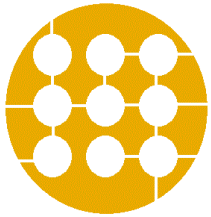
GENERAL LABORATORY SAFETY TRAINING

WVU Shared Research Facilities 2015

GENERAL LAB SAFETY

- Dress
  - No open toed shoes
  - Appropriate attire
    - Personal Protection Equipment (PPE) as needed
- Behavior
  - No running
  - No food or drink (Never!)
- Cleanliness
  - Multiuser environment
- Use common sense

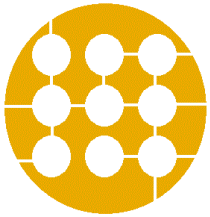


CHEMICAL HYGIENE PLAN

PURPOSE:

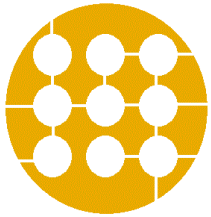
- provide information that supports the procedures, equipment and protocols
- protection of users and staff from safety and health effects of hazardous chemicals and materials
- to be in compliance with Occupational Safety and Health Administration (OSHA).

Where is it? Posted in the lab by the door



CHEMICAL HYGIENE PLAN - CONTENTS

- Cover page
  - Lab plan, safety diamond, emergency contact numbers
  - Emergency shutdown procedure and evacuation
- Lab overview
  - Description of the lab, map of facilities, equipment list
- Chemical safety information
  - Including PPE requirements
- Chemical and gas inventory
- All **SDS** sheets
- Standard Operating Procedures (SOPs)



CHEMICAL HYGIENE PLAN

- The CHP is continually updated
- Posted visibly in the lab
- University policy requires every laboratory user to read the CHP prior to laboratory use

FIRE SAFETY

- Extinguisher
  - http://sharedresearchfacilities.wvu.edu/safety/srfSafetyMain.html

- Cleanroom
  - Always evacuate

"That is just negative data storage room, focus here."

FIRE SAFETY - CONTINUED

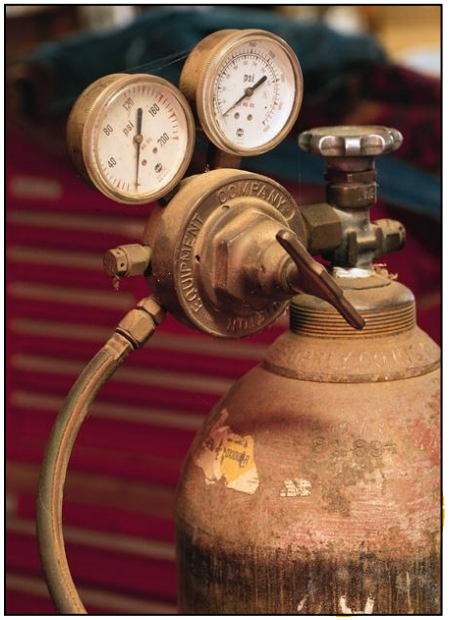
- Evacuation
  - Shut down any laboratory equipment and process that pose a danger if left unattended. However, leave immediately if in peril
  - Immediately evacuate the building using the nearest stairwell
  - Do not reenter the building until authorized to do so

- All fires must be reported immediately regardless of size or cause. Call 911 (9-911 on campus phone). If chemicals are involved, make sure that the fire department is so advised.

GAS HANDLING - DANGERS

Compressed Gas

- Flying fragments penetrate eyes and skin
- Compressed gas can damage skin, eyes and ears
- Use lowest pressure for the task
- Wear eye and skin protection



Flammable or Toxic Gases

- Ex: propane, ammonia, silane, chlorine, tetraflouromethane
- When working with or on a flammable compressed gas cylinder use spark-free tools

GAS CYLINDER HANDLING

- Compressed and liquefied gases may be combustible, explosive, corrosive, poisonous, inert or a combination of hazards
- Specific characteristics of each gas (read the MSDS)
- Store and handle with valve cap on
- Never lift a cylinder by the valve cap
- Store upright and secure to prevent them falling over
- Never roll a cylinder on its side, use a hand truck or a secure system
- Secure with chain or belt above midpoint but below shoulder

- Always keep away from heat sources, combustibles and electrical systems
- Wear eye protection when working with regulators and gauges
- DO NOT try and repair a leaky cylinder, report it immediately

CRYOGENICS HANDLING

- Liquid nitrogen
  - Adequate ventilation is required
- Wear Personal Protective Equipment (PPE)
  - Insulated gloves, apron and face shield
- Transfer of cryogenics
  - must only be done in approved **open** containers (i.e. dewars)
  - must be conducted slowly
  - Less than 80% full volume to minimize boiling and splashing of the cryogenic fluid
- All cryogenic systems are equipped with pressure relief devices to prevent excessive pressure build-up

CRYOGENIC DANGERS & BURNS

- Liquid nitrogen is –320º F (–195 ºC)
- Causes severe frostbite and eye damage
- Cryogenic liquids and their boil-off vapors rapidly freeze human tissue and cause common materials to become brittle
- Always wear proper PPE
- Do not rub skin
- Treat with warm water bath
- Can cause oxygen-deficient conditions
- May cause an explosion of a sealed container
- Evacuate in the case of a large spill

SHARPS & BROKEN GLASS

When do sharps injuries occur:	
During use	41%
After use/before disposal	40%
During and after disposal	15%
Other	4%

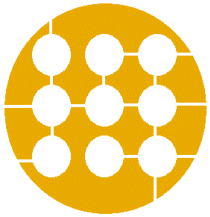
CDC: NaSH, June 1995-December 2003

SHARPS & BROKEN GLASS DISPOSAL

- Use all safety devices on sharps, blades and needles
- Never recap a used needle
- Dispose of all sharps and broken glass in properly labeled “sharps” receptacle
- Do not throw away with the normal trash!!

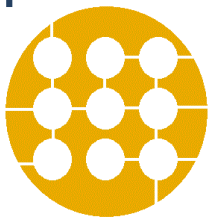
SRF ACCESS REQUIREMENTS

- Start at srf.wvu.edu
  - InfoCenter>
    - Where to Start>
      - CORES training / billing form (supervisor)
      - User Agreement
      - General Lab and Chemistry Safety Training (this one)
      - Other trainings (ask / register)



COMMUNICATION

- Who should be allowed in the lab?
  - Trained users and authorized staff only
  - Do not allow people into lab, refer them to the lab manager
- In case of emergency….
  - Call 911 (9-911 from campus phone)
  - Call emergency contact numbers listed on door placards, logbooks or Chemical Hygiene Plan
- In case of suspicious behavior…..
  - Call campus police (304) 293-3136



COMMUNICATION

- Reporting
  - In the event of any accidents, incidents or spills please let SRF managers and staff know immediately!!
- Contact us anytime
  - Srf.wvu.edu
- Twitter

  @WVU_SRF