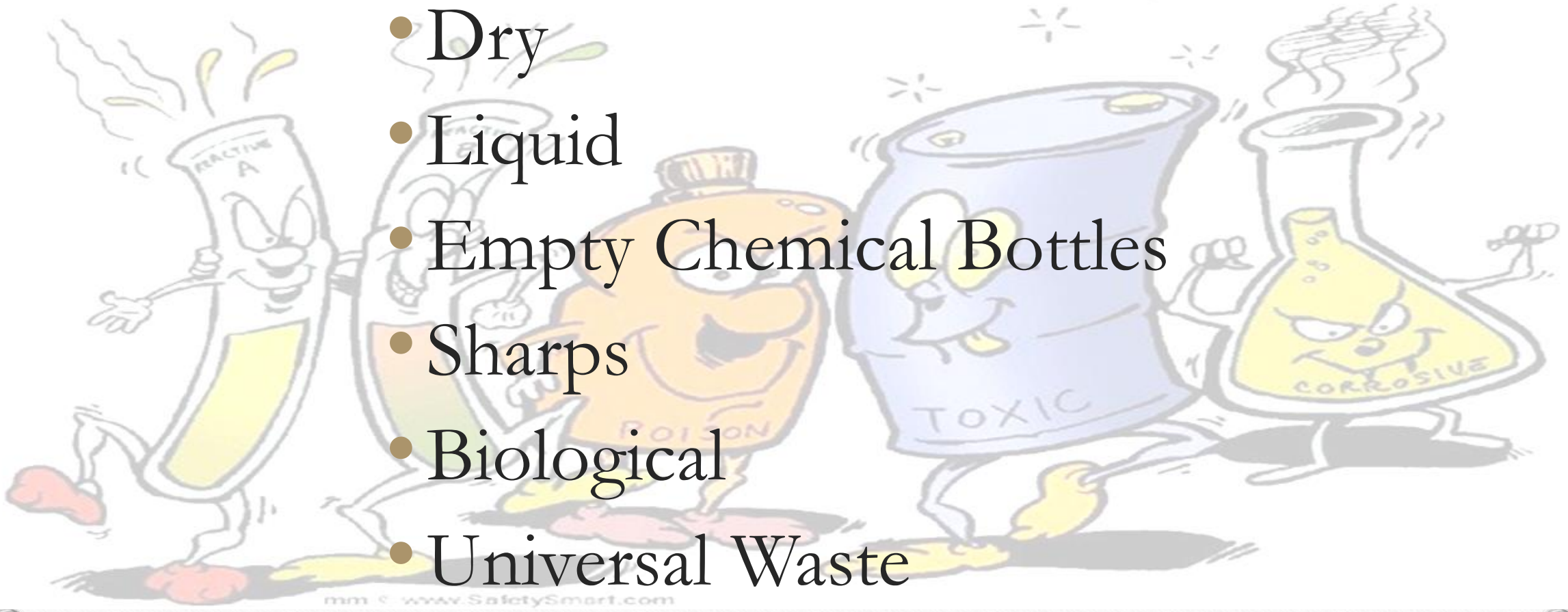
How do I dispose of my waste?

More Importantly:

How to Label

Types of Waste

- Dry
- Liquid
- Empty Chemical Bottles
- Sharps
- Biological
- Universal Waste



SOME Hazardous Waste Rules

- MUST have a "Hazardous Waste" label
- Writing needs to be accurate and legible, listing all of the chemicals inside
- Containers should be tightly sealed and not leak
- Spills MUST be immediately cleaned up
- Common practice to put:
  - Mineral acids – plastic
  - Bases – plastic
  - Oxidizers – Glass
  - Organics - Glass

Only 55 gallons of waste can be stored in any one Lab!!

