

Chemical Safety In The Laboratory

Lab 2



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Laboratory Safety Rules



- Read the lab instructions before starting anything.
- Wear safety glasses to protect your eyes from hot chemicals or materials.
- Wear protective gloves when handling chemicals.
- Wear closed shoes or cover your feet to avoid getting punctured by spilling a chemical.
- Keep your hands away from your face while working in the laboratory.
- Do not use broken or cracked glassware and dispose of it in the wastebasket.
- Pour the liquid using a glass stirring rod to prevent splashing.
- Do not place hot glassware directly into water as rapid cooling may cause it to shatter.

Laboratory Safety Rules



- Do not mix chemicals together, and if required, they must be done in a specific and safe way.
- Do not taste any substance in the laboratory.
- Heat chemicals in their designated place.
- Never pour water into concentrated acid, but rather pour the acid slowly into the water.
- Handling volatile chemicals under the influence of smoke.
- Disconnect all electrical equipment at the end of the laboratory period.
- Inform your teacher in case of any accidents in the laboratory.
- Wash your hands well after handling chemicals.
- Keep your work area tidy and clean.

Classes of Hazardous Chemicals



Chemical Symbols



Flammable – Any substance that will burn if exposed to an open flame.



Explosive – A substance that may explode if exposed to heat or flame.



Toxic/Poison – A substance that can lead to death if inhaled, ingested, or absorbed by the skin.



Corrosive – A substance that can destroy or burn living tissue and can eat away at other materials.



Irritant - A substance that causes inflammation upon contact with skin or mucous membranes.



Environmental - Substances that are harmful to the environment. They must be disposed of properly, not washed down the drain



Reactive- Water or time sensitive

Chemical Purchasing

- Prior to placing an order for chemicals, the following inquiries ought to be thought through:

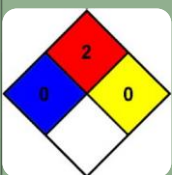
CHEMICAL
STORAGE
AREA



How should the chemical be stored?



What is the minimum quantity needed to complete the work?



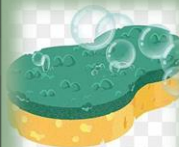
What is the least hazardous chemical available that can be used?



Is the chemical already available?



Are personnel trained on how to safely handle the chemical?



Is the laboratory equipped to handle a spill?

Chemical Storage



- Chemical containers must be labeled with the name of the substance, hazard warnings and their use.
- Hazardous chemicals must be isolated in a specific and safe place.
- Chemicals must not be exposed to sunlight.
- Do not store flammable materials with reactive materials.
- Store corrosive chemicals under the eye properly.
- Store in a cool, dry place that is well ventilated.
- Use secondary catch basins for concentrated acids and bases



What is MSDS ?



- The MSDS contains information specific to the chemical it references. Information includes:
 - Section 1: Identification of chemical
 - Section 2: Hazardous Ingredients
 - Section 3: Physical Data
 - Section 4: Fire & Explosion Data
 - Section 5: Health Hazards
 - Section 6: Reactivity
 - Section 7: Personal Protective Equipment
 - Section 8: Spills & Leak Procedures
 - Section 9: Handling & Storage



Transporting Chemicals



- When transferring chemicals from one container to another, make sure to label the second container first.
- Use containers with rubber, metal or plastic handles.
- There should be no obstacles when transferring materials from one place to another.
- Dispose of old containers in the chemical waste bin.
- Be prepared for chemical spills and clean up spills immediately.



**Handling
Chemical
Spillages**



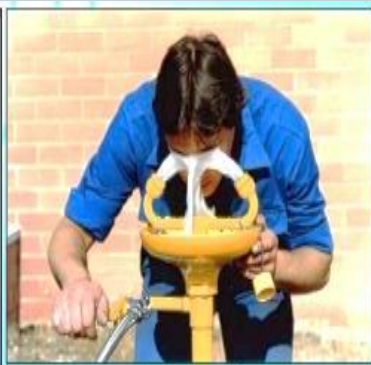
First Aid



- If skin contact occurs, flush affected area with copious amounts of Water and remove contaminated clothing
- Any physical injury, control bleeding with direct pressure, avoiding any foreign bodies such as glass
- All laboratory workers should undergo simple first aid training or ensure that at least one First Aid trained person is present in each shift
- Report all accidents to your supervisor or departmental safety officer.



Safety Shower



Eye Wash



Fume Hood



Acid Proof Coat

Important Lab Safety Rules

Know the location of safety equipment

Follow the instructions

Don't play mad scientist

Leave experiments at the lab

Dress appropriately

Know what to do in case of an accident

Don't taste or sniff chemicals

Don't eat or drink in lab

Don't experiment on yourself

Dispose of waste properly



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THANK YOU

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