Institute for Plasma Research

Are We Safe? -
Handling of Chemicals

D.V.MODI, Safety Officer, IPR

Compiled by: **SAFETY COMMITTEE, IPR**

Clip on *"Importance of label on chemical bottle/container"*

REMEMBER

- Don't work alone in the lab.

In case of a problem, you may need another person to prevent injury or even save your life!

REMEMBER

- The lab is a place for serious work!

Careless behavior may endanger yourself and others and will not be tolerated!

REMEMBER

- Wear Shoes that cover your feet

- Sandals and open-toed shoes do not protect your feet from broken glass that is frequently found in the lab.,
- Also, leather shoes protect your feet from chemical spills – canvas shoes do not.

REMEMBER

- Don't apply cosmetics, eat or drink in the lab.

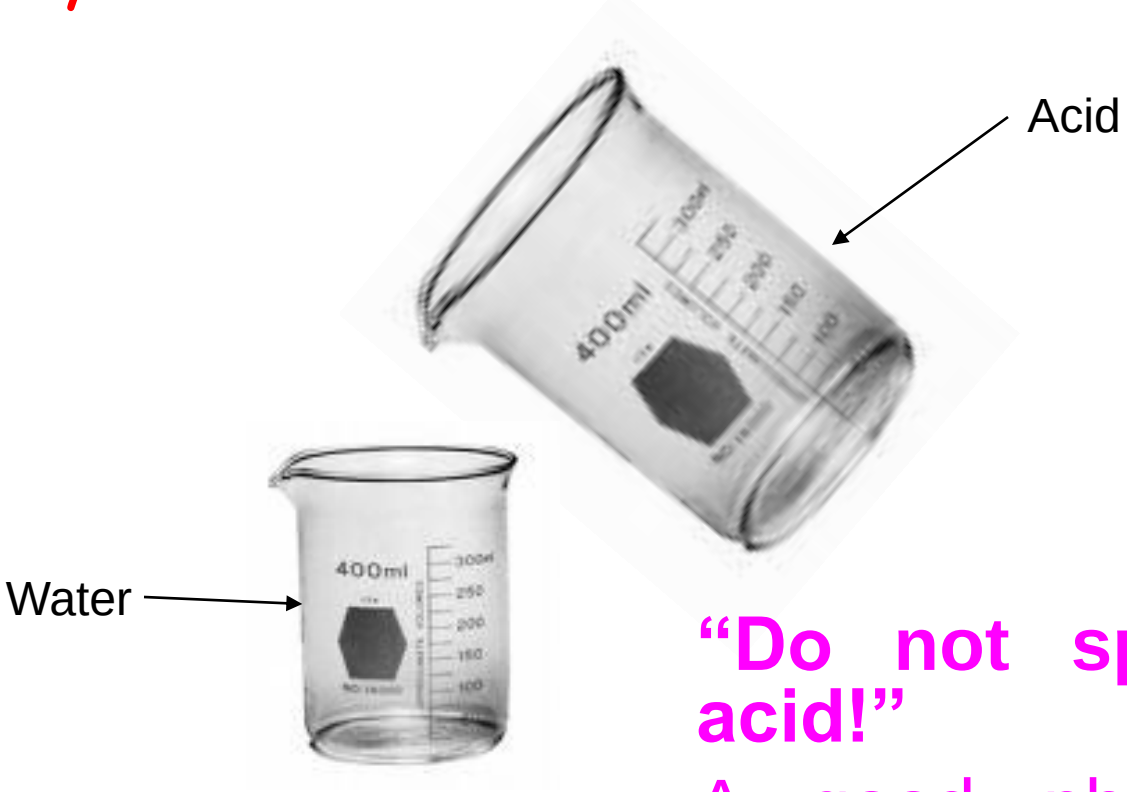
These activities are ways by which you can accidentally ingest harmful chemicals,

REMEMBER

- Don't taste any chemical.

REMEMBER

- Always ADD ACID to water.