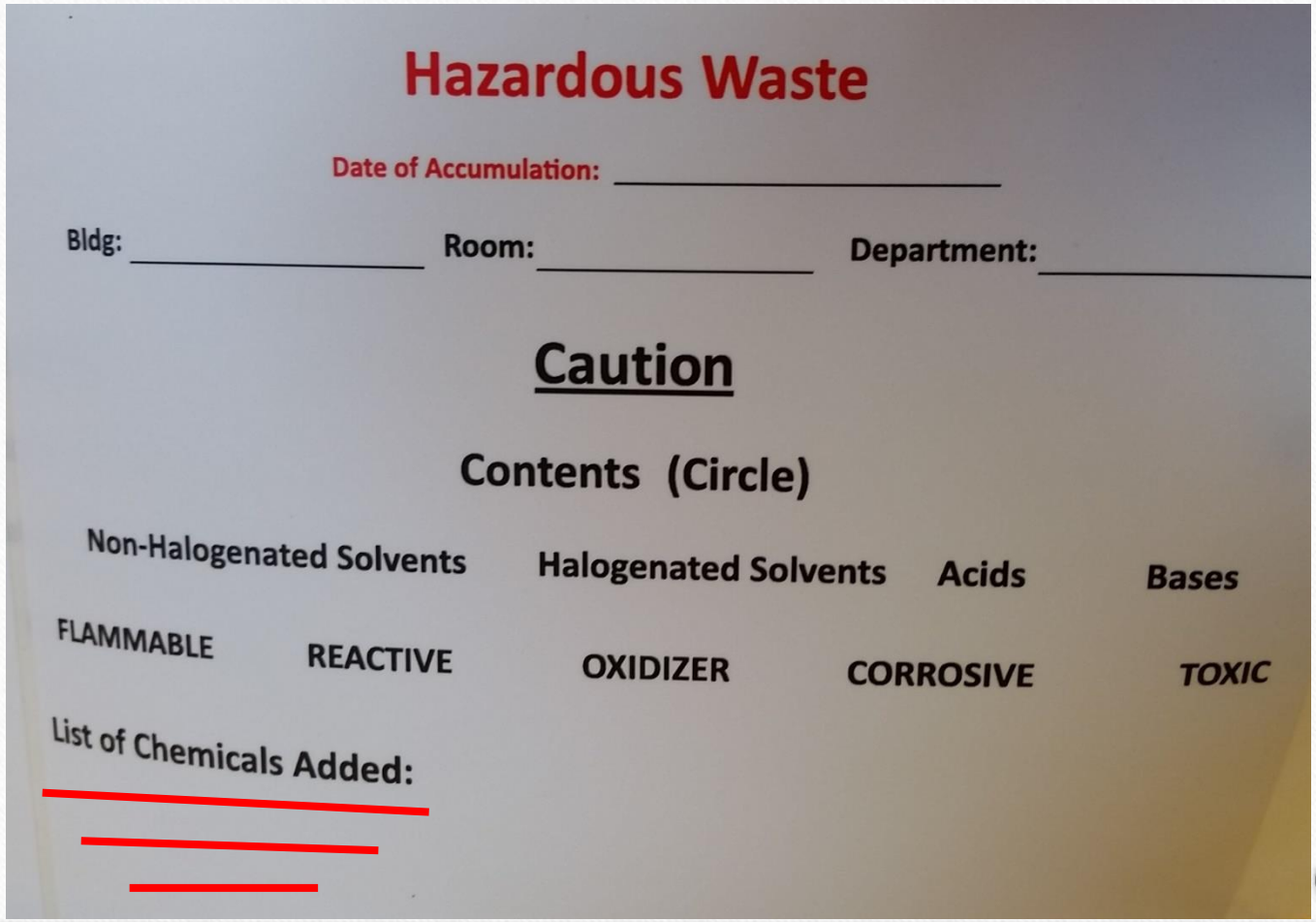
Waste NO NO's

DO NOT

- Pour unknown chemicals down the drain
- Abandon waste at the loading dock or in the dumbwaiter
- Leave a hazardous waste container with a funnel in it or uncapped, unless it is actively being used
- Store waste in a fume hood where chemical reactions are occurring

