

Huntington Union Free School District

CHEMICAL HYGIENE PLAN



2019-2020 School Year

In compliance with OSHA 29 CFR 1910.1450

Superintendent of Schools:	James W. Polansky
Plant Facilities Administrator:	George Austin
Director of K-12 STEM:	Jill Johanson
Chemical Hygiene Officers:	George Austin / Jill Johanson

## Important School Contacts in the Event of an Emergency

### EMERGENCY 911

Plant and Facilities Director	George Austin, x2128
School Nurse	High School, x2146 Finley, x2026 Woodhull, x2147 Jack Abrams, x2061 Flower Hill, x2058 Southdown, x2142 Washington, x2143 Jefferson, x2141
Main Office	High School, x2003 Finley, x2020 Woodhull, x2030 Jack Abrams, x2060 Flower Hill, x2050 Southdown, x2080 Washington, x2090 Jefferson, x2070
Director of K-12 STEM	Jill Johanson, x2393
Chemical Hygiene Officer	George Austin, x2128 Jill Johanson, x2393
National Emergency Poison Control Center	1-800-222-1222

I.	General Principles for work with Laboratory Chemicals .....	4
II.	Chemical Hygiene Responsibilities .....	4
	A. District Superintendent .....	4
III.	School Principals, Department Directors.....	4
	A. Laboratory Instructor .....	5
	B. Chemical Hygiene Officer .....	5
IV.	Laboratory Facility.....	5
	A. General design .....	
	B. Maintenance.....	
	C. Usage.....	
	D. Ventilation.....	
V.	Components of Hygiene Plan .....	
	A. Determination of Employee Exposure.....	
	B. Employee Training.....	
	C. Chemical Procurement, Distribution & Storage .....	
	D. Housekeeping, Maintenance & Inspections.....	
	E. Protective Apparel & Equipment.....	
	F. Records .....	
	G. Signs & Labels.....	
	H. Material Safety Data Sheets.....	
	I. Spills & Accidents .....	
	J. Waste Disposal Program.....	
VI.	Basic Rules & Procedures for Working with Chemicals.....	
	A. General rules .....	
Appendix:		
	A. Accidents to People.....	
	B. Regulatory Information.....	

## CHEMICAL HYGIENE PLAN FOR HUNTINGTON UNION FREE SCHOOL DISTRICT

### I. General Principles for Work with Laboratory Chemicals

- A. It is prudent to minimize all chemical exposures. Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals should be adopted, rather than specific guidelines for particular chemicals. Skin contact with chemicals should always be avoided.
- B. Avoid under-estimation of risk. Even for substances of no known significant hazard, exposure should be minimized; for work with substances that present special hazards, special precautions should be taken. One should assume that any mixture will be more toxic than its most toxic component and that all substances of unknown toxicity are toxic.
- C. Provide adequate ventilation. The best way to prevent exposure to airborne substances is to prevent their escape into the work atmosphere by use of hoods and other ventilation devices.
- D. Institute a Chemical Hygiene Program. A mandatory Chemical Hygiene Program designed to minimize exposures is needed; it should be a regular continuing effort, not merely a standby or short-term activity.
- E. Observe the PELs and TLVs. The Permissible Exposure Limits of OSHA and the Threshold Limit Values of the American Conference of Governmental Industrial Hygienists should not be exceeded.

### II. Chemical Hygiene Responsibilities

Responsibility for Chemical Hygiene rests at all levels including the:

- A. District Superintendent who has ultimate responsibility for chemical hygiene within the district and must, with other administrators, provides continued support for institutional chemical hygiene.
- B. School Principals and Department Director who are responsible for chemical hygiene in the individual buildings.
- C. Laboratory Instructor has overall responsibility for chemical hygiene in the laboratory including responsibility to:
  - 1. Know and follow the chemical hygiene rules, that protective equipment is available and ensure it is in working order.
  - 2. Know the current legal requirements concerning regulated substances.
  - 3. Determine the required levels of protective apparel and equipment.
  - 4. Plan and conduct each operation in accordance with the institutional chemical hygiene procedures.
  - 5. Include hazards likely/possibly encountered and emergency responses and preventive measures to remediate them in each laboratory activity.
  - 6. Develop good personal chemical hygiene habits.

- D. Chemical Hygiene Officer has overall responsibility for providing advice and assistance to district staff in carrying out a chemical hygiene program in the laboratory including responsibility to:
1. Provide formal chemical hygiene and housekeeping inspections including routine inspections of emergency equipment.
  2. Provide chemical safety to all laboratory instructors.
  3. Update the Chemical Hygiene Plan as necessary and review on an annual basis.
  4. Update the Chemical Inventory throughout the school year, as needed, to keep it accurate and up to date.

