



Sulkhani-Saba Orbeliani UNIVERSITY

Guidelines for Safety in the Biochemistry Laboratory



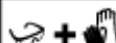
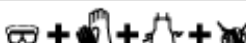





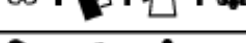













Document has been approved

Medical Faculty council 16.05.2023

- Some form of eye protection is required at all times. Safety glasses with wide side shields or goggles are recommended, but normal eyeglasses with safety lenses may be permitted under some circumstances. Your instructor will inform you of the type of eye protection required. A statement regarding the wearing of contact lenses in the laboratory has been made by the American Chemical Society. In general, contact lenses may be acceptable for wear in the laboratory, but the student must, of course, also wear safety glasses with side shields or goggles like all other students. Students who wear contacts must report to their lab instructor to determine the local rules for the lab.
- Wear appropriate clothes—comfortable, well-fitting, older clothes that cover most of your skin. Sandals or bare feet are never allowed.
- Never work alone in the laboratory.
- Be familiar with the properties of all chemicals used in the laboratory. This includes their flammability, reactivity, toxicity, and proper disposal. This information may be obtained from your instructor, from the HMIS® III label, and from the MSDS. Always wear disposable gloves when using potentially dangerous chemicals or infectious agents.
- Be familiar with your local rules for the safe handling and disposal of all non-chemical hazards. These include broken glass, “sharps” (needles, syringes, etc.), and biohazards (blood, bacteria, etc.).
- Be especially careful with electrical equipment like stirrers, hot plates, and power supplies (electrophoresis, etc.). Always unplug before handling and avoid contact with water.
- If open flames like those of Bunsen burners are necessary, make sure there are no flammable solvents in the area.

- Eating, drinking, and smoking in the laboratory are strictly prohibited at all times.
- Unauthorized experiments are not allowed.
- Mouth suction should never be used to fill pipets or to start siphons.
- Become familiar with the location and use of standard safety features in your laboratory. All laboratories should be equipped with fire extinguishers, eyewashes, safety showers, fume hoods, chemical-spill kits, fire blankets, first-aid supplies, and containers for chemical disposal. Receptacles should also be available for disposal of dangerous materials like glass, biohazards, and sharps. Any questions regarding the use of these features should be addressed to your instructor, teaching assistant, or lab director.
- Report all chemical spills, presence of biohazards, accidents, and injuries (even minor) to your instructor.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

| HAZARD INDEX | | PERSONAL PROTECTION INDEX | | | | | | | | | | | |
|---|------------------------|---------------------------|--|----------|---|----------|--|----------|---|----------|--|----------|--|
| 4 | Severe Hazard | A |  | G |  | | | | | | | | |
| 3 | Serious Hazard | B |  | H |  | | | | | | | | |
| 2 | Moderate Hazard | C |  | I |  | | | | | | | | |
| 1 | Slight Hazard | D |  | J |  | | | | | | | | |
| 0 | Minimal Hazard | E |  | K |  | | | | | | | | |
| * An asterisk or other designation corresponds to additional information on a data sheet or separate chronic effects notification | | F |  | X | Consult your supervisor or S.O.P. for "Special" handling directions | | | | | | | | |
| HEALTH | | A |  <small>Safety Goggles</small> | n |  <small>Splash Goggles</small> | o |  <small>Face Shield & Eye Protection</small> | p |  <small>Gloves</small> | q |  <small>Boots</small> | r |  <small>Synthetic Apron</small> |
| FLAMMABILITY | | S |  <small>Full Suit</small> | t |  <small>Dust Respirator</small> | u |  <small>Vapor Respirator</small> | w |  <small>Dust & Vapor Respirator</small> | y |  <small>Full Face Respirator</small> | z |  <small>Airline Hood or Mask</small> |
| PHYSICAL HAZARD | | | | | | | | | | | | | |
| Personal Protection | | | | | | | | | | | | | |

HAZARDOUS MATERIALS LABEL IDENTIFICATION SYSTEM

HAZARDOUS MATERIALS CLASSIFICATION

| | |
|-------------------------|--|
| OXY OXIDIZER | INDEX RATING GUIDE FOR THE DEGREE OF HAZARD FOR EACH CATEGORY: |
| ACID ACID | |
| ALK ALKALI | |
| COR CORROSIVE | |
| W USE NO WATER | |
| RADIATION HAZARD | |
| | 4 SEVERE HAZARD |
| | 3 SERIOUS HAZARD |
| | 2 MODERATE HAZARD |
| | 1 SLIGHT HAZARD |
| | 0 MINIMAL HAZARD |