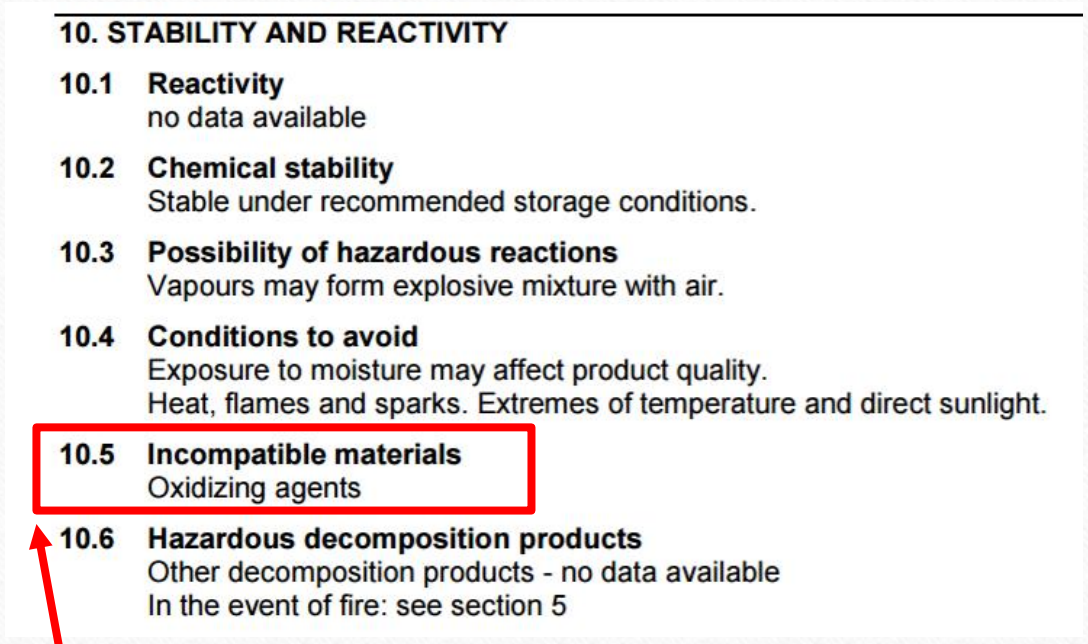
Waste Labels

- Characterize waste
  - Non-Halogenated
  - Halogenated
  - Acids
  - Bases
- Safety Signal Words
  - Corrosive
  - Flammable
  - Toxic
  - Reactive
  - Oxidizer



Chemical Incompatibilities

- Only put compatible chemicals together in the same bottle. Refer to SDS's!



10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Exposure to moisture may affect product quality.
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

Find Incompatibilities in Section 10.5 of any SDS

Incompatible Groups

Elemental Metals/Hydrides AND Acids/Alcohols
Cyanides AND Acids
Sulfides AND Acids
Oxidizers AND Flammables
Acids AND Bases
Acids AND Flammables
Acids AND Chloride compounds
Amines AND Chlorine compounds
Water OR Air Reactives AND Anything
Phenol AND Formaldehyde

Turning Over Waste Checklist

- ☑ ALL waste containers have a proper "HAZARDOUS WASTE" label with start date.
- ☑ ALL contents are listed.
- ☑ The bottle or jar is tightly capped
- ☑ If liquid, there is at least 1" of room at the top of the container.
- ☑ The outside of the bottle is clean and dry.

Bring waste to the stockroom (120 or 232), myself or a stockroom student can collect it from you!