### III. The Laboratory Facility

- A. Design: The school laboratory facilities have:
1. An appropriate general ventilation system with air intakes and exhausts located so as to avoid intake or recirculation of contaminated air.
  2. Adequate, well-ventilated stockrooms/storerooms.
  3. Laboratory fume hoods and sinks.
  4. Other safety equipment including eyewash fountains and drench showers.
  5. Arrangements for waste disposal.
- B. Maintenance: Chemical hygiene related equipment (hoods, etc.) will undergo regular inspection and maintenance.
- C. Usage: The work conducted and its scale must be appropriate to the physical facilities available and especially to the quality of ventilation.
- D. Ventilation:
1. Natural Dilution: This system should provide a source of air for breathing. It will not be relied upon for protection from toxic substances released into the lab.
  2. Hoods: A laboratory fume hood should be provided for demonstration. Each hood will be monitored for adequate performance by the Science Laboratory Teacher/ Chemical Hygiene Officer.
  3. Modifications: Any alterations to the ventilation system should be made only by qualified personnel. (HVAC engineer), and if testing indicates that worker protection from airborne toxic substances will continue to be adequate.
  4. Quality: Airflow should be six air changes per hour. The hood face velocity should be maintained 60-100 linear feet per minute, at minimum.

### IV. Components of the Chemical Hygiene Plan

- A. Determination of Employee Exposure: If any substance regulated by PESH is used in the laboratory, the Huntington Union Free School District shall ensure that laboratory employees' exposures to such substances will not exceed the permissible exposure limits (PEL) specified in 29 CFR Part 1910, Subpart Z.

1. Initial Monitoring: If there is any reason to believe that exposure levels to any regulated substance exceeds the action level (or in the absence of an action level, the PEL), the school district will initiate an air monitoring program to determine if this level is actually reached.
  2. Periodic Monitoring: If the results of the initial monitoring come back higher than the action level (or in the absence of an action level, the PEL), the school district will immediately comply with the exposure monitoring provisions of the relevant standard.
  3. Notification of Results: The school district will notify all employees of monitoring results within 15 days after the receipt of these results. The notification will either be in the form of a letter written to each individual or a letter posted in an appropriate location that is accessible to employees.
- B. Employee Training and Information: The Huntington Union Free School District shall provide all employees involved with chemical work with training and information to ensure they are apprised of the hazards of chemicals present in their work area. Such information shall be provided at the time of an employee's initial assignment to a work area where hazardous chemicals are present. The school district will hold refresher courses on an annual basis to assure that all individuals at risk are adequately informed about the risks in the laboratory and what to do if an accident occurs.
- C. Chemical Procurement, Distribution & Storage
1. Procurement: Before a substance is received, those who will be involved should know information on proper handling, storage and disposal. No container shall be accepted without an adequate identifying label and MSDS/SDS (Safety Data Sheet). All substances should be received in a central location.
  2. Stockrooms/Storerooms: All laboratory chemicals should be stored in locked or secure rooms and cabinets. The storage room should provide enough space for proper arrangement of chemicals by compatibility groups and should also provide proper ventilation and fire protection. Stored chemicals should be examined at least annually for replacement, deterioration and container integrity. Stockrooms should not be used as laboratory experiment areas.
  3. Distributions: When chemicals are hand carried, precautions should be taken to avoid any breakage or chemical exposure to the individual.
  4. Laboratory Storage: Only those chemicals being used for that day's experiments should be stored in the classroom. At the end of the day, all items should be properly discarded or returned to the storeroom. A small amount of chemicals for one lab experiment may be securely stored in the classroom. At the conclusion of the laboratory, the chemicals must be returned to the storeroom or properly disposed of.
- D. Housekeeping, Maintenance & Inspections
1. Cleaning: Floors should be cleaned regularly.
  2. Inspections: Formal housekeeping and chemical hygiene inspections by the Chemical Hygiene Officer should be held at least annually. Informal inspections should be held continually.

