Protocol for Chemical Spills

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Protocol for Chemical Spills

- Topics include
  - Hazardous Awareness and Preparation
  - Spill Response
  - Spill Prevention

Hazard Awareness and Preparation:

- Emergency Equipment
  - Internal communication or alarm system
    - Location of nearest telephone (emergency numbers posted)
    - Location of fire alarms
  - Fire extinguisher
  - Emergency eyewash and showers

Hazard Awareness and Preparation:

- Knowledge of:
  - The location of emergency shutoff valves and switches
  - Emergency evacuation routes
  - Proper response to personal injury
  - Assembly point where personnel can be accounted for

Hazard Awareness and Preparation

- Review MSDS
  - Pay attention to
    - Chemical Hazards
    - First Aid Information
    - Proper storage
    - Spill Response
    - Firefighting information
    - Engineering controls
    - Stability and Reactivity
    - Disposal considerations

Hazard Awareness and Preparation

- Have complete Spill Kits
  - Absorbent material
    - Absorbent pillows or powders
    - Activated carbon for organic solvents
    - Oil dry/floor dry for oil spills
    - Vermiculate or kitty litter
  - Neutralizing agents
    - Acid Neutralizers -soda ash or Spill X-A (Fisher Safety).
    - Base Neutralizers-citric acid powder or Spill X-C (Fisher Safety).
    - Solvent Spills-activated carbon or Spill X-S (Fisher Safety)

Hazard Awareness and Preparation

- Available Personal Protective Equipment (PPE)
  - 2 pairs of chemical splash goggles
  - Several pair of nitrile disposable gloves
  - Disposable aprons or suits
  - Shoe covers (if spill is on the floor)

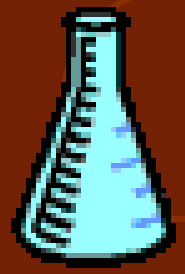
Hazard Awareness and Preparation

- Proper cleanup equipment
  - Polypropylene pails with lids (Large enough to contain spill and cleanup material).
  - Polypropylene dust pan
  - Polypropylene bags
  - Broom or brush with polypropylene bristles
  - Sealing tape
  - pH paper
  - Sign – **Danger Chemical Spill – Keep Out**

Spill Response

- Initial Reaction
  - Evacuate all personnel from the area
  - Prevent people walking through area of the spill. Prevents possible injury and spreading chemical contamination.
  - Determine nature of the spill
  - Obtain appropriate MSDS information
  - Determine whether it is a minor or major spill
  - If material is flammable turn off appropriate ignitions sources.
  - If possible report spill to immediate supervisor
  - Secure supplies and equipment for cleanup
  - Wear appropriate PPE for spill cleanup.

Spill Response



- Minor spills- spills which can easily and safely be cleaned up with equipment available.
  - Prevent the spill from spreading. Surround spill with absorbent material.
  - Use forceps or similar equipment to pickup glassware.
  - Work from outer edge toward the center of the spill.
  - Most acids and bases once neutralized may be mopped up and disposed down the drain with approximately 20 times the volumes of water.

Spill Response

- Spill Cleanup
  - Sweep up with brush and dustpan into appropriate pail.
  - Seal container and label with UNI EH&S Hazardous Waste Container label. Name of product should be labeled with the name of the product that was spilled and the words, ‘spill cleanup.’
  - Collect for transport to permanent waste storage facility (SB-1).

Spill Response

- **Major Spill**-Volumes exceeding the capacity of a standard cleanup kit or in which readily available personal protective equipment is not adequate to ensure worker safety.
  - Report spillage of chemical/s immediately to UNI Public Safety at (27)3-4000.
  - DO NOT RETURN TO THE AFFECTED AREA.
  - Anyone who may be contaminated by the spill should avoid contact with others.
    - **DO NOT TOUCH ANYTHING**.
    - Find the closest emergency shower/eyewash and flood chemical burn with water.
    - Remove any contaminated clothing to limit exposure.

Spill Response

- Major Spills (contd)
  - When reporting, be specific about the nature and location of spilled material. UNI Public Safety will activate the appropriate emergency response units.
  - Persons not trained in spill cleanup techniques should immediately evacuate the area and alert others to do the same.
  - Notify emergency personnel of persons with disabilities who are in the building and need help to evacuate.
  - In case of fire, follow the Departmental Fire Safety Response Procedures
  - **DO NOT USE ELEVATORS**

Spill Response

- Major Spills (contd)
  - Once outside, move to a clear area at least 150 yards away from the affected building.
  - Keep streets and walkways clear for emergency vehicles and personnel.
  - **DO NOT RETURN TO AN EVACUATED BUILDING** unless directed by UNI Police.

Spill Response

- Decontamination
  - Ventilate area if possible.
  - Clean affected area. In most cases standard cleaning solutions will work. However for some toxic chemicals a cleaning solvent may be necessary. Consult MSDS sheet.
  - Properly dispose of disposable gloves, aprons and shoe covers along with spilled material.
  - Thoroughly wash hands following cleanup. If chemical is highly toxic a shower may also be advised due to possible airborne contaminants.

Spill Prevention

- Common Practices
  - Avoid clutter on benches and in fume hoods.
  - Purchase only amount of chemicals that are needed.
  - Only have chemicals out that are needed during the experiment.
  - Know the properties of the materials you are working with.
  - Review chemical procedures.

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Questions?