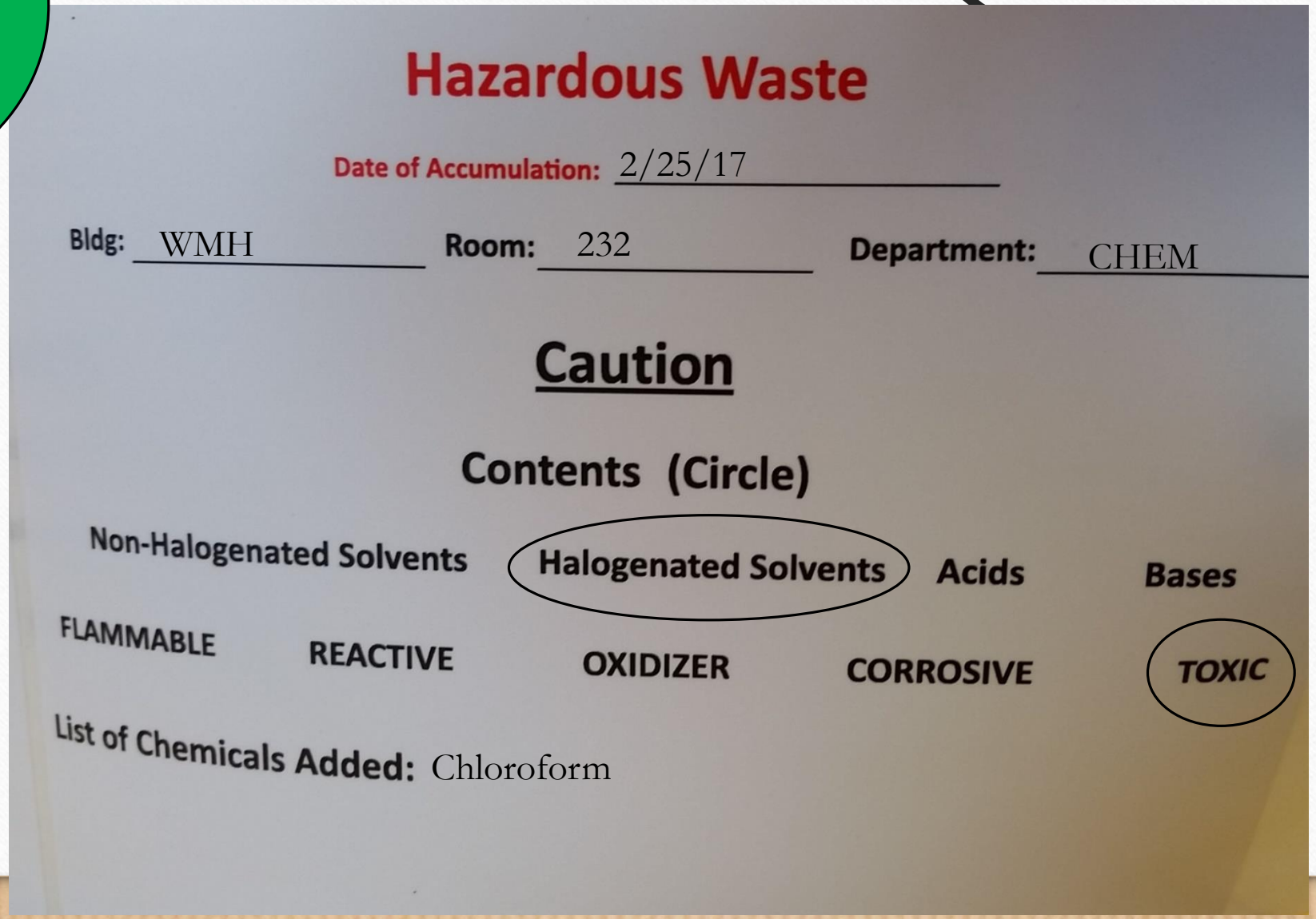
ChemWatch

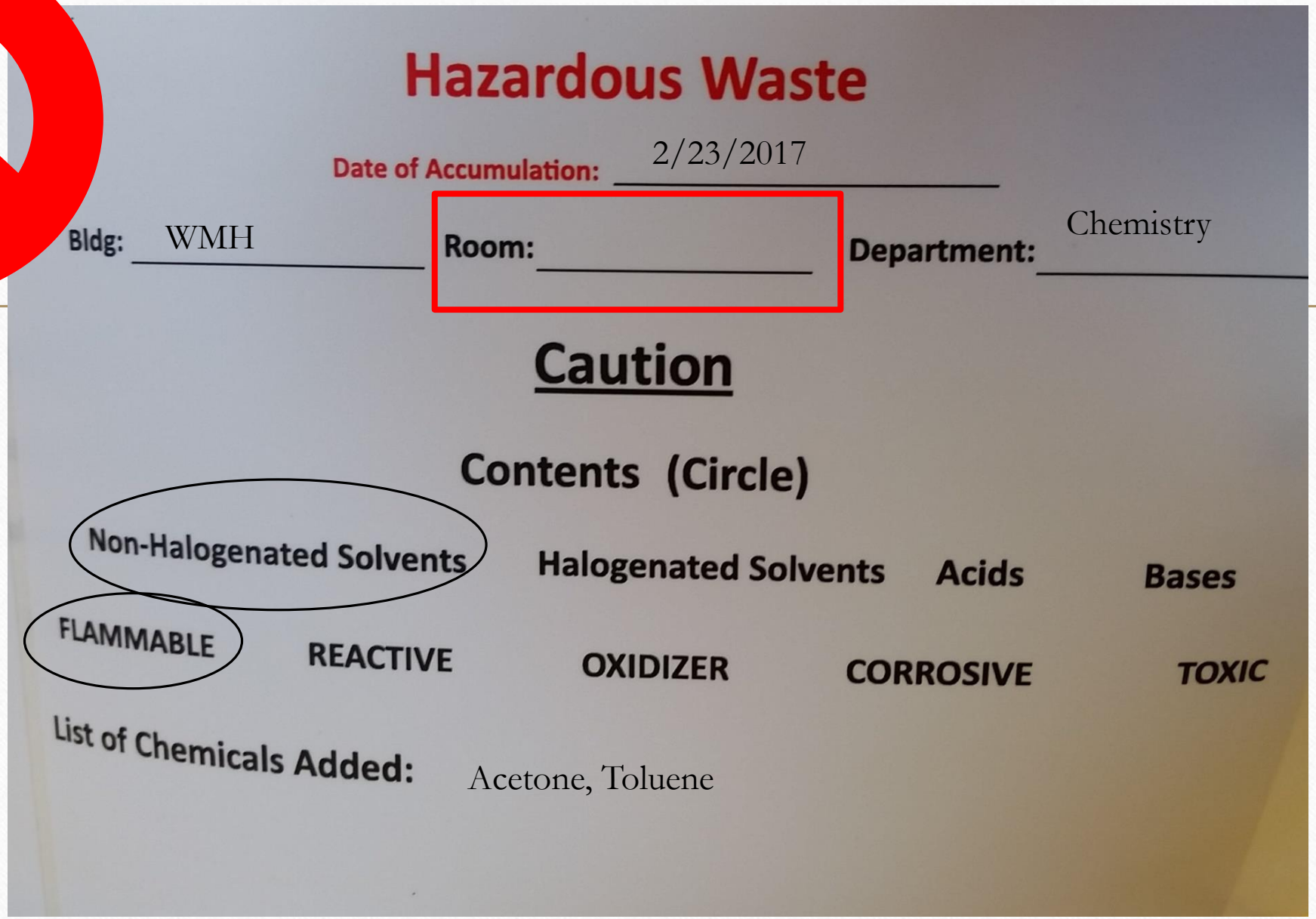
ChemWatch

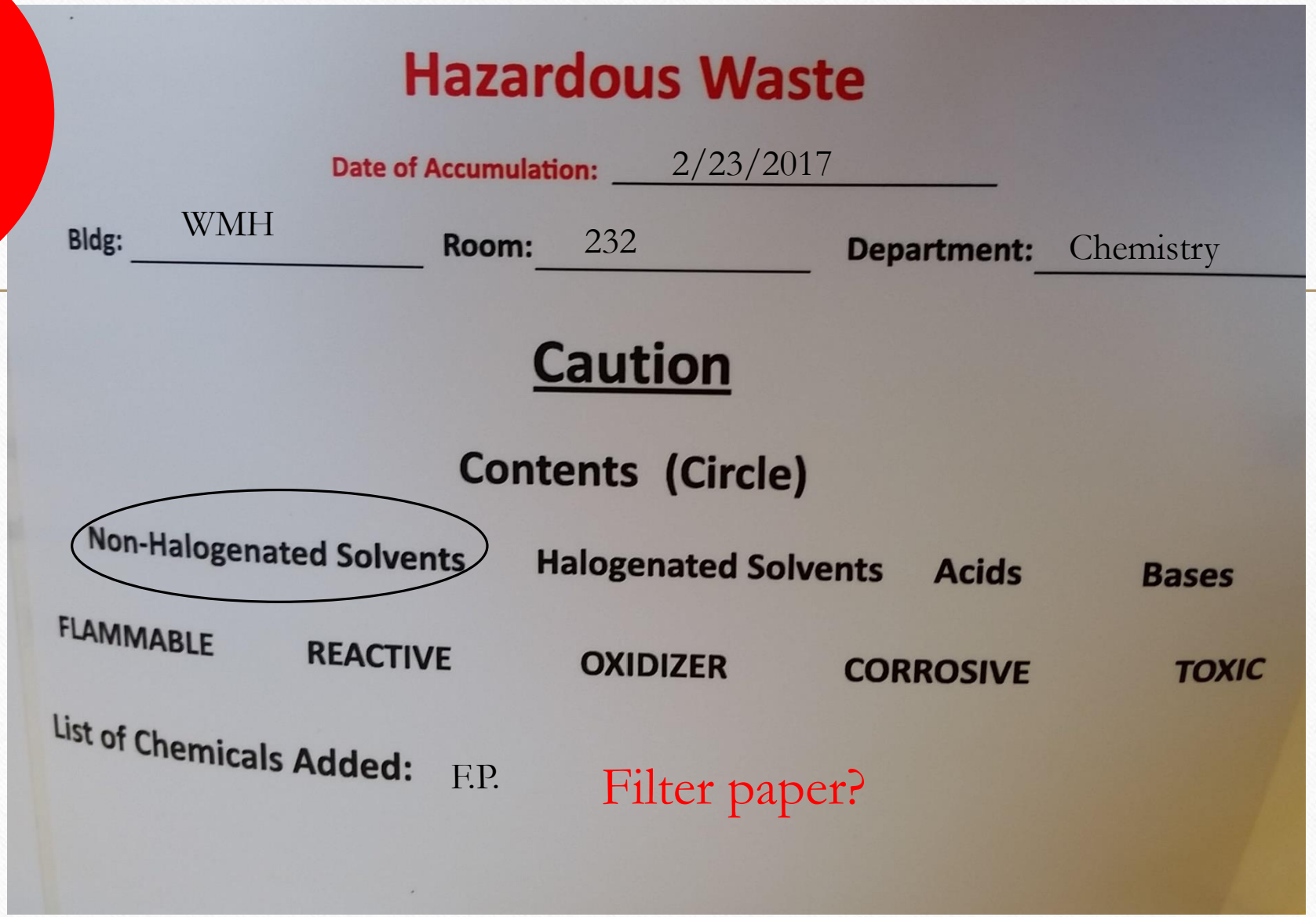
Chimera

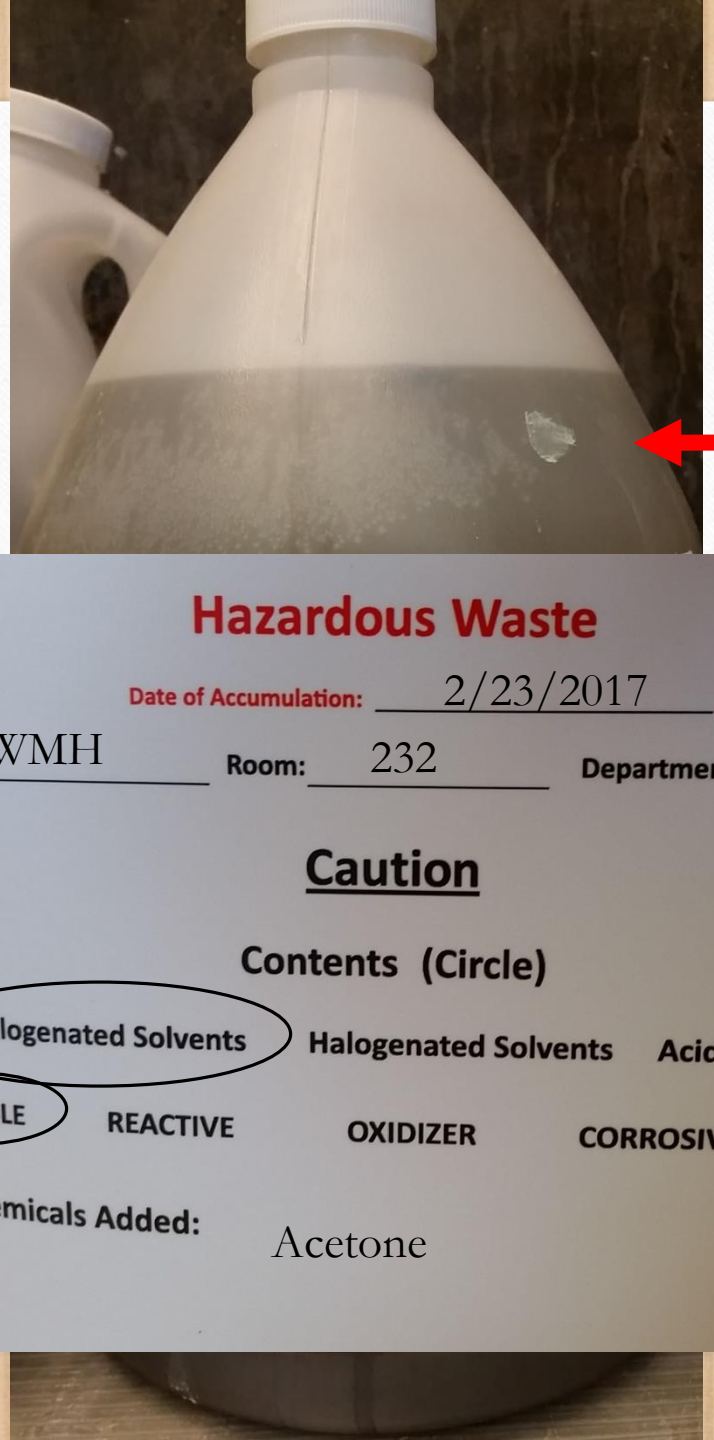
Chimera Homepage

Waste Label Quiz




Hazardous Waste
Date of Accumulation: 2/23/2017
Bldg: WMH
Room:
Department: Chemistry
Caution
Contents (Circle)
Non-Halogenated Solvents
Halogenated Solvents
Acids
Bases
FLAMMABLE
REACTIVE
OXIDIZER
CORROSIVE
TOXIC
List of Chemicals Added: Acetone, Toluene


Hazardous Waste
Date of Accumulation: 2/23/2017
Bldg: WMH
Room: 232
Department: Chemistry
Caution
Contents (Circle)
Non-Halogenated Solvents
Halogenated Solvents
Acids
Bases
FLAMMABLE
REACTIVE
OXIDIZER
CORROSIVE
TOXIC
List of Chemicals Added: F.P.
Filter paper?



Why is this "acetone" brown?