3. Maintenance: Eye wash fountains, safety showers and other safety equipment should be inspected and tested regularly. Records of testing and inspections should be maintained. Procedures to prevent restarting of out-of-service equipment should be established.
- E. Protective Apparel and Equipment: These should be included for each laboratory (or provided for each student): Protective apparel compatible with the required degree of protection for substances being handled. This should include at least:
1. Splash goggles
  2. Chemical resistant aprons
  3. Gloves
  4. Hair ties
- F. Records: The school district will establish and maintain the following records:
1. Accident records must be maintained as per state and federal regulations. These should include all injuries, property damage and near misses.
  2. All training records should be kept and should include a specific outline of what was taught.
  3. All monitoring results shall be kept.
  4. All medical records shall be retained by the district in accordance with the requirements of state and federal regulations (40 years or for the duration of employment plus 20 years, whichever is longer or in accordance with 1910.20).
- G. Signs and Labels: The school district shall ensure that labels on all incoming containers of hazardous materials are not removed or defaced.
1. Prominent signs and labels of the following types should be posted:
    - a. Emergency telephone numbers of emergency personnel/facilities, administrators and laboratory staff.
    - b. Identity labels showing contents of all containers including waste receptacles.
    - c. Location signs for safety showers, eye wash stations, other safety and first-aid equipment and exits.
    - d. Any secondary container containing a chemical or mixture of chemicals being used for an extended period of time shall have a label indicating its contents and associated hazards.
- H. Inventory/Safety Data Sheets: The school district shall maintain all safety data sheets that are received with incoming shipments of hazardous chemicals and for chemicals already present and ensure that they are readily accessible to laboratory employees.
1. Inventory should be maintained and regularly updated by the Chemical Hygiene Officer.
  2. An inventory list arranged alphabetically will be posted in the storage room. Safety Data Sheets will be arranged alphabetically and located in the storage room.
- I. Small Spills and Accidents
1. The “Building Level Emergency Response Plan” shall govern all emergency responses used in each building.
  2. The fire alarm system will be used to alert people in all parts of the facility if necessary.

3. A “spill control” policy has been developed and includes consideration of preventing spills (Appendix A).
4. All accidents or near accidents should be carefully analyzed with the results distributed to all who might benefit.

J. Waste Disposal Program

1. Aim: To assure that minimal harm to people, other organisms and the environment will result from the disposal of laboratory waste chemicals.
2. Discarding chemical stocks: Unlabeled containers of chemicals and solutions should undergo prompt disposal. Before a teacher goes home at the end of the day, the chemicals for which that teacher was responsible for should be discarded or returned to storage. A small amount of chemicals for on lab experiment may be securely stored in the classroom. Chemicals must be returned to the storeroom or disposed of properly at the conclusion of the experiment.
3. Frequency of disposal: Waste should be removed from classrooms at the end of every day. Indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse for landfill burial is illegal. Hoods should not be used as means of disposal for volatile chemicals. Disposal by recycling or chemical decontamination should be used when possible.

V. Basic Rules and Procedures for Working with Chemicals

- A. The Chemical Hygiene Plan requires that laboratory instructors and students know and follow its rules and procedures, in addition to the procedures of sub-programs mentioned below.
1. General rules for all laboratory work with chemicals are:
    - a. Eye Contact: Promptly flush eyes with water for prolonged period and seek medical attention.
    - b. Ingestion: Encourage the victim to drink large amounts of water. Contact nurse immediately.
    - c. Skin Contact: Promptly flush the affected area with water and remove any contaminated clothing. If symptoms persist after washing, seek medical attention.
    - d. Cleanup: Promptly clean up spills using appropriate protective apparel, equipment and proper disposal.
  2. Avoidance of “routine” exposure: Develop and encourage safe habits to avoid unnecessary exposure to chemicals by any route; do not smell or taste chemicals. Vent apparatus which may discharge toxic chemicals (vacuum pumps, distillation columns, etc.) into local exhaust devices. Inspect gloves and test fume hoods before use.
  3. Choice of chemicals: Use only those chemicals for which the quality of the available ventilation system is appropriate. Use the least hazardous materials and process available to teach the desired laboratory experience.
  4. Eating, smoking, etc.: Eating, drinking, smoking, gum chewing or application of cosmetics in areas where laboratory chemicals are present is prohibited. Avoid storage, handling or consumption of food or beverages in storage areas, refrigerators, glassware or use of utensils that are also used for laboratory operations.