HAZARDOUS INDEX RATINGS FOR CONTAINER LABELING

| HEALTH HAZARD | FIRE HAZARD | INSTABILITY | TARGET ORGAN |
|--|--|---|---|
| 4-SEVERE HAZARD-SPECIAL FULL BODY SUIT MUST BE WORN | 4-EXTREMELY FLAMMABLE, FLASH POINT BELOW 73°F | 4-MAY EXPLODE UNDER NORMAL CONDITIONS | 4-SEVERE HAZARD TO TARGETED ORGANS, USE FULL SUIT |
| 3-SERIOUS HAZARD-FULL BODY SUIT SHOULD BE WORN | 3-VERY FLAMMABLE, IGNITES AT NORMAL TEMPERATURE CONDITIONS | 3-MAY EXPLODE WITH SHOCK OR HEAT | 3-SERIOUS HAZARD TO TARGETED ORGANS, USE FULL SUIT |
| 2-MODERATE HAZARD-BREATHING APPARATUS WITH FULL FACE MASK SHOULD BE WORN | 2-IGNITES WITH MODERATE HEATING, FLASH POINT BELOW 200°F | 2-VIOLENT CHEMICAL CHANGE BUT WILL NOT DETONATE | 2-MODERATE HAZARD TO TARGETED ORGANS, USE TARGETED PROTECTION |
| 1-SLIGHT HAZARD-BREATHING APPARATUS MAY BE WORN | 1-IGNITES WHEN HEATED, FLASH POINT ABOVE 200°F | 1-NOT STABLE IF HEATED, USE CAUTION | 1-SLIGHT HAZARD TO TARGETED ORGANS, USE TARGETED PROTECTION |
| 0-MINIMAL HAZARD-NO PRECAUTIONS NECESSARY | 0-NON-COMBUSTIBLE, WILL NOT IGNITE | 0-NORMALLY STABLE | 0-MINIMAL HAZARD TO TARGETED ORGANS, PROTECTION OPTIONAL |

4—Deadly

3—Extreme danger

2—Hazardous

1—Slightly hazardous

0—Normal material

4—Below 73°F

3—Below 100°F

2—Below 200°F

1—Above 200°F

0—Will not burn

FIRE HAZARD Flash Points

HEALTH HAZARD

SPECIFIC HAZARD

| | |
|------|------------------|
| OXY | Oxidizer |
| ACID | Acid |
| ALK | Alkali |
| COR | Corrosive |
| W | Use NO WATER |
| * | Radiation Hazard |

INSTABILITY

4—May detonate

3—Shock and heat may detonate

2—Violent chemical change

1—Unstable if heated

0—Stable

PERSONAL PROTECTION, TARGET ORGANS, & INDEX RATINGS

EXAMPLE:

CHEMICAL NAME AND NUMBER:
METHANOL C.A.S.#67561

HEALTH 1

FLAMMABILITY 3

INSTABILITY 0

TARGET ORGAN EYES SKIN CENTRAL NERVOUS SYSTEM

PERSONAL PROTECTION SYMBOLS

| PERSONAL PROTECTION SYMBOLS | | | TARGET ORGANS | | | | RATINGS |
|-----------------------------|--|--|-------------------------|------------------------|----------------------|---------------------------|----------|
| | | | BLADDER | BLOOD | BLOOD CHOLINESTERASE | BONE MARROW | 4 |
| | | | CARDIO-VASCULAR SYSTEM | CENTRAL NERVOUS SYSTEM | ENDOCRINE SYSTEM | EYES | 3 |
| | | | GASTRO-INTESTINAL TRACT | HEART | KIDNEYS | LIVER | 2 |
| | | | LUNGS | LYMPH-ATICS | LYMPHOID SYSTEM | PERIPHERAL NERVOUS SYSTEM | 1 |
| | | | PROSTATE | RESPIRATORY SYSTEM | SKIN | TEETH | 0 |

PLEASE NOTE: While the information presented here is believed to be accurate and in compliance with present OSHA Labeling Standards (Right-to-Know), and with NFPA Fire Identification Standards, we assume no responsibility as to the accuracy, completeness, or suitability of its end use. © 2011 SGS