Hazardous Waste

Date of Accumulation: 2/23/2017

Bldg: WMH Room: 232 Department: Chemistry

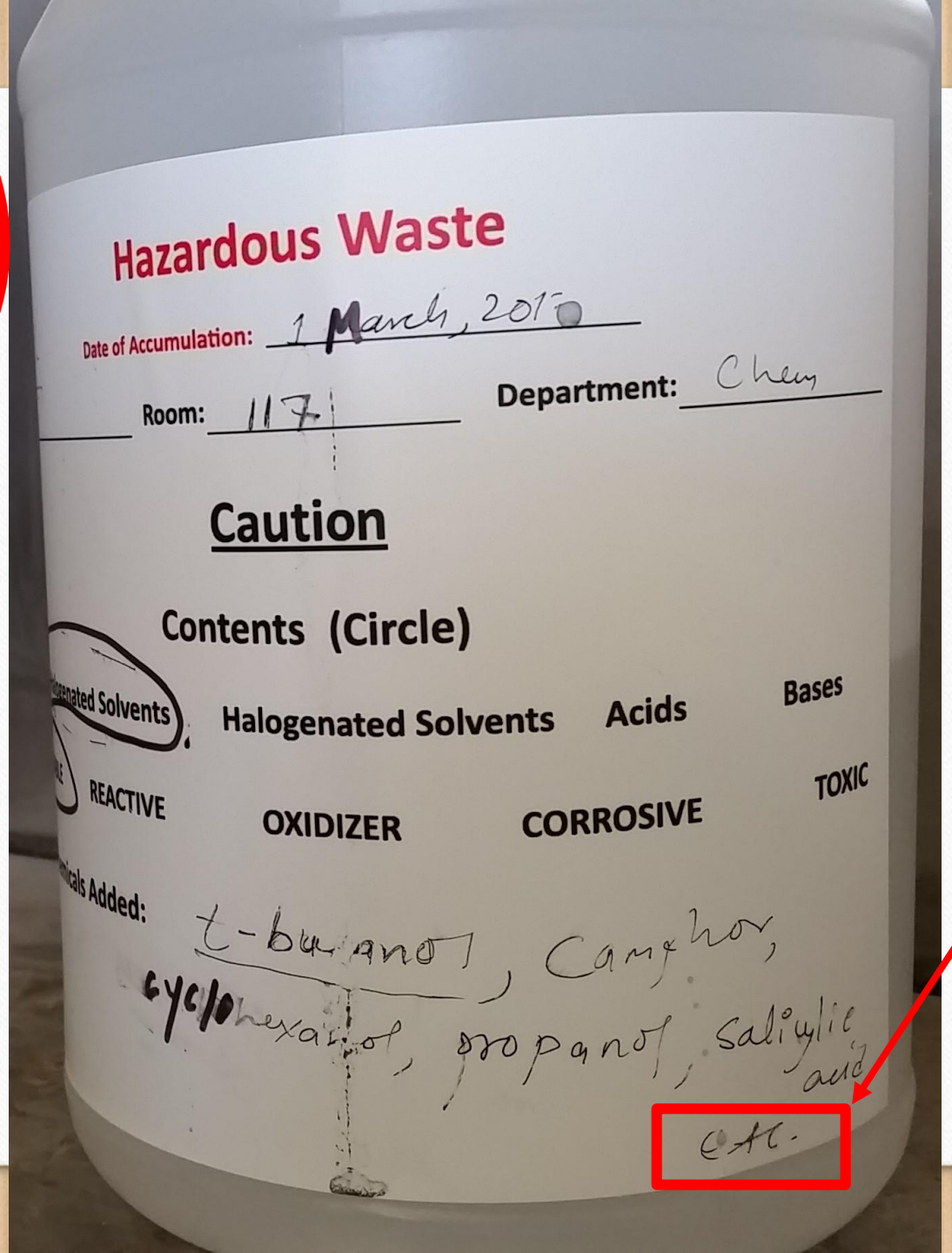
Caution

Contents (Circle)

Non-Halogenated Solvents Halogenated Solvents Acids Bases

FLAMMABLE REACTIVE OXIDIZER CORROSIVE TOXIC

List of Chemicals Added: Acetone


Hazardous Waste
Date of Accumulation: 1 March, 201
Room: 117
Department: Chem
Caution
Contents (Circle)
Halogenated Solvents
Halogenated Solvents
Acids
Bases
REACTIVE
OXIDIZER
CORROSIVE
TOXIC
Chemicals Added:
t-butanol, camphor,
cyclohexanol, propanol, salicylic acid
etc.

Etc.???

Solid Waste Containers

OK

- Paper towels used to clean up chemical spills (wet & dry)
- Solid Chemicals
- Used filter paper
- Used transfer pipettes

Solid Waste Containers

NOT OK

- Aqueous Chemicals
- Gloves
- Syringes with needles

Sharps - Glass Waste

- Broken glassware boxes can be picked up in the stockrooms
- Make sure glass waste box has a plastic liner
- Only fill **3/4** of the container
- Seal bag with tape
- Close box and tape ALL seams

Sharps - Syringes

- Deface biohazardous label

- Dispose of as hazardous waste if syringes were used for P-listed materials
- P-listed materials = <u>acutely</u> toxic

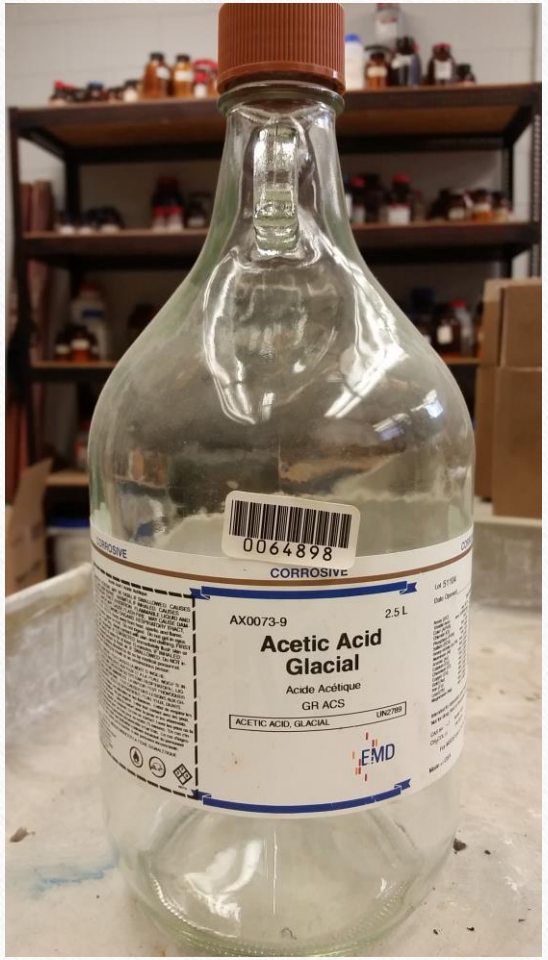
Empty Bottles

You NEED to:

- Completely empty (no pourable liquid)
- Rinse out chemical bottles appropriately into Hazardous Waste
- Store empty bottles in Empty Chemical Bottle tub
- Email me to pickup empty bottles

I will:

- Remove any bottles that have a barcode from your inventory
- Discard or Reuse bottles



Biological Waste

- Cultures, Stocks & Disposable Labware: must be treated with a decontamination method such as autoclaving, bleach or ethanol decontamination
- Overbagging

Universal Waste

- Examples include: – rechargeable batteries, pesticides, and fluorescent lamps
- You can not dispose of universal waste in the trash
- E-Wastes – such as computers, cell phones should be recycled
- Universal & E-Waste is managed by Campus Facilities: If you have either, email me and I will submit a maintenance request.

Close Calls

Want one of these for your lab?

HOW TO USE A FIRE EXTINGUISHER

Remember PASS (Pull – Aim – Squeeze – Sweep)

P	A	S	S
PULL	AIM	SQUEEZ	
Pull the Pin	Aim at the base of fire	Squeeze th operating han	
Break seal and test extinguisher	Ensure you have a means of escape	To operate extinguisher a discharge age	



!!DANGER!!

Mixtures that Produce Toxic Gases

Compound	Mixed With	Produces
Ammonium Salts	Strong Base	Ammonia
Azide Salts	Strong Acid	Hydrazoic Acid
Bromide Salts	Strong Acid	Hydrogen Bromide
Bromide Salts	Strong Oxidizer	Bromine Vapor
Bromites and Bromates	Strong Acid	Bromine & Bromine Oxide
Chloride Salts	Strong Acid	Hydrogen Chloride
Chloride Salts	Strong Oxidizer	Chlorine Gas
Chlorite or Chlorate Salts	Strong Acid	Chlorine and Chlorine Oxid
Cyanide Salts	Any Acid	Hydrogen Cyanide
Ferrocyanide or Ferrocyanide Salts	Strong Acid	Hydrogen Cyanide
Fluroide Salts	Strong Acid	Hydrogen Fluoride
Hypochlorite Salts	Any Acid	Chlorine
Iodide Salts	Strong Acid	Hydrogen Iodide
Methyl, Nitroso Amides (Diazald)	Any Base	Diazomethane
Nitrite Salts	Strong Acid	Nitric Oxides
Sulfide or Bisulfide Salts	Any Acid	Hydrogen Sulfide
Sulfite or Bisulfite Salts	Any Acid	Sulfur Dioxide

Incompatible Chemical List

Chemical	Incompatibility
Acetic acid	Chromic acid, Nitric acid, Hydroxyl compounds, Ethylene glycol, Perchloric acid, Peroxides, Permanganates
Acetylene	Chlorine, Bromine, Copper, Fluorine, Silver, Mercury
Alkali and Alkaline Earth Metals (such as powdered aluminum or magnesium, calcium, lithium, sodium, potassium)	Water, Carbon tetrachloride or other Chlorinated hydrocarbons, Carbon dioxide, Halogens
Ammonia (anhydrous)	Mercury (in manometers, for example), Chlorine, Calcium
Ammonium nitrate	
Aniline	
Arsenical materials	
Azides	
Bromine	
Calcium oxide	
Carbon (activated)	
Carbon tetrachloride	

Chemical Storage by Hazard Category & Incompatibility

	Flammable Liquids	Halogenated Solvents	Acids – Mineral (Organic)	Acids - Inorganic	Acids - Oxidizing	Alkalis (Bases)	Oxidizers	Highly Toxic-Inorganic	Organic Bases	Water/Air Reactive
Flammable Liquids	Methanol Toluene THF Acetone									
Halogenated Solvents		Chloroform Dichloromethane								
Acids – Mineral (Organic)			Hydrochloric acid Phosphoric acid Sulfuric acid							
Acids – Inorganic				Acetic acid Benzoic acid Formic acid						
Acids – Oxidizing					Nitric acid Sulfuric acid Perchloric acid					

Improvements for the next month

- Labeling by TAs
- Gas Caps on Cylinders
- Contaminated hand (glove) & uncontaminated hand (bare)
- Fire Extinguisher Training?
- Search for a Faculty member for Chemistry Department Safety Committee