5. Equipment and glassware: Use extra care with Dewar flasks and other evacuated glass apparatus; shield or wrap them with tape to contain chemicals and fragments should implosion occur. Use equipment only for its designated purpose.
6. Exiting: Wash areas of exposed skin well before leaving the laboratory.
7. Horseplay: Avoid practical jokes or other behavior which might confuse, startle or distract another worker.
8. Mouth suction: Do not use mouth suction for pipetting or starting a siphon.
9. Personal apparel: Confine long hair and loose clothing. Wear shoes at all times in the laboratory, but do not wear sandals or perforated shoes.
10. Personal housekeeping: Keep the work area clean and uncluttered, with chemicals and equipment being properly labeled and stored; clean up the work area on completion of an operation or at the end of each day.
11. Personal Protections:
  - a. Insure that appropriate eye protection is worn by all persons (including visitors), anywhere that chemicals are stored or handled. Do not allow contact lenses in the lab.
  - b. Wear appropriate gloves when the potential for contact with toxic or corrosive materials exists; inspect the gloves before each use, wash them before removal and replace them periodically.
  - c. Use any other protective and emergency apparel or equipment as appropriate.
12. Planning: Seek information and advice about hazards; plan appropriate protective procedures and plan positioning of equipment before beginning any new operation.
13. Use of hood: Use the hood for operations that might result in release of toxic chemical vapors or dust. As a rule of thumb use a hood or local ventilation device when working with any applicably volatile substance with a TLV of less than 50 pip. Confirm adequate hood performance before use; keep hood closed at all times except when adjustments within the hood are being made; keep materials stored in hoods to a minimum and do not allow them to block vents or air flow. Leave the hood "on" when it is not in active use if toxic substances are stored in it or if it is uncertain whether adequate general laboratory ventilation shall be maintained when it is "off."
14. Vigilance: Be alert to unsafe conditions and see that they are corrected when detected.
15. Waste disposal: Assure that the plan for each laboratory operation includes plans and training for waste disposal. Deposit chemical waste in appropriately labeled receptacles and follow all other waste disposal procedures of the Chemical Hygiene Plan. DO NOT discharge to the sewer concentrated acids or bases, highly toxic malodorous or lachrymatory substances; any substances which might interfere with the biological activity of waste water treatment plants, create fire or explosion hazards, cause structural damage or obstruct flow.
16. Working alone: Avoid working alone in a building; do not work alone in a laboratory if the procedures being conducted are hazardous. Never allow students to work unsupervised.

## APPENDIX A

### CHEMICAL SPILLS/HAZARDOUS RELEASES

- A. A plan to deal with anticipated hazards should be included in each laboratory “lesson plan.”
- B. The potential hazards that students may encounter should be written into each laboratory experiment and demonstration guide.
- C. A Chemical “Spill Kit” is available in each laboratory situation.
- D. Prepare an emergency plan including:
  - 1. Under what conditions evacuation will take place:
    - a. Whenever an experiment gets out of control
    - b. Whenever flammables are spilled
    - c. Whenever gas is smelled
    - d. Whenever fumes are sufficiently strong to be noticed in over fifty percent of the room
    - e. Whenever combustibles/flammables are ignited
    - f. Whenever mercury is spilled
  - 2. Under what conditions extra ventilation will be used:
    - a. Whenever smoke or other irritating non-toxic fumes are present or possible
    - b. Before fume buildup becomes a problem
    - c. In hood when mixing/pouring noxious fume producing materials

**FOR SMALL SPILLS:** Any unnecessary people should be removed from the area. Post signs around the area to keep out unauthorized personnel. Alert the Principal and Head Custodian. The custodian will clean up spills as appropriate from MSDS/SDS information. Use absorbent on hand if appropriate and collect all waste in labeled containers for proper disposal.

**FOR LARGE SPILLS OR HIGHLY TOXIC/REACTIVE MATERIALS:** IMMEDIATELY EVACUATE the area and alert the Principal, Head Custodian and the Plant and Facilities office. Post signs around the area to keep unauthorized people away. Inform any arriving emergency personnel of the identity of the contaminant and have a MSDS/SDS available if possible. The custodial staff will clean up the spill if possible, collecting all waste and cleanup materials in a labeled container for proper disposal.

## APPENDIX B

### REGULATORY INFORMATION

29 CFR Section 1910.1450 – Occupational Exposure to Hazardous Chemicals in Laboratories

29 CFR Section 1910.133(g) – Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

ANSI Standard – 2358.1

71.4 – Emergency eye/face wash equipment shall be capable of delivering to the eyes and face not less than 11.4 liters/min. (3.0 gallons/min.) for 15 minutes.

Commissioner of Education Regulation:

Eye Safety Devices – Requires every school to provide eye safety equipment in any room that presents a potential eye hazard. It also requires that such devices be worn.

Ventilation Requirements:

New York State building codes along with the NFPA codes require independent ventilation systems with a minimum exchange of 6 times per hour for any area where toxic fumes are likely to occur. This is required ONLY of building built after 1984 and/or which are retrofitting the laboratory with new ventilation. If the building was built before 1984, there is no requirement at this time.

Training and Technical Assistance:

Contact the Chemical Hygiene Officer through the Science Department Chair.