



UNAM Safety Orientation

UNAM-NATIONAL NANOTECHNOLOGY RESEARCH CENTER
INSTITUTE OF MATERIALS SCIENCE AND NANOTECHNOLOGY
BILKENT UNIVERSITY, ANKARA, TURKEY

- Call **6666** in an Emergency for Police, Fire, or Medical attention
- When you call 6666, please provide as much of the following information
 - Is this an Emergency?
 - Exact Location of Emergency
 - Type of Emergency:
 - Police
 - Fire
 - Medical
 - Chemical, Biohazard or Radioactive Incident
 - Brief Description of Emergency
 - Your name and phone number (optional but helpful for response to incidents)
- This information will help to ensure necessary help is sent promptly.

- Attend to any person(s) who may have been contaminated and/or injured.
- Use **safety showers** and **eyewashes** as appropriate.
- In the case of eye contact, promptly flush eyes with water for a minimum of 15 minutes.
- For ingestion cases, contact **6666** for medical attention.
- In case of skin contact, promptly flush the affected area with water (for at least 15 minutes).

- Notify persons in the immediate area about the spill, evacuating all
- If the spilled material is flammable, turn off all potential ignition sou
- Leave on or establish exhaust ventilation if it is safe to do so. Close c
- Notify Laboratory Safety Committee at safety@unam.bilkent.edu.tr

Upon discovery of smoke or flames:

- Remove or notify people in life threatening danger
- Activate the fire alarm
- Contact the security desk, or call 6666, and provide the following information
 - Your name
 - Exact location of the emergency
 - Size and type of fire (i.e. small garbage can fire)
- If you have been trained, feel capable of doing so, and with another individual, attempt to extinguish the fire.
- Evacuate the building using the nearest safe stairwell.

Upon activation of the alarm, everyone is expected to:

- Stop work
- Secure research materials
- Secure or take all personal belongings
- Close (DO NOT LOCK) all doors
- Proceed in a calm, orderly manner to the nearest stairwell exit
DO NOT ATTEMPT TO USE ELEVATORS
- Enter the stairwell, move to the right on the stairs, proceed, down/up
- Return to workplace or comply with other instructions given by the
- Re-enter the building only when directed.

Alarm Emergency Exits



Emergency Exit Plan





- Emergency
- Assembly
- Area

Fire Hose



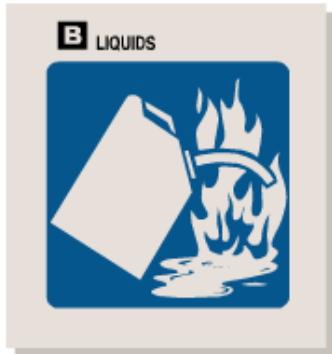
• CLASS A : Solid



Class A fires are fires in **ordinary combustibles** such as **wood, paper, cloth, trash, and plastics.**

- ABC Fire Extinguisher (I)

CLASS B : Liquid



Class B fires are fires in **flammable liquids** such as **gasoline, petroleum oil** and **paint.**

Class B fires also include **flammable gases** such as **propane** and **butane.** Class B fires do not include fires involving cooking oils and grease.

CLASS C : Gas

Class C fires are fires in flammable gases



flammable
gas



Extinguisher Use

1. **Pull** the pin
2. **Aim** the nozzle or hose at the base of the fire from the recommended safe distance.
3. **Squeeze** the operating lever to discharge the fire extinguishing agent.
4. Starting at the recommended distance, **Sweep** the nozzle or hose from side to side until

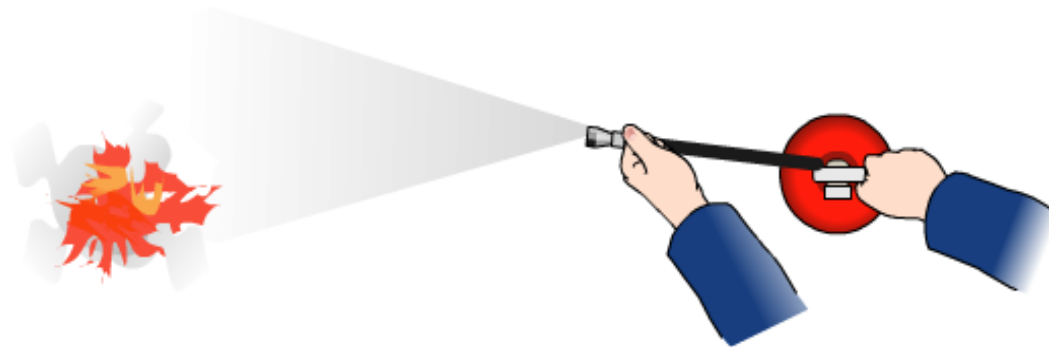
PASS

Pull

Aim

Squeeze

Sweep
the hose



- **Evacuate the area immediately**
- **Close the door behind you**
- **Contact security at 6666 and give:**
 - Your name & telephone number
 - Location of incident
 - Time & type of incident (i.e. spill, fire, leak)
 - Name & quantity of material(s) involved, if known
 - Extent of injuries, if any
 - Possible hazards to human health (e.g., toxic vapors)
 - Damage to property or environment

