

Chemical Safety Refresher

2 PM, March 15, 2002, 102B

- Purpose: To review chemical safety in the clean room microfabrication laboratory.
 - Selected Highlights from Chapter V of the MiRC Laboratory Safety Manual
- Outline
 - Types of Hazards
 - Safety Information
 - Safety Equipment
 - Safety Procedures

Understanding Chemical Hazards

- Flammability

- FIRE: 1) Concentration of flammable vapor, 2) oxidizing atmosphere (air), and 3) ignition source.
- Acetone, Methanol, Isopropyl Alcohol

- Reactivity

- Peroxides, Incompatibles, Specific Hazards (HF)

- Toxicity

- Exposure: route, concentration, duration
- Acute, Chronic
- LD50, LC50

<http://www.ccohs.ca/oshanswers/chemicals/ld50.htm>

Safety Information

- Read Bottle Labels
- NFPA Hazard Signal
 - <http://www.ilpi.com/msds/ref/nfpa.html>
 - Minimal - 0 , Extreme - 4
 - Material Safety Data Sheets (MSDS)

Safety Information - MSDS

Example: VX Nerve Gas

- <http://www.ilpi.com/msds/vx.html>
- Section I - General Information
- Section II - Hazardous Ingredients
- Section III - Physical Data
- Section IV - Fire and Explosion Data
- Section V - Health Hazard Data
- Section VI - Reactivity Data

Safety Information - MSDS

Example: VX Nerve Gas

- Section VII - Spill, Leak, and Disposal Procedures
- Section VIII - Special Protection Information
- Section IX - Special Precautions
- Section X - Transportation Data

Safety Equipment

- Eye protection
 - safety glasses - good,
 - safety goggles - better,
 - face shield - best.
- Gloves
 - select correct gloves for chemicals used.
 - <http://physchem.ox.ac.uk/MSDS/glovesbychemical.html>

Safety Equipment

- Fire Extinguishers
 - learn to use them, be aware of their location
- First Aid Kits
- Acid / Base Burn Kits
 - In case of HF burn, IMMEDIATELY apply neutralizing cream.

Safety Procedures

Call For HELP! Campus Police, 4-2500

- Evacuation - Just Leave It, then Call for HELP!
- Personal Injury - Call for HELP!
- Spill Containment - Call for HELP!
- Chemical Storage - Label it, check for incompatibles.