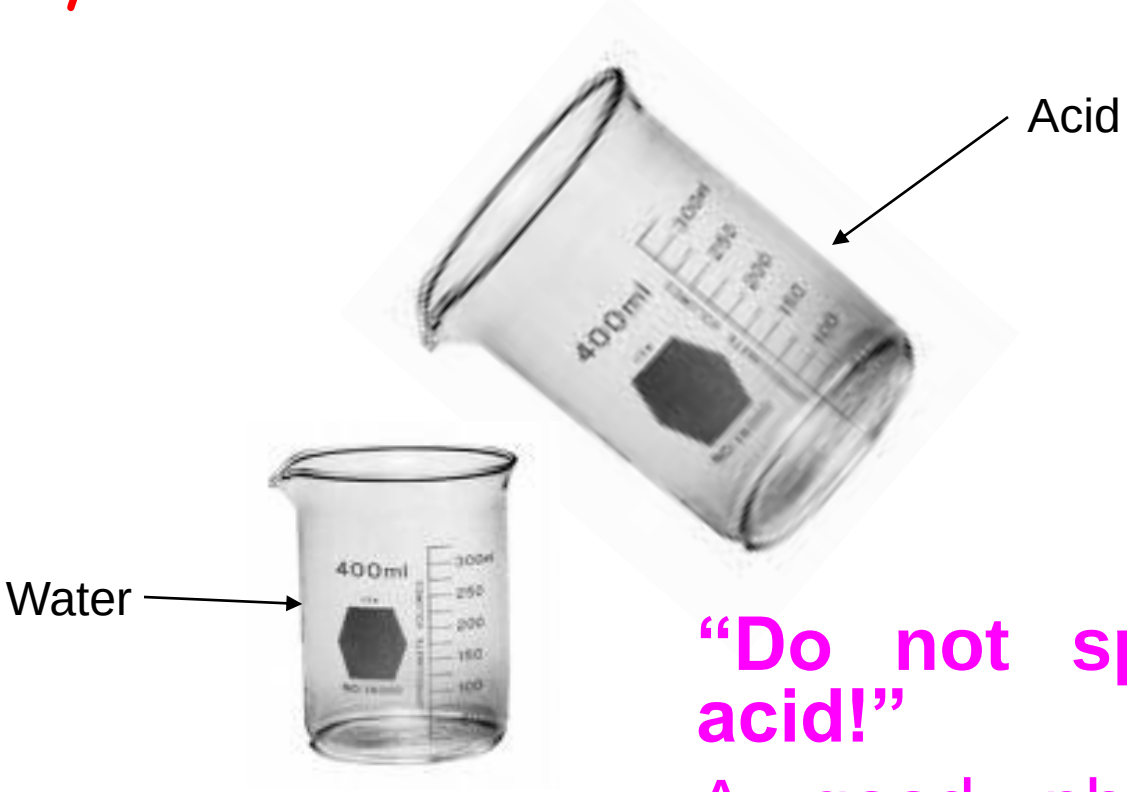


"Do not spit into acid!"

A good phrase to remember this rule.

REMEMBER

- Always ADD ACID to water.



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REMEMBER

- Know the hazards of the materials being used.

Read and reread labels carefully to make sure that you are using the right chemical.

Know how to interpret data from a MSDS.

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS

- Carefully read the manufacturer's **label** on the chemical bottle/container before storing or using it,
- Practice **good housekeeping** in flammable liquid storage areas,
- Keep the containers **closed** when not in use and store away from exits or passageways

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

- Keep flammable liquids **away from ignition sources** such as open flames, sparks, smoking, cutting, welding, etc.
- Always provide **adequate ventilation** to reduce the potential for ignition of flammable vapors,
- ***No open flames, smoking, sparks or welding is allowed in flammable liquid storage areas***,

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

Fume Hood for flammable chemicals,

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

- **Laboratory Attire**
  - Safety glasses
  - Lab coat
  - Hair pulled back
  - Hand gloves
  - Legs covered

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

- PVC and nitrile gloves often provide appropriate protection
- Use splash goggles
- Use face shield if splashing is possible

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

Example of Corrosive Compatibility:

Corrosive + Flammable = Fire,

i.e.

Nitric Acid + Ethanol

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

Clip on *"Safety for Storage of Flammable Chemicals"*

FUNDAMENTALS FOR SAFE HANDLING AND STORAGE OF CHEMICALS(Contd…)

- Flammable/combustible liquid drums shall not be stored so as to **obstruct an exits**, stairways, or areas normally used for the safe egress of people.

Clip on *"Emergency Exit"*

DISPOSAL OF CHEMICALS

Clip on *"Safe Disposal"*

HAND WASHING

Hand washing is the single most effective way to prevent the spread of infections.

- Wash your hands often and thoroughly, paying special attention to the area around and under your fingernails.

- Gloves are not a substitute for routine hand washing - rather an added protection.

HAND WASHING (Contd…)

- Wash Hands:
  - When arriving to work.
  - Before and after eating.
  - After using the restroom.
  - After removing gloves.
  - Before leaving work at the end of the day.

SUMMARY

- *Most flammable liquids are volatile, meaning they evaporate quickly, and can reach a concentration in air that could lead to an explosion,*
- Containers / bottles of such chemicals should not be kept open,
- Storage should be well ventilated,
- Keep chemicals' bottles away from heat / flame.

SUMMARY (Contd…)

- Keep chemicals' bottles away from heat / flame,
- Chemicals having wide range of flammability are the most dangerous and explosive. E.g. Hydrogen,
- Training to be imparted before personnel are assigned to laboratory,
- Training to be imparted prior to all new tasks involving hazardous chemicals,

YOUR CAREFUL ATTITUDE WILL NOT ONLY SAVE YOU BUT TO MANY OTHERS WORKING WITH YOU

THANK YOU