safety

Colorless liquid with strong irritating odor, weak mineral acid but: attacks g

Critical contact areas: Skin (most frequent), Respiratory tract, Eyes, Ingestion

Most HF exposures occur by: Liquid exposure (splash) (dermal contact skin

The onset of pain depends on the concentration of HF.

**When contaminated
wash the area with
water and apply
calcium gluconate gel.**



- Use safety showers and eyewashes as appropriate. In the case of eye
- For ingestion cases, call 6666 for medical attention.
- In case of skin contact, promptly flush the affected area with water a

- If the spill is minor:
 - Use a spill control kit appropriate to control material spilled, if appropriately trained
 - If the spill is minor and of known limited danger, clean up immediately. Determine the hazard and the appropriate cleanup method.
 - Cover liquid spills with compatible absorbent material such as spill pillows or a kit

- If the spill is minor:
 - Place the spilled material into an impervious container, seal, and contact Laboratory Safety.
 - If appropriate, wash the affected surface with soap and water. Mop up the residue.
 - A solvent, e.g. xylene, may be necessary to clean surfaces contaminated with a non-polar material.
- Supplies and equipment must be assembled and kept on hand to deal with any potential spill.

- Do not take any action unless you have been trained to respond, except
- If it is safe to do so, attend to anyone who may have been contaminated
- Notify 6666 for medical help.
- Remove all personnel from the immediate spill area to a safe meeting area
- Shut off ventilation, close windows and doors, and turn off hoods if possible
- Check all personnel for skin and clothing contamination.
- Decontaminate personnel and re-survey until radiation levels are at background

- Remove all contaminated clothing
- Wash the exposed area thoroughly with **soap & running water** for a
- Go to Hospital Emergency Room
- Medical provider will evaluate employee to determine exposure and
- File an exposure incident report with your supervisor

Chemical Safety

- Check out the material safety data sheet (MSDS)
- Wear your personal protective clothing and gloves
- Handle the chemical carefully and in a proper way
- Prefer to use in smaller quantities when possible
- Keep chemicals according to their acidity. Never

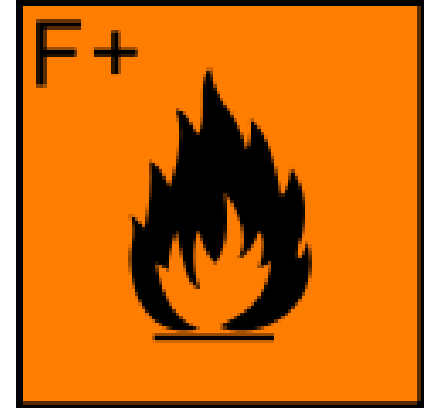
explosive



oxidizer



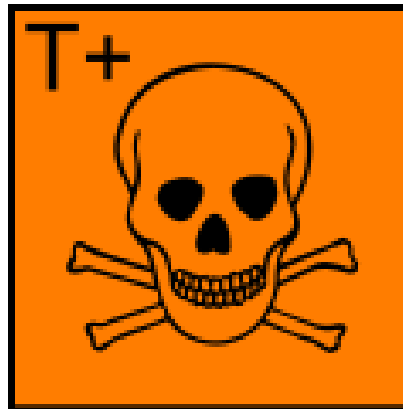
extremely flammable



highly flammable



very toxic



toxic



harmful



irritant



corrosive



Environmental hazard



Biohazard



Eyewash



First Aid



Recycle



Fire extinguisher



Face protection



Gloves



Protective Clothing



Respiratory



Flammable



Non-flammable



High voltage



Laser hazard



Optical hazard



Radiation



Radioactive

- Biological Waste



- Sharp Waste



- Glass Waste



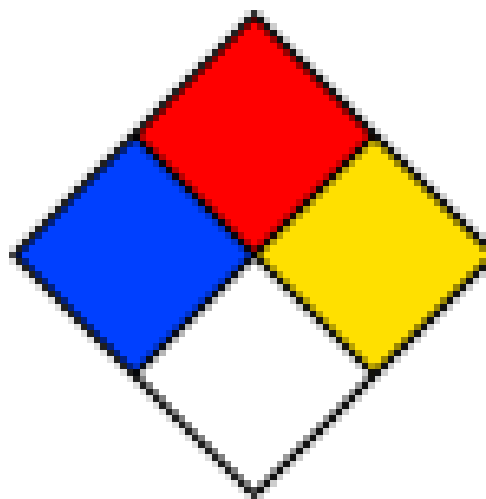


Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Acetone MSDS

Section 1: Chemical Product and Company Identification
Section 2: Composition and Information on Ingredients
Section 3: Hazards Identification
Section 4: First Aid Measures
Section 5: Fire and Explosion Data
Section 6: Accidental Release Measures
Section 7: Handling and Storage
Section 8: Exposure Controls/Personal Protection
Section 9: Physical and Chemical Properties
Section 10: Stability and Reactivity Data
Section 11: Toxicological Information
Section 12: Ecological Information
Section 13: Disposal Considerations
Section 14: Transport Information
Section 15: Other Regulatory Information
Section 16: Other Information

- 4 cause death or major residual injury
- 3 serious temporary or moderate residual injury
- 2 cause temporary incapacitation or possible residual injury
- 1 Cause irritation
- 0 No health hazard
- activity (yellow)



- 4 rapidly or completely vaporize
- 3 ignited under almost all ambient temperature conditions
- 2 Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur
- 1 Must be pre-heated before ignition can occur
- 0 Will not burn

White

- **W**: reacts with water
- **OX** or **OXY**: oxidizer
- **COR**:corrosive
- **BIO**: biological hazard
- **POI**: poisonous

- 4 capable of detonation or explosive decomposition
- 3 Capable of detonation or explosive decomposition but requires a strong initiating source
- 2 Undergoes violent chemical change at elevated temperatures and pressures
- 1 Normally stable, but can become unstable at elevated temperatures
- 0 Normally stable, even under fire exposure conditions, and is not reactive with water

• Laser Lab Safety

- The wavelength range of light that can enter the eye is 400 to 1400 nm, though the
- The eye can focus a collimated beam of light to a spot 20 microns in diameter on the
- This focusing ability places the retina at risk when exposed to laser light in the wave
- **This is important to remember when working with infrared lasers, because the retina can be injured even though the laser is invisible.**



- Thermal damage to the retina occurs in the Retinal Hazard
- Photochemical damage is severe at shorter visible wavelengths
- Acoustic shock from exposure to high energy pulsed lasers

***Chronic exposure can cause cataract formation in

Least Hazardous

Class 1

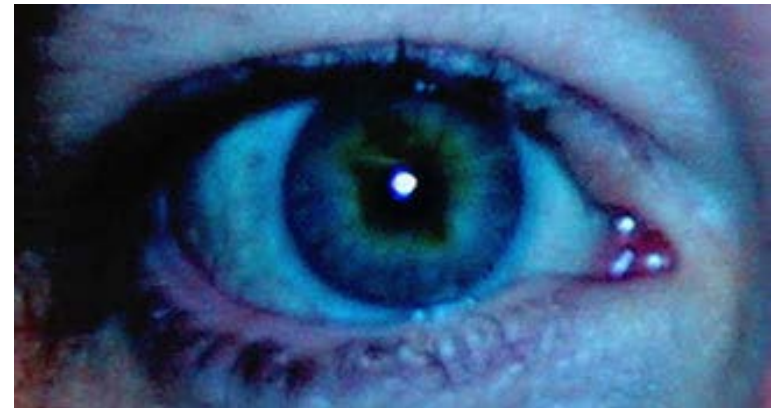
Class 2

Class 3a

Class 3b

Class 4

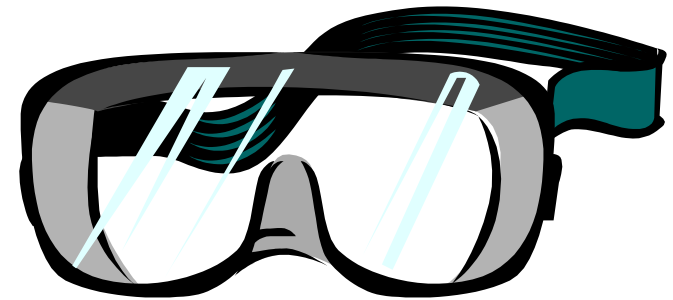
Most Hazardous



- Non-beam lasers hazards
- **Dyes and solvents** used in dye lasers are toxic and corrosive
- **Toxic gases**, such as HF and halogens commonly used

Personnel Protective Equipment (PPE) for Skin exposure

- Ultraviolet lasers and laser welding/cutting operations may require that tightly fitting clothing be worn.
- For lasers with wavelengths > 1400 nm, large area exposures to the skin can result in thermal injury.
- PPE is not required for class 2 or 3a lasers unless intentional direct viewing > 0.5 s.
- Personnel Protective Equipment (PPE) for eyes exposed to Class 3b or 4 lasers is mandatory. Eyewear with side protection is best.



You can prefer this, but in real life

